Tom Oomen Curriculum Vitae

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Professional Experience

04/2021 - present	**Full professor**, starting date 1/4/2021 Eindhoven University of Technology, Eindhoven, The Netherlands.
05/2025 - present	**Guest full professor**, 0.2 FTE Delft University of Technology, Delft, The Netherlands.
05/2021 - 04/2025	**Full professor**, starting date 1/5/2021, 0.2 FTE Delft University of Technology, Delft, The Netherlands.
02/2018 - 03/2021	**Associate professor with *Ius Promovendi* and PI of research group** Eindhoven University of Technology, Eindhoven, The Netherlands.
2013 - present	**Trainer and shareholder** Mechatronics Academy bv, post-academic teaching.
2013 - present	**Owner** Oomen in Control, provides high-tech industrial consulting and teaching.
2014 - 01/2018	**Assistant professor (tenured)** Eindhoven University of Technology, Eindhoven, The Netherlands.
2012 - 2014	**Assistant professor (tenure track)** Eindhoven University of Technology, Eindhoven, The Netherlands.
2010 - 2012	**Postdoctoral researcher** Eindhoven University of Technology, Eindhoven, The Netherlands.
2011 - 2012	**Visiting research academic** The University of Newcastle, Newcastle, Australia. *Hosted by:* prof. Brett Ninness and dr. Adrian Wills.
2010	**Visiting researcher** KTH - Royal Institute of Technology, Stockholm, Sweden. *Hosted by:* prof. Håkan Hjalmarsson and dr. Cristian R. Rojas.
2005 - 2010	**Ph.D. candidate** Eindhoven University of Technology, Department of Mechanical Engineering, Eindhoven, The Netherlands. Sponsored by Philips Applied Technologies. *Thesis:* "System Identification for Robust and Inferential Control with Applications to ILC and Precision Motion Systems". *Advisors:* prof. ir. Okko Bosgra and prof. dr. ir. Maarten Steinbuch. *Defense date:* April 19, 2010.
2004 - 2005	**Industrial MSc thesis project research** Philips Applied Technologies, Eindhoven, The Netherlands. *Thesis:* "Optimal Digital Control of High-Precision Electromechanical Servo Systems: Concepts and Applications'. *Advisor:* prof. ir. Okko Bosgra.

2003 - 2004 **Industrial internship**
Philips Optical Storage, Eindhoven, The Netherlands.

Education

2013 - 2014 **BKO (University Teaching Qualification).**
Eindhoven University of Technology, Eindhoven, The Netherlands (certificate).

2005 - 2007 **Dutch Institute of Systems and Control (DISC) course program**
Successful completion of interuniversity graduate school course program (certificate).
Graded courses: Mathematical Models of Systems, Model Predictive Control, System Identification for Control, Design Methods for Control Systems, System and Control Theory of Nonlinear Systems.
Participated courses: Model Reduction, Control and System Theory of Stochastic Systems, Linear Matrix Inequalities in Control, Summer School on Identification and Control of Linear Parameter-Varying Systems

1999 - 2005 **M.Sc. degree (*cum laude*) in Mechanical Engineering**
Eindhoven University of Technology, Eindhoven, The Netherlands.
Specialization in Systems and Control.

1993 - 1999 **Preuniversity secondary education (VWO, Atheneum)**
Mill-Hill College, Goirle, The Netherlands.
Subjects: Dutch, English, Mathematics B, Physics, Chemistry, Biology, Economics.

Additional Courses

2018-2019 **Academic Leadership for Associate Professors**
GITP Training & Opleiding, 5 day course, The Netherlands (certificate).

2014 **Academic Leadership for Assistant Professors**
Eva Wiltingh BV - Center for Academic Leadership, 5 day course, The Netherlands (certificate).

2014 **Stem Training**
Eindhoven University of Technology, Eindhoven, The Netherlands (certificate).

2014 **Theatervaardigheden in het onderwijs: Master Class**
Eindhoven University of Technology, Eindhoven, The Netherlands (certificate).

2013 **Using Technology in Teaching**
Eindhoven University of Technology, Eindhoven, The Netherlands (certificate).

2013 **Activating Teaching Methods**
Eindhoven University of Technology, Eindhoven, The Netherlands (certificate).

2013 **Teaching and Learning in Higher Education**
Eindhoven University of Technology, Eindhoven, The Netherlands (certificate).

2011 **EECI-HYCON Course on LMI, optimization and polynomial methods**
SUPELEC, France (certificate).

2007 **Supervising M.Sc. students**
Eindhoven University of Technology, Eindhoven, The Netherlands (certificate).

2005 **Writing articles and abstracts in English**
Center for Communication, Language & Technology, Eindhoven University of Technology, Eindhoven, The Netherlands (certificate).

Honors and Awards (Including Student Awards)

2025	DISC best thesis award for Leontine Aarnoudse (supervisor).
2024	Best Student Paper Award of the IEEE Technical Committee on System Identification and Adaptive Control (TC-SIAC), awarded to Leontine Aarnoudse (supervisor and co-author of paper).
2024	Best Student Presentation Award at the Benelux Meeting, awarded to Max van Meer (supervisor role).
2022	Best Paper Award at MECC 2022, awarded to authors Leontine Aarnoudse and Tom Oomen.
2022	Best Student Paper Award at IFAC ALCOS, awarded to Johan Kon (supervisor and co-author of paper).
2021	7th Grand Nagamori Award (certificate and 5 million Yen), awarded by Shigenobu Nagamori and the Nagamori foundation.
2021	Finalist for the best conference paper award for the paper "Kernel-Based Learning Control for Iteration-Varying Tasks Applied to a Printer with Friction" by Maurice Poot, Jim Portegies, and Tom Oomen, at the IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Delft, The Netherlands, 2021.
2020	Best paper recognition award for the paper "Suppressing position-dependent disturbances in repetitive control: with application to a substrate carrier system" by Noud Mooren, Gert Witvoet, Ibrahim Acan, Joep Kooijman, and Tom Oomen, at the IEEE 16th International Workshop on Advanced Motion Control (AMC2020), Agder, Norway.
2019	IFAC 2019 Young Researcher Award, awarded by TC 4.2 Mechatronics, awarded every three years to a researcher under the age of 40.
2019	IEEJ Journal of Industry Applications best paper award for the paper "Advanced motion control for precision mechatronics: Control, identification, and learning of complex systems" by Tom Oomen, IEEJ Transactions on Industry Applications, 7(2):127–140, 2018
2018	IEEJ Industry Applications Society Excellent Presentation Award, awarded to Nard Strijbosch (supervisor and co-author of paper).
2018	IEEJ Industry Applications Society Excellent Presentation Award, awarded to Jurgen van Zundert (supervisor and co-author of paper).
2018	Outstanding Service as Associate Editor of the IEEE Control Systems Letters (recognition only awarded to one out of 50 AEs for the year 2017).
2017	Elected as Senior Member of the Institute of Electrical and Electronics Engineers (IEEE)
2017	Personal research grant: Innovational Research Incentives Scheme VIDI grant "From Data to Complex Controlled Machines" (no. 15698) awarded by NWO (The Netherlands Organisation for Scientific Research) and STW (Dutch Science Foundation) (800 k€).
2017	Recipient of the Mechatronics Paper Prize Award over the years 2014-2016 for the paper "Joint input shaping and feedforward for point-to-point motion: Automated tuning for an industrial nanopositioning system", by Frank Boeren, Dennis Bruijnen, Niels van Dijk and Tom Oomen, Mechatronics, Vol. 24 (2014), pp. 572-581.
2016	Top 25 of New Scientist 'Wetenschapstalent' (of young researchers ($\geq$1980) working in the Netherlands and Flanders).

2016	Best Poster Paper Award at IFAC Mechatronics, awarded to Lennart Blanken (supervisor and co-author of paper).
2016	Best Student Paper Award at IFAC Mechatronics, awarded to Jurgen van Zundert (supervisor and co-author of paper).
2015	Recipient of the 2015 IEEE Transactions on Control Systems Technology Outstanding Paper Award for the paper "Connecting system identification and robust control for next-generation motion control of a wafer stage", by Tom Oomen, Robbert van Herpen, Sander Quist, Marc van de Wal, Okko Bosgra, and Maarten Steinbuch, IEEE Transactions on Control Systems Technology, 22(1): 102-118, 2014.
2017	DISC best thesis award for Frank Boeren (supervisor).
2015 - 2020	Nomination for best teacher of the Master programs for the faculty of Mechanical Engineering, 2015, 2018, 2019, 2020.
2014	Honourable mention at the 19th IFAC World Congress as one of five finalist papers for the IFAC Congress Young Author Prize for the paper "Subspace Predictive Repetitive Control with Reduced-Dimension Identification for Wind Turbine Individual Pitch Control".
2013	Personal research grant: Innovational Research Incentives Scheme VENI grant "Precision Motion: Beyond the Nanometer" (no. 13073) awarded by NWO (The Netherlands Organisation for Scientific Research) and STW (Dutch Science Foundation) (250 k€).
2008-2011	Best session presentation award on the 2008, 2009, 2010, 2011 American Control Conference.
2005	M.Sc. thesis awarded with predicate *cum laude*.
2005	M.Sc. thesis awarded with the Corus Young Talent Graduation Award on November 24, 2005 (certificate and 10 k€), which was granted by the Koninklijke Hollandsche Maatschappij der Wetenschappen and awarded by Peter Jongenburger (CTO Corus).

Research Grants

The following list of project proposals have been granted and are performed under my supervision (incomplete list, amount available on request).

2023	"Research Network on Learning in Machines: New Perspectives for Future Nanoscale Production", NWO/JSPS Seminar.
2021-2025	"IMOCO4.E", EU ECSEL project. Part consists of 2 Ph.D. positions.
2019-2023	"Control methodologies for uniform product quality by learning-based data management and control", 1 Ph.D. position.
2019-2023	"Fault detection and isolation for predictive maintenance in high-tech semiconductor equipment", 1 Ph.D. position.
2017-2024	"From Data to Complex Controlled Machines", VIDI grant mentioned under "Honors and Awards", above. 800 k€.
2017-2021	"IMech", EU ECSEL project. Part consists of 1 Ph.D. position.
2016-2020	"ATC", Advanced Thermal Control consortium, an industrial consortium for thermal control research. Part consists of 1 Ph.D. position.
2013-2016	"Precision Motion: Beyond the Nanometer", VENI grant mentioned under "Honors and Awards", above. 250 k€.
2016-2020	"Identification and Robust Control of LPV Systems in a 2D Framework". Awarded TU/e Impuls programme 2 (jointly with Océ/Canon).

2016-2020	co-applicant on CSER proposal "A New Approach for Investigating Photo-Electrochemical Interfaces: Density Functional Theory based State-Space Modeling & Simulations", awarded, performed at Differ, Ph.D. research of Kiran George.
2015-2019	"Repetitive Motion Control in Printing Systems".
2014-2019	"CPS" project (topic: sampled-data and multirate aspects in identification and control). Awarded by STW (Dutch Science Foundation). Part consists of 1 Ph.D. position.
2013-2017	"Model-Based Stage Control to Compensate Dynamics and Deformation". Awarded TU/e Impuls programme (jointly with ASML).
2012-2016	"Zero-settling Control for Beyond Rigid Body Systems". Awarded by Philips Innovation Services.
2011-2015	"Learning and Repetitive Control of Printing Systems". Awarded by Océ/Canon.
2008-2012	"Identification for Control of Complex Motion Systems". Awarded by ASML Research.

Academic Activities

Miscellaneous

2026 - ...	Member of the Scientific Committee of the Benelux Meeting on Systems and Control.
2022	Member of the TC4.2 Awards Committee.
2020 - 2022	Member of the Control Systems Technology Award Awards Sub-Committee.
2020	Member of the DISC Best Thesis Award of the Year 2019.
2018 - 2022	Member of the Eindhoven Young Academy of Engineering (EYAE).
2015 - 2018	Member of the Next-Gen Board of the High-Tech Systems Center (HTSC).
2012 - 2021	Member of the Educational Committee for the interdisciplinary Master on Systems and Control, Eindhoven University of Technology.
2006 - present	Senior Member of the IEEE (Student member since 2006, Member since 2010, Senior member since 2017).

Editorial services

2024 - present	Co-Editor-in-Chief IFAC Mechatronics. Responsibility of rapid-publication letters.
2023 - present	International Advisory Board, IEEJ Journal of Industry Applications.
2023 - present	Senior Editor on the IEEE Control Systems Letters (L-CSS) board, a new journal aiming at high quality papers (with strong interrelation with the IEEE CSS flagship conferences IEEE Conference on Decision and Control and American Control Conference).
2019- 2022	Journal guest editor of special issue of 8th IFAC Symposium on Mechatronic Systems for IFAC Mechatronics.
2018 - 2022	Associate Editor on the IEEE Transactions on Control Systems Technology board.
2017 - 2022	Associate Editor on the IEEE Control Systems Letters (L-CSS) board, a new journal aiming at high quality papers (with strong interrelation with the well-known IEEE Conference on Decision and Control). Duties include handling papers.
2016 - 2023	Associate Editor on the IFAC Mechatronics Editorial Board. Duties include handling papers.

2013 - 2017	Associate Editor on the IEEE Conference Editorial Board. Duties include handling papers for the Conference on Decision and Control, and the American Control Conference, which are the key annual conferences in my research field and indexed by ISI Web of Science.
2013 - 2014	Journal guest editor for and organizer (jointly with prof. David Trumper (Massachusetts Institute of Technology, USA) and dr. Marcel Heertjes (ASML Development and Engineering)) of special issue for IFAC Mechatronics entitled "Control of High-Precision Motion Systems", volume 24, issue 6, 2014.

Conference organisation committee (typical duties include handling papers as Associate Editor)

2029	Financial chair for the 2029 IFAC World Congress, Amsterdam, The Netherlands, 2029.
2027	Invitation Co-Chair for 2027 IEEE International Conference on Advanced Intelligent Mechatronics (AIM2025), Boulder, CO, USA, 2027.
2024	Invited session chair for the 21th IFAC Symposium on System Identification – Learning Models for Decision and Control, Lyon, France, 2025.
2025	International Program Committee Chair for the 2025 Modeling, Estimation and Control Conference (MECC2025), Pittsburgh, PA, USA, 2025.
2025	International Program Committee for the 13th IFAC Symposium on Nonlinear Control Systems (NOLCOS), Reykjavík, Iceland, 2025.
2025	International Program Committee for the 2025 Joint IFAC Symposium on Mechatronic Systems & Robotics, Paris, France, 2025.
2025	International Program Committee for the joint 6th IFAC Workshop on Linear Parameter Varying Systems (LPVS25) and 11th IFAC Symposium on Robust Control Design (ROCOND25), Porto, Portugal, 2025.
2024	International Program Committee for the 2024 Modeling, Estimation and Control Conference (MECC2024), Chicago, IL, USA, 2022.
2024	Co-organiser of the AI Triangle Workshop on Learning in Control & Robotics: Aachen, Eindhoven, Leuven collaboration, Aachen, Germany, 2024.
2024	IPC member for the 20th IFAC Symposium on System Identification – Learning Models for Decision and Control, Boston, MA, USA, July 17-19, 2024.
2024	Program Committee for the 2024 American Control Conference (ACC2024), Toronto, Canada, 2024.
2024	Program Committee and Associate Editor at Large (AEaL) for the 2024 Conference on Control Technology and Applications (CCTA), Newcastle, United Kingdom, August 2024.
2024	Co-chair responsible for Special Sessions for the IEEE 18th International Workshop on Advanced Motion Control (AMC2024), Kyoto, Japan, February-March 2024.
2023	International Program Committee for the 2023 Modeling, Estimation and Control Conference (MECC2023), 2023.
2023	Registration chair for the 2023 Conference on Control Technology and Applications (CCTA), Bridgetown, Barbados, August 2023.
2023	General chair for the First Research Network on Learning in Machines: New Perspectives for Future Nanoscale Production, Tokyo, Japan, July 2023.
2022	Program vice chair for the 2022 Conference on Decision and Control (CDC), Cancun, Mexico, December, 2022.
2022	International Program Committee Chair for the 2022 Modeling, Estimation and Control Conference (MECC2022), Jersey City, New Jersey, 2022.

2025 International Program Committee for the 12th IFAC Symposium on Nonlinear Control Systems (NOLCOS), Newcastle, Australia, 2022.

2022 IPC member for the 9th IFAC Symposium on Mechatronic Systems (Mechatronics 2022) and 16th International Conference on Motion and Vibration Control (MoViC 2022), 2022.

2022 IPC member for the 10th IFAC Symposium on Robust Control Design (ROCOND'22), 2022.

2022 IPC member for the 5th IFAC Workshop on Linear Parameter Varying Systems (LPVS22), Montreal, Canada, 2022.

2022 IPC member for the 14th IFAC Workshop on Adaptive and Learning Control Systems (ALCOS), Casablanca, Morocco, 2022

2022 Co-chair responsible for Special Sessions for the IEEE 17th International Workshop on Advanced Motion Control (AMC2022), Padova, Italy, February 2022.

2021 Track Program Committee (TPC) for the IEEE International Conference on Industrial Informatics (INDIN) 2021, Palma de Mallorca, Spain, July 21-23, 2021, technical track 'Robotics and Mechatronics in Industrial Applications'.

2021 IPC member for the 19th IFAC Symposium on System Identification – Learning Models for Decision and Control, Padova, Italy, July 14-16, 2021.

2021 Publicity Co-Chair for the IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Delft, The Netherlands, July 12-16, 2021.

2021 IPC member for the 4th IFAC Workshop on Linear Parameter Varying Systems, Milano, Italy, 2021.

2021 Program committee for the 2021 American Control Conference (ACC), New Orleans, LA, USA, May 26-28, 2021.

2021 Publicity Co-Chair for the IEEE IES International Conference on Mechatronics (ICM), Tokyo, Japan, March 7-9 2021.

2020 IPC member for the 4rd IEEE Conference on Control Technology and Application (CCTA), Montreal, Canada, August 24-26, 2020.

2020 Associate Editor for the IFAC World Congress, Berlin, Germany, July 12-17, 2020.

2020 Co-chair responsible for Special Sessions for the IEEE 16th International Workshop on Advanced Motion Control (AMC2020), Kristiansand, Norway, April 20-22, 2020.

2019 IPC member for the 13th IFAC Workshop on Adaptive and Learning Control Systems (ALCOS 2019), Winchester, United Kingdom, December 4-6, 2019.

2019 NOC member for the 3th IFAC Workshop on Linear Parameter Varying Systems, Eindhoven, The Netherlands, November 4-6, 2019.

2019 IPC member for the 8th IFAC Symposium on Mechatronic Systems, Vienna, Austria, September 4-6, 2019.

2019 IPC member for the 11th IFAC Symposium on Nonlinear Control Systems, Vienna, Austria, September 4-6, 2019.

2019 IPC member for the 12th IFAC Symposium on Advances in Control Education (ACE) 2019, Philadelphia, Pennsylvania, July 7-9, 2019.

2019 IPC member for the 3rd IEEE Conference on Control Technology and Application (CCTA), Hong Kong, August 19-21, 2019.

2018 IPC member for the 18th IFAC Symposium on System Identification (SYSID), Stockholm, Sweden, July 9-11, 2018.

2016 IPC member for the 7th IFAC Symposium on Mechatronic Systems, Loughborough, UK, September 5-8, 2016.

2016	IPC member for the 12th IFAC International Workshop on Adaptation and Learning in Control and Signal Processing, Eindhoven, The Netherlands, June 29 - July 1, 2016.

Technical committee (TC)

2022	Chair of the IEEE-IES TCMC subcommittee on High-Precision Motion Control.
2020 - present	Vice-chair of IFAC Technical Committee on Mechatronic Systems, TC4.2.
2018 - present	Member of the IEEE-IES Technical Committee on Motion Control (TCMC).
2016 - present	Member of IFAC Technical Committee on Adaptive and Learning Systems, TC1.2.
2016 - 2019	Vice-chair of IFAC Technical Committee on Mechatronic Systems, TC4.2.
2015 - present	Member of IFAC Technical Committee on Mechatronic Systems, TC4.2.
2015 - present	Member of IFAC Technical Committee on Modelling, Identification and Signal Processing, TC1.1.
2014 - present	Member of IEEE Technical Committee on System Identification and Adaptive Control, TC-SIAC.
2013 - present	Member of National R&D Workgroup Mechatronics.
2009 - present	Member of ERNSI (European Research Network System Identification), and yearly participant of invitation-only workshop.

Workshops at international conferences

2024	Iterative learning control — Algorithms, applications and future research directions Tutorial at the 2024 IEEE Conference on Decision and Control. Organiser and speaker, with prof. Kevin Moore (School of Mines, Colorado, US), prof. Eric Rogers (University of Southampton, UK), prof. Bing Chu (University of Southampton, UK), prof. Ying Tan (University of Melbourne, Australia).
2017	Iterative Learning Control and Repetitive Control: Theoretical Advances and Emerging Applications at the 2017 IFAC World Congress, Toulouse, France. Organiser and speaker, with dr. Bing Chu (University of Southampton, UK), dr. Christopher Freeman (University of Southampton, UK), Kira Barton (University of Michigan, USA), and Ying Tan (University of Melbourne, Australia).

Invited sessions at international conferences

2025	Invited session Cutting-edge technology in Precision Servo Systems for Next-Generation Mechatronics at the 2025 Joint IFAC Symposium on Mechatronic Systems & Robotics, Paris, France. With Shota Yabui, Masahiro Mae, Juan Padron, Sebastiaan van den Eijnden, and Ernst Csencsics.
2023	Open invited track Recent Advances in Iterative Learning and Repetitive Control at the 2023 IFAC World Congress, Yokohama, Japan. With dr. Kira Barton (University of Michigan, USA), dr. Bing Chu (University of Southampton, UK), and dr. Ying Tan (University of Melbourne, Australia), dr. Pavel Pakshin, R.E. Alekseev Nizhny Novgorod State.
2021	Special Session Smart Precision Motion Control in Mechatronic Systems at the IEEE International Conference on Mechatronics (ICM2023), Loughborough, UK. With prof. Kazuaki Ito, prof. Wataru Ohnishi.

2022 Invited session Mechatronics at the 61st IEEE Conference on Decision and Control (CDC). With prof. Gerardo Flores, prof. Micky Rakotondrabe, prof. Sofiane Khadraoui, prof. Marcel Heertjes, and prof. Mohammad Al Janaideh.

2022 Invited session Recent Advances in Iterative Learning and Repetitive Control at the 14th IFAC International Workshop on Adaptive and Learning Control Systems (ALCOS 2022). With prof. Bing Chu, prof. Kira Barton, and prof. Ying Tan.

2022 Invited session Mechatronics at the 2022 American Control Conference (ACC), Atlanta, Georgia, USA. With prof. Mohammad Al Janaideh, prof. Micky Rakotondrabe, prof. Marcel Heertjes, and prof. Mokrane Boudaoud.

2021 Invited session Control Methods for Mechatronic Systems at the 2021 American Control Conference (ACC), New Orleans, Louisiana, USA. With prof. Helon Vicente Hultmann Ayala, prof. Mohammad Al Janaideh and prof. Micky Rakotondrabe.

2021 Special Session Smart Precision Motion Control in Mechatronic Systems at the IEEE International Conference on Mechatronics (ICM2021), Tokyo, Japan. With prof. Kazuaki Ito, prof. Kenta Seki, prof. Wataru Ohnishi.

2020 Invited session Mechatronics at the 2020 Conference on Decision and Control (CDC), Jeju Island, Korea. With prof. Mohammad Al Janaideh and prof. Micky Rakotondrabe.

2020 Open invited track Modeling, Identification, Estimation and Control in micromechatronic systems at the 2020 IFAC World Congress, Berlin, Germany. With prof. Helon Vicente Hultmann Ayala, prof. Andrew John Fleming, prof. Micky Rakotondrabe.

2020 Open invited track Iterative Learning Control and Repetitive Control at the 2020 IFAC World Congress, Berlin, Germany. With dr. Kira Barton (University of Michigan, USA), dr. Bing Chu (University of Southampton, UK), and dr. Ying Tan (University of Melbourne, Australia).

2020 Smart Precision Motion Control in Mechatronic Systems at the 2020 AMC, Kristiansand, Norway. With prof. Kenta Seki, prof. Wataru Ohnishi, and prof. Kazuaki Ito.

2020 Recent Advances in Iterative Learning Control Large and Repetitive Learning Control: From Theory to Applications-I at the 2019 CDC, Nice, France. With dr. Gijo Sebastian (University of Melbourne, AU), prof. Ying Tan (University of Melbourne, AU), prof. Bing Chu (University of Southampton, UK), Christopher T. Freeman (University of Southampton, UK), Kira Barton (University of Michigan, USA).

2019 Precision mechatronics at the 2019 ACC, Philadelphia, PA. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2019 Smart Precision Motion Control in Mechatronic Systems at the IEEE 2019 International Conference on Mechatronics, Ilmenau, Germany. With prof. Kazuaki Ito (Gifu University, Japan), prof. Kenta Seki (Nagoya Institute of Technology, Japan), prof. Hiroshi Fujimoto (The University of Tokyo, Japan).

2018 Advanced Motion Control for Mechatronic Systems at the 44th Annual Conference of the IEEE Industrial Electronics Society, Washington D.C., USA. With prof. Kazuaki Ito (Gifu University, Japan), prof. Kenta Seki (Nagoya Institute of Technology, Japan, prof. Hiroshi Fujimoto (The University of Tokyo, Japan).

2018 Smart Precision Motion Control in Mechatronic Systems at the 2018 Workshop on Advanced Motion Control, Tokyo, Japan. With prof. Kazuaki Ito (Gifu University, Japan), prof. Kenta Seki (Nagoya Institute of Technology, Japan, prof. Hiroshi Fujimoto (The University of Tokyo, Japan).

2018 Iterative Learning Control at the 2018 ACC, Milwaukee, WI. With dr. Kira Barton (University of Michigan, USA), dr. Douglas A. Bristow (University of Missouri, USA), dr. Sandipan Mishra (Rensselaer Polytechnic Institute, USA), dr. Bing Chu (University of Southampton, UK).

2018 High precision mechatronics: modeling and identification at the 2018 ACC, Milwaukee, WI. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2018 High precision mechatronics: dynamics and control at the 2018 ACC, Milwaukee, WI. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2018 High precision mechatronics: tracking and feedforward at the 2018 ACC, Milwaukee, WI. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2017 Precision Mechatronics - Advanced Motion Control at the 2017 IFAC World Congress, Toulouse, France. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2017 Precision Mechatronics - Precision Control in Microscopy at the 2017 IFAC World Congress, Toulouse, France. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2017 Open invited session Iterative Learning Control and Repetitive Control: Theoretical Advances and Emerging Applications at the 2017 IFAC World Congress, Toulouse, France. With dr. Kira Barton (University of Michigan, USA), dr. Sandipan Mishra (Rensselaer Polytechnic Institute, USA), dr. Bing Chu (University of Southampton, UK), and dr. Christopher Freeman (University of Southampton, UK).

2017 Precision Mechatronics I - SPM and High-Speed Control at the 2017 ACC, Seattle, WA. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2017 Precision Mechatronics II - Precision Motion Control at the 2017 ACC, Seattle, WA. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2016 New Directions in Iterative Learning Control at the 2016 ACC, Boston, MA. With dr. David Hoelzle (University of Notre Dame, USA) and dr. Kira Barton (University of Michigan, USA).

2016 High Precision Systems: Modelling and Disturbance Compensation at the 2016 ACC, Boston, MA. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2016 High Precision Systems: Advances in Motion Control at the 2016 ACC, Boston, MA. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2015 Advances in Iterative Learning Control at the 2015 CDC, Osaka, Japan. With dr. Bing Chu (University of Southampton, UK), dr. Christopher Freeman (University of Southampton, UK), and Kira Barton (University of Michigan, USA).

2015 Precision Mechatronics - Motion Control at the 2015 ACC, Chicago, IL. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2015 Precision Mechatronics - High speed nanopositioning at the 2015 ACC, Chicago, IL. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2015 Precision Mechatronics - Control of AFMs at the 2015 ACC, Chicago, IL. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2015 Precision Mechatronics - Emerging Developments at the 2015 ACC, Chicago, IL. With dr. Andrew Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2015 Emerging Trends in Iterative Learning Control at the 2015 ACC, Chicago, IL. With dr. David Hoelzle (University of Notre Dame, USA) and dr. Kira Barton (University of Michigan, USA).

2015 Robust and Optimal Iterative Learning Control at the 2015 ACC, Chicago, IL. With dr. David Hoelzle (University of Notre Dame, USA) and dr. Kira Barton (University of Michigan, USA).

2014 Emerging Topics in Iterative Learning Control at the 2014 ACC, Portland, OR. With dr. David Hoelzle (University of Notre Dame, USA) and dr. Sandipan Mishra (Rensselaer Polytechnic Institute, USA).

2014 Precision Mechatronics I - High Speed Nanopositioning at the 2014 ACC, Portland, OR. With dr. Andrew J. Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2014 Precision Mechatronics II - Scanning Probe Microscopy at the 2014 ACC, Portland, OR. With dr. Andrew J. Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2014 Precision Mechatronics III - Motion Control at the 2014 ACC, Portland, OR. With dr. Andrew J. Fleming (University of Newcastle, Australia) and dr. Marcel Heertjes (ASML Development and Engineering).

2013 Emerging Applications of Iterative Learning Control at the 2013 ACC, Washington, DC. With dr. Kira Barton (University of Michigan, USA) and dr. Sandipan Mishra (Rensselaer Polytechnic Institute, USA).

2013 New Developments in Iterative Learning Control at the 2013 ACC, Washington, DC. With dr. Kira Barton (University of Michigan, USA) and dr. Sandipan Mishra (Rensselaer Polytechnic Institute, USA).

2013 Advances in High-Precision Motion Stages at the 2013 ACC, Washington, DC. With dr. Marcel Heertjes (ASML Development and Engineering).

Opponent services

2026	Opponent in the Ph.D. jury for Hoang Nguyen, Technische Universiteit Eindhoven, The Netherlands.
2026-02-13	Opponent in the Ph.D. jury for Vibhor Jain, Technische Universiteit Eindhoven, The Netherlands.
2025-10-29	Opponent in the Ph.D. jury for Amr Hezagy, Technische Universiteit Delft, The Netherlands.
2025-10-08	Opponent in the Ph.D. jury for Daniel Wertjanz, TU Vienna, Austria.
2025-09-15	Opponent in the Ph.D. jury for Maximilian Stölzle, Technische Universiteit Delft, The Netherlands.
2025-06-13	Opponent in the Ph.D. jury for Wouter Weekers, Technische Universiteit Eindhoven, The Netherlands.
2025-05-14	Opponent in the Ph.D. jury for Robbert van der Kruk, Technische Universiteit Eindhoven, The Netherlands.
2025-02-17	Opponent in the Ph.D. jury for Jin Chen. Rijksuniversiteit Groningen, The Netherlands
2025-02-10	Opponent in the Ph.D. proposal jury for Deokjin Lee, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, South Korea.
2025-01-22	Opponent in the Ph.D. jury for Ali Moradvandi, Technische Universiteit Delft, The Netherlands.
2025-01-09	Opponent in the Ph.D. jury for Taleb Bou Hamdan, Université de Poitiers, France.
2025-01-09	Opponent in the Ph.D. jury for Mojtaba Haghi, Technische Universiteit Eindhoven, The Netherlands.
2024-10-08	Opponent in the Ph.D. jury for Yorick Broens, Technische Universiteit Eindhoven, The Netherlands.
2024-06-18	Opponent in the Ph.D. jury for Chris van der Ploeg, Technische Universiteit Eindhoven, The Netherlands.
2024-05-03	Opponent in the Ph.D. jury for Philippe Schuchert, EPFL - Swiss Federal Technology Institute of Lausanne, Switzerland
2024-03-11	Opponent in the Ph.D. jury for Muhammad Almuzakki. Rijksuniversiteit Groningen, The Netherlands
2024-03-07	Opponent in the Ph.D. jury for Livia Brandetti, Technische Universiteit Delft, The Netherlands.
2024-02-22	Opponent in the Ph.D. jury for Lizan Kivits, Technische Universiteit Eindhoven, The Netherlands.
2023-11-10	Opponent in the Ph.D. jury for Hanul Jung, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, South Korea.
2023-09-20	Opponent in the Ph.D. jury for Nima Karbasizadeh Esfahani, Technische Universiteit Eindhoven, The Netherlands.
2022-02-14	Opponent in the Ph.D. proposal jury for Hanul Jung, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, South Korea.
2023-09-20	Opponent in the Ph.D. jury for Nima Karbasizadeh, Technische Universiteit Delft, The Netherlands.
2022-12-22	Opponent in the Ph.D. jury for Amr Mohammed Elshahawy Ibrahim, Technische Universiteit Eindhoven, The Netherlands.
2022-10-13	Opponent in the Ph.D. jury for Arnoud Delissen, Technische Universiteit Delft, The Netherlands.

2022-05-03	Opponent in the Ph.D. jury for Karthik Raghavan Ramaswamy, Technische Universiteit Eindhoven, The Netherlands.
2021-06-23	Opponent for Matias Müller, KTH, Stockholm, Sweden.
2021-02-23	Opponent in the Ph.D. jury for Yanin Kasemsinsup, Technische Universiteit Eindhoven, The Netherlands.
2020-01-27	Opponent in the Ph.D. jury for Jeffrey van Pinxteren, Technische Universiteit Eindhoven, The Netherlands.
2020-12-17	Opponent in the Ph.D. jury for Oktay Kocan, ONERA, Toulouse, France.
2020-04-30	Opponent in the Ph.D. jury for Ioannis Proimadis, Technische Universiteit Eindhoven, The Netherlands.
2020-01	Opponent in the Ph.D. jury for Johannes Hendriks, The University of Newcastle, Newcastle, Australia.
2019-12-05	Opponent in the Ph.D. jury for Dieter Verbeke, Vrije Universiteit Brussel, Brussels, Belgium.
2019-01-30	Opponent in the Ph.D. jury for Ylva Jung, Linköpings Universitet, Linköping, Sweden.
2018-01-24	Opponent in the Ph.D. jury for Hsueh-Ju Chen, University of Manchester, Manchester, UK.
2017-10-17	Opponent in the Ph.D. jury for Yijang Chen, University of Southampton, Southampton, UK.
2016-12-06	Opponent in the Ph.D. jury for Sachin Navalkar, Technische Universiteit Delft, The Netherlands.
2016-03-03	Opponent in the Ph.D. jury for Rick van der Maas, Technische Universiteit Eindhoven, The Netherlands.
2013-03-29	International opponent in the Ph.D. jury for Pieter Janssens, Katholieke Universiteit Leuven, Belgium.
2007 - present	Opponent in many M.Sc. thesis defenses, Eindhoven University of Technology.

Other

2014	Co-organiser of the DISC Summer School on Data-driven Modeling for Control, Zandvoort, The Netherlands, June 16-19, 2014.
2008 - present	Reviewer for various journals, including IEEE Transactions on Automatic Control, Automatica, International Journal of Control, IEEE Transactions on Control Systems Technology, Control Engineering Practice, and Asian Journal of Control.
2007 - present	Reviewer for various conferences, including Conference on Decision and Control, European Control Conference, American Control Conference, Symposium on System Identification, Symposium on Learning Control, and Symposium on Robust Control Design.
2006 - present	(Co-) chair on many conferences.

Teaching Experience

Ph.D. level

2019 - present	Lecturer for DISC Ph.D. course on Design Methods for Control Systems. Jointly with prof. Jan-Willem van Wingerden (TUD).
2018	Lecturer for DISC Ph.D. course on Design Methods for Control Systems. Jointly with prof. Maarten Steinbuch (TU/e) and dr. Gjerrit Meinsma (UT).
2014	Lecturer for DISC Ph.D. Summer School DISC Summer School on Data-driven Modeling for Control, June 16-19, 2014. Zandvoort, The Netherlands.
2012	Lecturer for Ph.D. course "Repetitive and Iterative Learning Control" *Subject:* Invited lecturer for one week course on repetitive and iterative learning control Aalborg University, Denmark. Invited by prof. Jakob Stoustrup.

M.Sc. level

2021 - present	Invited teacher "Learning for Precision Motion Control" The University of Tokyo, Tokyo, Japan.
2019 - Present	Responsible Teacher and Lecturer M.Sc. course "Learning Control' (5 ECTS) Development and teaching of a new Challenge-Based Learning Course Eindhoven University of Technology.
2016 - Present	Responsible Teacher and Lecturer M.Sc. course "Advanced Motion Control" (5 ECTS) 2016 Course evaluation: 8.3/10 (overall), 8.7/10 (lecturer Oomen) Eindhoven University of Technology.
2015	Responsible Teacher and Lecturer for M.Sc. course "Advanced Motion Control" (3 ECTS) Eindhoven University of Technology.
2012-2015	Responsible Teacher and Lecturer for M.Sc. course "Capita Selecta in Control" (1.5 ECTS) Eindhoven University of Technology.
2011-2014	Lecturer for M.Sc. course "Advanced Motion Control" (3 ECTS) *Subject:* robust control and applications to motion systems Eindhoven University of Technology.
2006 - 2009	Teaching assistant for M.Sc. course "System Identification". Eindhoven University of Technology.
2006 - 2007	Teaching assistant for M.Sc. course "Robust Control". Eindhoven University of Technology.
2005 - 2007	Teaching assistant for M.Sc. course "System Theory for Control". Eindhoven University of Technology.

B.Sc. level

2022	Lecture for first year B.Sc. course "4GA00: Introduction Mechanical Engineering" Eindhoven University of Technology.

Post-academic/Industrial courses

2015 - present	Organiser of and lecturer for post-academic industrial course "Advanced Feedforward and Learning Control" 2015, 2018 (2x), 2019, 2022, 2024, 2025 Mechatronics Academy &The High Tech Institute, Eindhoven, The Netherlands.
2011 - present	Organiser of and lecturer for post-academic industrial course "Motion Control Tuning" 2011, 2012 (2x), 2013, 2014, 2015 (2x), 2016, 2018, 2019 (2x), 2021, 2022 (2x), 2023, 2024, 2025 Mechatronics Academy &The High Tech Institute, Eindhoven, The Netherlands.
2010 - present	Organiser of and lecturer for post-academic industrial course "Advanced Motion Control" 2010, 2012, 2013, 2014, 2016, 2017, 2018, 2019, 2022 (2x), 2023, 2024, 2025 Mechatronics Academy &The High Tech Institute, Eindhoven, The Netherlands.
2022	Organiser of and lecturer for post-academic industrial course "Motion Control, Dynamics & Learning" Mechatronics Academy, In-company training (international).
2020	Organiser of and lecturer for post-academic industrial course "Advanced High-Precision Control - Customized Training" Mechatronics Academy, In-company training (international).
2013 - 2014	Organiser of and lecturer for post-academic industrial course "Iterative Learning Control" 2013, 2014 Mechatronics Academy &The High Tech Institute, Eindhoven, The Netherlands.

Supervision

Visitors (nonexhaustive list, not all short visits are mentioned)

2025	six month visit of Kentaro Tsurumoto, University of Tokyo, Tokyo, Japan.
2025	six month visit of Taejune Kong, DGIST, South Korea.
2024	six month visit of Deokjin Lee, DGIST, South Korea.
2024	six month visit of prof. Lucy Pao, University of Colorado, Boulder, USA.
2023	one week visit of dr. Aurélio T. Salton, Universidade Federal do Rio Grande do Sul (UFRGS), Brazil.
2023	one year visit of Zhihe Zhuang MSc, Jiangnan University, China.
2023	three month visit of Edoardo Catenaro MSc, Politecnico di Milano, Milan, Italy.
2023	three month visit of prof. Jan Tommy Gravdahl, NTNU, Norway.
2023	three month visit of Kentaro Tsurumoto, University of Tokyo, Tokyo, Japan.
2022-2023	six month visit of prof. Leonid Mirkin, Technion, Israel.
2022-2023	three month visit of Hanul Jung, DGIST, South Korea.
2021	one year visit of Masahiro Mae MSc, University of Tokyo, Tokyo, Japan.
2020	one year visit of prof. Wataru Ohnishi, University of Tokyo, Tokyo, Japan.

2020	one month visit of dr. Mirko Mazzoleni, University of Bergamo, Italy.
2019	three month visit of Isaac Spiegel, University of Michigan, USA.
2016-present	long-term part-time visitor dr. John Lataire, Vrije Universiteit Brussel, Belgium.
2016	2 month visit of ir. Dieter Verbeke, Vrije Universiteit Brussel, Belgium.
2012	2 month visit of ir. Egon Geerardyn, Vrije Universiteit Brussel, Belgium.

Faculty associated with my research group

prof.dr.ir. Niek Doelman, part-time full professor, 2024-present.
dr.ir. Rodrigo González, tenure track professor, 2024-present.
dr.ir. Sebastiaan van den Eijnden, tenure track professor, 2023-present.
dr.ir. Koen Tiels, researcher/teacher, 2024-present.
dr.ir. Lennart Blanken, part-time assistant professor, 2021-present.
dr.ir. Koen Tiels, tenure-track assistant professor, 2020-2023.
dr.ir. Gert Witvoet, part-time assistant professor, 2019-present.

Postdoc

dr. Koen Classens, 2024.
dr. Paul Tacx, 2024.
dr. Rodrigo González, 2022-2024.
dr. Jean-Philippe Noël, 2019-2021.
dr. Robbert Voorhoeve, 2018-2019.

Ph.D.

Laura Barendsz.
Lotfi Chaouach.
Mathyn van Dael.
Rogier Dinkla.
- Enrico Dozzi.
Raphaël Goetz.
Timo de Groot.
Abdullah Habboush.
Maarten van der Hulst.
Tjeerd Ickenroth.
Lars van de Kamp.
Arturo Morales Bugueño.
Eke Suichies.
Max van Meer, defended 2025-09-09 at Eindhoven University of Technology, supported by IMOCO4.e.
Max van Haren, defended 2025-09-03 at Eindhoven University of Technology, supported by IMOCO4.e.
Johan Kon, defended 2025-06-18 at Eindhoven University of Technology, supported by ASML and Philips.
Koen Classens, defended 2024-10-04 at Eindhoven University of Technology, supported by ASML.
Paul Tacx, defended 2024-09-18 at Eindhoven University of Technology, supported by VIDI.
Maurice Poot, defended 2024-07-03 at Eindhoven University of Technology, supported by ASMPT.
Leontine Aarnoudse, defended 2024-06-19 at Eindhoven University of Technology, awarded with DISC best thesis award.
Nic Dirkx, defended 2023-10-06 at Eindhoven University of Technology, primary affiliation ASML.
Tom Bloemers, defended 2023-03-03 at Eindhoven University of Technology.

Noud Mooren, defended 2022-05-12 at Eindhoven University of Technology, supported by IMech (Ecsel grant).
Nard Strijbosch, defended 2022-03-19 at Eindhoven University of Technology, supported by VIDI.
Joey Reinders, defended 2022-02-02 at Eindhoven University of Technology.
Enzo Evers, defended 2021-01-07 at Eindhoven University of Technology, supported by ATC (Advanced Thermal Control Consortium).
Robin de Rozario, defended 2020-04-28 at Eindhoven University of Technology, supported by TU/e Impuls programme 2.
Lennart Blanken, defended 2019-05-21 at Eindhoven University of Technology, supported by Océ.
Jurgen van Zundert, defended 2018-11-28 at Eindhoven University of Technology, supported by STW CPS project.
Robbert Voorhoeve, defended 2018-10-30 at Eindhoven University of Technology, supported by TU/e Impuls programme.
Frank Boeren, defended 2016-10-03 at Eindhoven University of Technology, awarded with DISC best thesis award, supported by Philips Applied Technologies.
Egon Geerardyn, defended 2016-06-17 (private), 2016-08-26 (public), at Vrije Universiteit Brussel.
Joost Bolder, defended 2015-09-02 at Eindhoven University of Technology, supported by Océ.
Robbert van Herpen, defended 2014-01-27 at Eindhoven University of Technology, supported by ASML Research.

Eng.D.
Quinten van den Elsen, defense date 2025-10, at Eindhoven University of Technology, supported by ASMPT.

M.Sc.
M.Sc. thesis serving as graduation professor
Kees Matthijsen, main supervisor Sebastiaan van den Eijnden, 2025.
Salim Achaoui, main supervisor Koen Tiels, 2025.
Maxim Rongen, main supervisor Koen Tiels, 2025.
Martijn Weijermans, main supervisor Sebastiaan van den Eijnden, 2025.
Cedric van Ruler, main supervisor Marcel Heertjes, 2024.
Emre Deniz, main supervisor Gert Witvoet, 2023.
Max Katzmann, main supervisor Lennart Blanken, 2023.
Aron Prinsen, main supervisor Koen Tiels, 2022.
Joey Verdonschot, main supervisor Gert Witvoet, 2022.
Bas Büthker, main supervisor Duarte Antunes, 2019.
Bart Marsman, main supervisor Gert Witvoet, 2019.

M.Sc. thesis supervision

Remco Bertels, ongoing
Armando Cerullo, ongoing
Marjolein Daanen, 2025
Adis Husanovic, ongoing
Joël Hochstenbach, ongoing
Gijs van Meerbeeck, ongoing
Marijn van Noije, 2025
Teun Wijfjes, ongoing
Rik Dekker, 2024
Jasper van Diepen, 2024
Isabelle Franklin, 2024
Victor van Helden, 2024
Maarten van der Hulst, 2024
Tim van Meijel, 2024
Liang Oei, 2024
Noa van Rijt, 2024
Kjell van Schie, 2024
Rikuto Suzuki, 2025
Peter den Toom, 2024
Matthijs Turk, 2024
Peter Visser, 2024
Luuk van Vliet, 2024
Matthijs van de Vosse, 2024
Guido Wolfs, 2024
Jorrit Sprik, 2023
Javi Olucha Delgado, 2023
Kevin Cox, 2023.
Tjeerd Ickenroth, 2023.
Mike Mostard, 2023.
Paul Munns, 2023.
Stan de Rijk, 2023.
Chuck Steijlen, 2023.
Matthijs Teurlings, 2023.
Shaun Boyteen Joseph, 2022.
Roel Habraken, 2022.
Jilles van Hulst, 2022.
Sjoerd Leemrijse, 2022.
Naomi de Vos, 2022.
Marcel Bosselaar, 2021.
Mathyn van Dael, 2021.
Yves Elmensdorp, 2021.
Merijn Floren, 2021.
Max van Haren, 2021.
Lars van de Kamp, 2021.
Johan Kon, 2021.
Tom van de Laar, 2021.
Max van Meer, 2021.

Bas Scheepens, 2021.
Matthijs Schotman, 2021.
Thijs Sieswerda, 2021.
Raoul Surie, 2021.
Stan Verbeek, 2021.
Abdullah Alabsawi, 2020.
David Elshove, 2020.
Berend Gort, 2020.
Stijn Langedijk, 2020.
Gijs Linskens, 2020.
Corné van Haren, 2020.
George Maleas, 2020.
Jeroen Setz, 2020.
Rens Slenders, 2020.
Leontine Aarnoudse, 2019.
Mas Geeven, 2019.
Paul Tacx, 2019.
Gijs Siebers, 2019.
Ibrahim Acan, 2019.
Ramón de Fretes, 2019.
Maurice Poot, 2019.
Ruben Verkade, 2019.
Niels van Tuijl, 2019.
Patrick Bevers, 2018.
Roel Vromans, 2018.
Juliana Langen, 2018.
Frank Heck, 2018.
Joost Peters, 2018.
Bas Bolk, 2018.
Ids van de Meijdenberg, 2017.
Remy Pelzer, 2017.
Niek Wolma, 2017.
Fons Luijten, 2017.
Ton van Bommel, 2017.
Jacco Hubregtse, 2017.
Ersat Emek, 2017.
Noud Mooren, 2017.
Goksan Isil, 2017.
Anne Krus, 2017.
Jan Romme, 2017.
Enzo Evers, 2016.
Tim Hazelaars, 2016.
Lars Huijben, 2016.
S. Cagil Mayda, 2016.
Glenn Roumen, 2016.
Pepijn Smits, 2016.
Somanna Thapanda Suresh, 2016.
Jeroen Willems, 2016.

Robin de Rozario, 2015.
Annemiek van Rietschoten, 2015.
Teun Melief, 2015.
Harm van Deursen, 2015.
Cam-Hing Dai, 2015.
Stephan Kleinendorst, 2015.
Lennart Blanken, 2015.
Abhishek Bareja, 2014.
Juan Guo, 2014.
Jan Verhaegh, 2014.
Bart van der Velden, 2014.
Jurgen van Zundert, 2014.
Bart Moris, 2013.
Leon van Breugel, 2013.
Edward Kikken, 2013.
Frank Boeren, 2012. Recipient of the KIVI-NIRIA best graduation award in mechanical engineering.
Jarno van Wijk, 2012.
Rick van der Maas, 2011.
Joris Termaat, 2011.
Janno Lunenburg, 2010.
Erik Grassens, 2010.
Sander Verhoeven, 2010. Finalist for *KIVI regeltechniekprijs*.
Sander Quist, 2010.
Ferdinand Hendriks, 2009. Finalist for *KIVI regeltechniekprijs*.
Robbert van Herpen, 2009.
Duncan Denie, 2008.

M.Sc. Internships

Michael van Alphen, Traineeship performed at University of Waterloo, Canada, 2025.
Jochem van den Broek, Traineeship performed at NTNU, Trondheim, Norway, ongoing.
Mart de Bruijn, Traineeship performed at Universidad Técnica Federico Santa María, ongoing.
Armando Cerullo, Traineeship performed at Eindhoven University of Technology, 2025.
Hessel van Gemert, Traineeship performed at University of Adelaide, 2025.
Julie Hamoen, Traineeship performed at The University of Tokyo, ongoing.
Joël Hochstenbach, Traineeship performed at Canon Production Printing, 2025.
Adis Husanovic, Traineeship performed at University of Vienna, 2025.
Bas Klis, Traineeship performed at TNO, 2025.
Gijs van Meerbeeck, Traineeship performed at University of Michigan, USA, 2025.
Tim Pansters, Traineeship performed at Canon Production Printing, ongoing.
Luuk van Sundert, Traineeship performed at The University of Tokyo, ongoing.
Teun Wijfjes, Traineeship performed at The University of Tokyo, 2025.
Remco Bertels, Traineeship performed at University of Ohio, USA, 2024.
Stijn Hanegraag, Traineeship performed at ASML, 2024.
Thijs Romberg, Traineeship performed at Precitech, NH, USA, 2024.
Rikuto Suzuki, Traineeship performed at The University of Tokyo, 2024.
Eline Wisse, Traineeship performed at Fokker Aerostructures B.V., 2024.
Pieter van Wonderen, Traineeship performed at University of Pilsen, Pilsen, Czech Republic, 2024.

Jochem Baltussen, Traineeship performed at Laplace, Toulouse, France, 2023.
Lowe Blom, Traineeship performed at Universidad de Granada, 2023.
Stijn van den Broek, Traineeship performed at Técnico Lisboa, Portugal, 2023.
Marjolein Daanen, Traineeship performed at Universidad of Washington, 2023.
Rik Dekker, Traineeship performed at EPFL, Switserland, 2023.
Tjeerd Ickenroth, Traineeship performed at Politecnico di Milano, 2023.
Marijn van Noije, Traineeship performed at Universita degli studi di Brescia, 2023.
Liang Oei, Traineeship performed at The University of Tokyo, 2023.
Noa van Rijt, Traineeship performed at The University of Stavangar, Norway, 2023.
Kjell van Schie, Traineeship performed at University of Waterloo, Canada, 2023.
Jorrit Sprik, Traineeship performed at University of British Columbia, Canada, 2023.
Matthijs van de Vosse, Traineeship performed at University of Michigan, USA, 2023.
Guido Wolfs, Traineeship performed at University of Waterloo, Canada, 2023.
Jeroen Berghs, Traineeship performed at Demcon, 2022.
Kevin Cox, Traineeship performed at Canon Production Printing, 2022.
Coen Foolen, Traineeship performed at Lightyear, 2022.
Daan den Hartog, Traineeship performed at Sioux, 2022.
Javi Olucha Delgado, Traineeship performed at TU/e, 2022.
Matthijs Teurlings, Traineeship performed at ASMPT, 2022.
Luuk Verstegen, Traineeship performed at Canon Production Printing, 2022.
Yves Elmensdorp, Traineeship performed at Canon Production Printing, 2021.
Shaun Boyteen Joseph, Traineeship performed at TU/e, 2021.
Laurens Kools, Traineeship performed at MI Partners, 2021.
Sjoerd Leemrijse, Traineeship performed at TU/e, 2021.
Pijus Leonavicius, Traineeship performed at Industrio B.V., 2021.
Jeroen van Meurs, Traineeship performed at ASML, 2021.
Mike Mostard, Traineeship performed at TU/e, 2021.
Paul Munns, Traineeship performed at TU/e, 2021.
Stan de Rijk, Traineeship performed at Politecnico di Milano, 2021.
Chuck Steijlen, Traineeship performed at ASML, 2021.
Peter Visser, Traineeship performed at VDL-ETG, 2021.
Naomi de Vos, Traineeship performed at Philips, 2021.
Abdullah Alabsawi, Traineeship performed at TNO, 2020.
Marcel Bosselaar, Universidad Autónoma de Baja California, Mexico, 2020.
Mathyn van Dael, Traineeship performed at Nikhef, 2020.
Yves Elmensdorp, Traineeship performed at Canon Production Printing, 2020.
Max van Haren, Traineeship performed at Max Planck Institute for Intelligent Systems (MPI-IS) in Stuttgart, 2020.
Stijn Langedijk, Universidad Técnica Federico Santa María, 2020.
Matthijs Schotman, Traineeship performed at ASML, 2020.
Raoul Surie, Traineeship performed at University of Pilsen, Pilsen, Czech Republic, 2020.
Joey Verdonschot, Traineeship performed at TNO, 2020.
Nick van de Wetering, Traineeship performed at Centro Nacional de Pesquisa em Energia e Materiais, Brazil, 2020
Leontine Aarnoudse, Traineeship performed at University of Michigan, Ann Arbor, MI, USA, 2019.
Matthijs van den Burgh, Traineeship performed at University of Waterloo, Dept. of Mechanical & Mechatronics Engineering, 2019.
Berend Gort, Traineeship performed at Swiss Plasma Center, EPFL, Lausanne, Switzerland, 2019.

Gijs Linksens, Traineeship performed at University of Southampton, Southampton, UK, 2019.
Koen Scheres, Traineeship performed at Max Planck Institute, Stuttgart, Germany, 2019.
Ibrahim Acan, Traineeship performed at Sioux CCM, Nuenen, The Netherlands, 2018.
Corné van Haren, Traineeship performed at Vienna University of Technology, Automation and Control Institute, 2018.
Sven Meeusen, Traineeship performed at University of Pilsen, Pilsen, Czech Republic, 2018.
Bas Scheepens, Traineeship performed at University of Texas at Dallas, Locomotor Control Systems Lab, 2018.
Gijs Siebers, Traineeship performed at University of Waterloo, Dept. of Mechanical & Mechatronics Engineering, 2018.
Rens Slenders, Traineeship performed at University of Waterloo, Dept. of Mechanical & Mechatronics Engineering, 2018.
Paul Tacx, Traineeship performed at Thermo Fisher Scientific, Eindhoven, The Netherlands, 2018.
Niels van Tuijl, Traineeship performed at University of Waterloo, Dept. of Mechanical & Mechatronics Engineering, 2018.
Patrick Bevers, Traineeship performed at University of Waterloo, Dept. of Mechanical & Mechatronics Engineering, 2017.
Martin Cornelis, Traineeship performed at University of Waterloo, 2017.
Gijs van Erp, Traineeship performed at University of Michigan, Ann Arbor, MI, USA, 2017.
Goksan Isil, Traineeship performed at Eindhoven University of Technology, 2017.
Yunus Murat Kidil, Traineeship performed at 4pico, 2017.
Dave Kooijman, Traineeship performed at Dynamic Systems Lab, University of Toronto, 2017.
Juliana Langen, Traineeship performed at CCM - Sioux, 2017.
Noud Paes, Traineeship performed at University of Southampton, Southampton, UK, 2017.
Joost Peters, Traineeship performed at Rensselaer Polytechnic Institute, Troy, NY, USA, 2017.
Bernd van Tol, Traineeship performed at University of California, Berkeley, Dept. of Mechanical Engineering, 2017.
Sathya Narayanan Vijayakumar, Traineeship performed at ASM Centre of Competency, 2017.
Roel Vromans, Traineeship performed at Barton Research Group, University of Michigan, 2017.
Niek Wolma, Traineeship performed at Eindhoven University of Technology, 2017.
Amrith Vel Arul Kumar, Traineeship performed at TNO, 2016.
Ton van Bommel, Traineeship performed at University of Southampton, Southampton, UK, 2016.
Ersat Emek, Traineeship performed at TNO, 2016.
Jacco Hubregtse, Traineeship performed at University of California, Berkeley, CA, USA, 2016.
Robin Loose, Traineeship performed at University of Southampton, Southampton, UK, 2016.
Jan Luijten, Traineeship performed at University of Southampton, Southampton, UK, 2016.
Remy Pelzer, Internship Report, Traineeship performed at University of Michigan, Ann Arbor, MI, USA, 2016.
Jerrel Unkel, Traineeship performed at University of Southampton, Southampton, UK, 2016.
Jeroen Willems, Traineeship performed at University of Michigan, Ann Arbor, MI, USA, 2015.
Enzo Evers, Internship Report, Traineeship performed at ETEL, Switzerland, 2015.
Robin de Rozario, Internship Report, Traineeship performed at The University of Newcastle, Australia, 2014.
Bart Gysen, Internship Report, 2006.

Keynote Presentations and Invited Presentations

Keynote Presentations

2025	Speaker at the Science Track, 1st Autonomous Systems Conference, Drachten, The Netherlands, 2025.
2025	Benelux Meeting on Systems and Control Plenary Lecture, Egmond aan Zee, The Netherlands, 2025.
2024	Invited presentation at the 10th Nagamori award ceremony, Kyoto, Japan.
2024	UKACC Plenary Lecture, Winchester, United Kingdom, April 2024.
2023	ICCAS Plenary Lecture, Yeosu, South-Korea, October 2023.
2023	IEEJ Keynote, Tokyo, Japan, July 2023, available online (password: I-am-A-member-of-IEEJIAS)
2023	Nonlinear Benchmark Workshop, Eindhoven, The Netherlands, April 2023.
2023	Webinar by the Industrial Electronics Society, Online, January 2023.
2020	Frontier Lecture at the 2020 Workshop on Advanced Motion Control (AMC), Agder, Norway, September 14-16, 2020.
2020	Half-day tutorial lecture on the 2020 ASPE Spring Topical Meeting 2020.
2017	Keynote Plenary Lecture at Workshop on Multidimensional Systems (nDS), Zielona Gora, Poland, September 13-15, 2017 (full coverage of travel and registration cost).
2017	Keynote Plenary Lecture at IEEJ international workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON2017), Nagaoka, Japan, March 6-8, 2017 (full coverage of travel and registration cost).

Selected Invited Seminars

2024	Invited presentation at EPFL, Lausanne, Switzerland, invited by prof. Alireza Karimi.
2024	Invited presentation at Four decades of data-driven modeling in systems and control: achievements and prospects, Eindhoven, The Netherlands, invited by prof. Paul Van den Hof.
2023	Invited presentation at Seoul National University, Seoul, Korea, invited by prof. Dong-il (Dan) Cho.
2023	Invited presentation at DGIST, Daegu, Korea, invited by prof. Sehoon Oh.
2023	Invited presentation at Benchmark Workshop: Session 65 years Johan, Eindhoven, The Netherlands, invited by dr. Maarten Schoukens and dr. Koen Tiels.
2021	Itility seminar.
2021	ASMPT ETG Roadmap Seminar.
2019	European Research Network on System Identification Workshop, The Netherlands. Invitation-only workshop.
2019	Université de Liège, Liège, Belgium. invited by dr. Jean-Philippe Noël.
2017	The University of Tokyo, Japan, invited by prof. Hiroshi Fujimoto.
2016	Université Catholique de Louvain, Belgium, invited by prof. Jean-Charles Delvenne.
2016	System Architecture Study Group (SASG), Nijmegen, The Netherlands, invited by Roland Mathijssen (TNO).
2015	University of Michigan, Ann Arbor, MI, Invited by prof. Kira Barton.
2015	University of Manchester, Manchester, UK, Invited by prof. Alexander Lanzon.
2014	University of California, Berkeley, United States, Invited by prof. Shankar Sastry, and dr. Henrik Ohlsson.

2011 The University of Melbourne, Melbourne, Australia, Invited by prof. Michael Cantoni.

2011 The University of Newcastle, Newcastle, Australia, Invited by prof. Brett Ninness.

2010 KTH, Royal Institute of Technology, Stockholm, Sweden, Invited by prof. Håkan Hjalmarsson.

2009 University of Illinois at Urbana-Champaign, Urbana-Champaign, Illinois, United States, Invited by prof. Andrew G. Alleyne.

Other: Popular Press Coverage

2022 Research on digital twins and fault detection covered in IEEE Control Systems Magazine, 42(4):20-23, 2022.

2021 podcast Bits&Chips part 1 `https://www.listennotes.com/podcasts/bitschips/bitschips-tom-oomen-1-nl-mH1vJrX2wlo/`

2021 podcast Bits&Chips part 2 `https://www.listennotes.com/podcasts/bitschips/bitschips-tom-oomen-2-nl-kYK4-PZvtEd/#`

2020 Zelflerende algoritmes verbeteren de prestaties van de drukregelaar in beademingsapparatuur met een factor tien, Link Magazine, 4-8-2020.

2020 TU/e ontwikkelt 'zelf-lerend beademingsapparaat', Studio 040, 31-7-2020.

2020 TU/e gebruikt techniek uit chipmachines voor beademing coronapatiënt, Algemeen Dagblad, 31-7-2020.

2020 Research on piezo stepper control covered in IEEE Control Systems Magazine, 40(6):18-20, 2020.

2019 Binnen paar minuten optimale motioncontrolprestaties halen, Mechatronica & Machinebouw 8:22-26, 2019.

2018 Lerend regelen verbetert de prestaties van motionsystemen met een factor tien, Mechatronica & Machinebouw 1: 34-35, 2018.

2017 Research on learning control covered in IEEE Control Systems Magazine, 37(4):13-16, 2017.

2016 Television, interview Studio040.

2016 University newspaper, Cursor Eindhoven University of Technology

2016 Newspaper, Eindhovens Dagblad

2014 University newspaper, Cursor Eindhoven University of Technology

2006 Magazine, Bits & Chips

Patents

2022 Method and system of determining at least a first respiratory system parameter, patent application 2028456, Bram Hunnekens, Joey Reinders, Tom Oomen, and Nathan van de Wouw, 2022

Publications

According to the ISI Web of Knowledge Journal Citation Reports:

- Field "Automation and Control Systems" median impact factor: 2.1
- Field "Mechanical Engineering" median impact factor: 2.1.

The journals I have published in have impact factor

- IEEE Transactions on Industrial Electronics: 7.2
- Mechanical Systems Signal Processing: 8.9
- IEEE/ASME Transactions on Mechatronics: 7.3
- IEEE Transactions on Automatic Control: 7.0
- Automatica: 5.9
- IEEE Transactions on Control Systems Technology: 3.9
- International Journal of Robust and Nonlinear Control: 3.2
- IFAC Control Engineering Practice: 4.6
- IFAC Mechatronics: 3.1
- International Journal of Control: 1.6
- ASME Journal of Dynamic Systems, Measurement, and Control: 1.3

Several citation metrics include (on 2025-07)

- my h-index is 38 according to Google Scholar
- my h-index is 32 according to Scopus
- my h-index is 30 according to ISI Web of Knowledge
- my Erdös number is 3 according to AMS.

Journal Publications

See www.toomen.eu for working manuscripts and early-view publications.

[1] L. Aarnoudse and T. Oomen. Random learning leads to faster convergence in 'model-free' ilc: with application to mimo feedforward in industrial printing. *International Journal of Adaptive Control and Signal Processing*, 39:1521–1532, 2025.

[2] L. Aarnoudse, A. Pavlov, and T. Oomen. Nonlinear iterative learning control for discriminating between disturbances. *Automatica*, 171:111902, 2025.

[3] L. Aarnoudse, P. den Toom, and T. Oomen. Randomized iterative feedback tuning for fast MIMO feedback design of a mechatronic system. *Control Engineering Practice*, 154:106152, 2025.

[4] K. Classens, R. González, and T. Oomen. Recursive identification of structured systems: An instrumental-variable approach applied to mechanical systems. *European Journal of Control*, 84:101238, 2025.

[5] K. Classens, M. Schoukens, T. Oomen, and J.-P. Noël. Locating nonlinearities in mechanical systems: A frequency-domain dynamic network perspective. *Mechanical Systems and Signal Processing*, 224:112124, 2025.

[6] M. van Dael, J. Casanueva Diaz, G. Witvoet, B. Swinkels, D. Bersanetti, M. Pinto, P. Ruggi, M. Mantovani, C. de Rossi, P. Spinicelli, M. Boldrini, and T. Oomen. Control of the laser frequency in the Virgo interferometer: Dynamic noise budgeting for controller optimization. *Astroparticle Physics*, 164:103028, 2025.

[7] R. A. González, K. Classens, C. R. Rojas, J. S. Welsh, and T. Oomen. Identification of additive continuous-time systems in open and closed-loop. *Automatica*, 173:112013, 2025.

[8] M. van Haren, L. Blanken, and T. Oomen. Parameter-varying feedforward control: A kernel-based learning approach. *Mechatronics*, 109:103337, 2025.

[9] M. van Haren, L. Blanken, and T. Oomen. Performance analysis of multirate systems: A direct frequency-domain identification approach. *Mechanical Systems and Signal Processing*, 235:112843, 2025.

[10] M. van Haren, M. Mae, L. Blanken, and T. Oomen. Lifted frequency-domain identification of closed-loop multirate systems: Applied to dual-stage actuator hard disk drives. *Mechatronics*, 108:103311, 2025.

[11] M. van Haren, R. S. Smith, and T. Oomen. System identification beyond the Nyquist frequency: A kernel-regularized approach. *Control Engineering Practice*, 164:106425, 2025.

[12] M. van der Hulst, R. A. González, K. Classens, N. Dirkx, J. van de Wijdeven, and T. Oomen. Identification of additive multivariable continuous-time systems. *IEEE Control Systems Letters (L-CSS)*, 9:547–552, 2025.

[13] M. Mae, M. van Haren, K. Classens, W. Ohnishi, T. Oomen, and H. Fujimoto. Fixed-structure sampled-data feedforward control for multivariable motion systems. *Mechatronics*, 106:103228, 2025.

[14] R. Suzuki, T. Oomen, and R. A. González. Direct Bayesian identification of inverse linear systems. *IEEE Control Systems Letters (L-CSS)*, 9:1478–1483, 2025.

[15] P. Tacx and T. Oomen. Non-parametric system norm estimation of multivariable systems. *Control Engineering Practice*, 164:106421, 2025.

[16] P. Tacx, M. van de Vosse, R. Voorhoeve, G. Witvoet, M. Heertjes, and T. Oomen. Spatio-temporal modeling for overactuated motion control. *Mechatronics*, 105:103270, 2025.

[17] L. Aarnoudse, K. Cox, S. Koekebakker, and T. Oomen. Multirate repetitive control for an industrial print-belt system. *Mechatronics*, 100:103187, 2024.

[18] L. Aarnoudse, J. Kon, K. Classens, M. van Meer, M. Poot, P. Tacx, N. Strijbosch, and T. Oomen. Cross-coupled iterative learning control: A computationally efficient approach applied to an industrial flatbed printer. *Mechatronics*, 99:103170, 2024.

[19] L. Aarnoudse, J. Kon, W. Ohnishi, M. Poot, P. Tacx, N. Strijbosch, and T. Oomen. Control-relevant neural networks for feedforward control with preview: Applied to an industrial flatbed printer. *IFAC Journal of Systems and Control*, 27:100241, 2024.

[20] L. Aarnoudse, A. Pavlov, and T. Oomen. A design framework for nonlinear iterative learning control and repetitive control: Applied to three mechatronic case studies. *Control Engineering Practice*, 149:105976, 2024.

[21] Y. M. Al-Rawashdeh, M. Al Saaideh, M. F. Heertjes, T. Oomen, and M. Al Janaideh. Model-free control for an industrial long-stroke motion system with a nonlinear micropositioning actuator. *Mechatronics*, 104:103257, 2024.

[22] T. Bloemers, S. Leemrijse, V. Preda, F. Boquet, T. Oomen, and R. Tóth. Vibration control under frequency-varying disturbances with application to satellites. *IEEE Transactions on Control Systems Technology*, 32(6):1983–1994, 2024.

[23] M. van Dael, G. Witvoet, B. Swinkels, M. Pinto, J. Casanueva, D. Bersanetti, P. Ruggi, M. Mantovani, and T. Oomen. Online decoupling of the time-varying longitudinal feedback loops for improved performance in advanced Virgo plus. *Classical and Quantum Gravity*, 41:215008, 2024.

[24] S. van den Eijnden, T. L. Chaffey, T. Oomen, and M. Heemels. Scaled graphs for reset control system analysis. *European Journal of Control*, 80(A):101050, 2024.

[25] M. Floren, K. Classens, T. Oomen, and J.-P. Noël. Feedback linearisation of mechanical systems using data-driven models. *Journal of Sound and Vibration*, 577:118335, 2024.

[26] R. A. González, K. Classens, C. R. Rojas, J. S. Welsh, and T. Oomen. Statistical analysis of block coordinate descent algorithms for linear continuous-time system identification. *IEEE Control Systems Letters (L-CSS)*, 8:388–393, 2024.

[27] R. A. González, M. van Haren, T. Oomen, and C. R. Rojas. Sampling in parametric and nonparametric system identification: Aliasing, input conditions, and consistency. *IEEE Control Systems Letters (L-CSS)*, 8:2415–2420, 2024.

[28] R. A. González, K. Tiels, and T. Oomen. Kernel-based identification using Lebesgue-sampled data. *Automatica*, 164:111648, 2024.

[29] M. van Haren, K. Tsurumoto, M. Mae, L. Blanken, and T. Oomen. A frequency-domain approach for

enhanced performance and task flexibility in finite-time ILC. *European Journal of Control*, 80(A):101033, 2024.

[30] L. van de Kamp, B. Hunnekens, N. van de Wouw, and T. Oomen. Improving breathing effort estimation in mechanical ventilation via optimal experiment design. *IFAC Journal of Systems and Control*, 28:100270, 2024.

[31] L. van de Kamp, J. Reinders, B. Hunnekens, T. Oomen, and N. van de Wouw. Automatic patient-ventilator asynchrony detection framework using objective asynchrony definitions. *IFAC Journal of Systems and Control*, 27:100236, 2024.

[32] J. Kon, R. Tóth, J. van de Wijdeven, M. Heertjes, and T. Oomen. Guaranteeing stability in structured input-output models: With application to system identification. *IEEE Control Systems Letters (L-CSS)*, 8:1565–1570, 2024.

[33] N. Mooren, M. v. Meer, G. Witvoet, and T. Oomen. Compensating torque ripples in a coarse pointing mechanism for free-space optical communication: A gaussian process repetitive control approach. *Mechatronics*, 97:103107, 2024.

[34] T. Oomen and C. R. Rojas. Reset-free data-driven gain estimation: Power iteration using reversed-circulant matrices. *Automatica*, 161:111505, 2024.

[35] M. Poot, M. van Haren, D. Kostić, J. Portegies, and T. Oomen. Position-dependent motion feedforward via gaussian processes: Applied to snap and force ripple in semiconductor equipment. *IEEE Transactions on Control Systems Technology*, 32(6):1968–1982, 2024.

[36] I. Spiegel, N. Strijbosch, R. de Rozario, T. Oomen, and K. Barton. Stable inversion of piecewise affine systems with application tofeedforward and iterative learning control. *IEEE Transactions on Automatic Control*, 69(10):6836–6851, 2024.

[37] P. Tacx, R. Habraken, G. Witvoet, M. Heertjes, and T. Oomen. Identification of an overactuated deformable mirror system with unmeasured outputs. *Mechatronics*, 99:103158, 2024.

[38] K. Tsurumoto, W. Ohnishi, T. Koseki, M. van Haren, and T. Oomen. Integrated rational feedforward infrequency-domain iterative learning control forhighly task-flexible motion control. *IEEE/ASME Transactions on Mechatronics*, 29(4):3010–3018, 2024.

[39] K. Classens, J. van de Wijdeven, M. Heemels, and T. Oomen. Opportunities of digital twins for high-tech systems: From fault diagnosis and predictive maintenance to control reconfiguration. *Mikroniek*, 5:5–12, 2023.

[40] N. Dirkx, K. Tiels, and T. Oomen. A wavelet-based approach to FRF identification from incomplete data. *IEEE Transactions on Instrumentation and Measurement*, 71:1–15, 2023.

[41] M. van Haren, L. Mirkin, L. Blanken, and T. Oomen. Beyond Nyquist in frequency response function identification: Applied to slow-sampled systems. *IEEE Control Systems Letters (L-CSS)*, 7:2131–2136, 2023.

[42] L. Aarnoudse, N. Strijbosch, P. Tacx, E. Verschueren, and T. Oomen. Compensating commutation-angle domain disturbances with application to waveform optimization for piezo stepper actuators. *Mechatronics*, 94:103016, 2023.

[43] N. Mooren, G. Witvoet, and T. Oomen. On-line instrumental variable-based feedforward tuning for non-resetting motion tasks. *International Journal of Robust and Nonlinear Control*, 33(18):11000–11018, 2023.

[44] N. Mooren, G. Witvoet, and T. Oomen. Gaussian process repetitive control with application to an industrial substrate carrier system with spatial disturbances. *IEEE Transactions on Control Systems Technology*, 31(1):344–358, 2023.

[45] W. Ohnishi, N. Strijbosch, and T. Oomen. State-tracking iterative learning control in frequency domain design for improved intersample behavior. *International Journal of Robust and Nonlinear Control*, 33:4009–4027, 2023.

[46] H. K. Shirvani, J. Q. C. Zeng, P. Bevers, T. Oomen, and K. Erkorkmaz. Linear time-invariant model

identification algorithm for mechatronic systems based on MIMO frequency reponse data. *IEEE/ASME Transactions on Mechatronics*, 28(2):703–714, 2023.

[47] J. Reinders, D. Elshove, B. Hunnekens, N. van de Wouw, and T. Oomen. Triggered repetitive control: Application to mechanically ventilated patients. *IEEE Transactions on Control Systems Technology*, 31(4):1581–1593, 2023.

[48] J. Reinders, M. Giaccagli, B. Hunnekens, D. Astolfi, T. Oomen, and N. van de Wouw. Repetitive control for Lur'e-type systems: Application to mechanical ventilation. *IEEE Transactions on Control Systems Technology*, 31(4):1819–1829, 2023.

[49] R. de Rozario and T. Oomen. Frequency response function-based learning control: Analysis and design for finite-time convergence. *IEEE Transactions on Automatic Control*, 68(3):1807–1814, 2023.

[50] N. Strijbosch, K. Tiels, and T. Oomen. Memory-element based hysteresis: Identification and compensation of a piezoelectric actuator. *IEEE Transactions on Control Systems Technology*, 31(6):2683–2870, 2023.

[51] P. Tacx and T. Oomen. Comparing multivariable uncertain model structures for data-driven robust control: Visualization and application to a continuously variable transmission. *International Journal of Robust and Nonlinear Control*, 33(16):9636–9664, 2023.

[52] Z. Zhuang, H. Tao, Y. Chen, T. Oomen, W. Paszke, and E. Rogers. Optimal iterative learning control design for continuous-time systems with non-identical trial lengths using alternating projections between multiple sets. *Journal of the Franklin Institute*, 360(5):3825–3848, 2023.

[53] Z. Zhuang, H. Tao, Y. Chen, E. Rogers, T. Oomen, and W. Paszke. Alternation projection-based iterative learning control for discrete-time systems with non-uniform trial lengths. *International Journal of Robust and Nonlinear Control*, 33(12):7333–7356, 2023.

[54] T. Bloemers, T. Oomen, and R. Tóth. Frequency response data based LPV controller synthesis applied to a control moment gyroscope. *IEEE Transactions on Control Systems Technology*, 30(6):2734–2742, 2022.

[55] T. Bloemers, T. Oomen, and R. Tóth. Frequency response data-driven LPV controller synthesis for MIMO systems. *IEEE Control Systems Letters (L-CSS)*, 6:2264–2269, 2022.

[56] N. Dirkx, M. Bosselaar, and T. Oomen. A fast smoothing-based algorithm to generate ℓ_∞-norm constrained signals for multivariable experiment design. *IEEE Control Systems Letters (L-CSS)*, 6:1784–1789, 20222.

[57] E. Evers, B. de Jager, and T. Oomen. Incorporating prior knowledge in local parametric modeling for frequency response measurements: Applied to thermal/mechanical systems. *IEEE Transactions on Control Systems Technology*, 30(1):142–155, 2022.

[58] M. van Meer, V. Breschi, T. Oomen, and S. Formentin. Direct data-driven design of LPV controllers with soft performance specifications. *Journal of the Franklin Institute*, 359(2):816–836, 2022.

[59] N. Mooren, G. Witvoet, and T. Oomen. Gaussian process repetitive control: Beyond periodic internal models through kernels. *Automatica*, 140:110273, 2022.

[60] M. Poot, J. Portegies, N. Mooren, M. van Haren, M. van Meer, and T. Oomen. Gaussian processes for advanced motion control. *IEEJ Journal of Industry Applications*, 11(3):396–407, 2022.

[61] J. Reinders, B. Hunnekens, N. van de Wouw, and T. Oomen. Noninvasive breathing effort estimation of mechanically ventilated patients using sparse optimization. *IEEE Open Journal of Control Systems*, 1:57–68, 2022.

[62] M. Steinbuch, T. Oomen, and H. Vermeulen. Motion control, mechatronics design, and Moore's law. *IEEJ Journal of Industry Applications*, 11(2):245–255, 2022.

[63] N. Strijbosch and T. Oomen. Iterative learning control for intermittently sampled data: Monotonic convergence, design, and applications. *Automatica*, 139:110171, 2022.

[64] N. Strijbosch, K. Tiels, and T. Oomen. Hysteresis feedforward compensation: A direct tuning approach using hybrid-MEM-elements. *IEEE Control Systems Letters (L-CSS)*, 6:1070–1075, 2022.

[65] L. Aarnoudse and T. Oomen. Model-free learning for massive MIMO systems: Stochastic approximation adjoint iterative learning control. *IEEE Control Systems Letters (L-CSS)*, 5(6):1946–1951, 2021.

[66] E. Evers, R. Slenders, R. van Gils, B. de Jager, and T. Oomen. Thermoelectric modules in mechatronic systems: Temperature-dependent modeling and control. *Mechatronics*, 79:102647, 2021.

[67] W. Kemmetmüller, A. Kugi, T. Oomen, G. Schitter, and T.-C. Tsao. Introduction to the virtual special issue from the IFAC symposium on mechatronic systems 2019. *Mechatronics*, 80:102672, 2021.

[68] J. Reinders, B. Hunnekens, F. Heck, T. Oomen, and N. van de Wouw. Adaptive control for blower driven ventilation of patients with breathing efforts. *IEEE Transactions on Control Systems Technology*, 29(1):180–193, 2021.

[69] J. Reinders, B. Hunnekens, F. Heck, T. Oomen, and N. van de Wouw. Accurate pressure tracking to support mechanically ventilated patients using an estimated nonlinear hose model and delay compensation. *Control Engineering Practice*, 106:104660, 2021.

[70] R. de Rozario and T. Oomen. Multivariable nonparametric learning: A robust iterative inversion-based control approach. *International Journal of Robust and Nonlinear Control*, 31:541–564, 2021.

[71] R. de Rozario and T. Oomen. Frequency response function identification of periodically scheduled linear parameter-varying systems. *Mechanical Systems and Signal Processing*, 148:107156, 2021.

[72] I. Spiegel, N. Strijbosch, T. Oomen, and K. Barton. Iterative learning control with discrete-time nonlinear non-minimum phase models via stable inversion. *International Journal of Robust and Nonlinear Control*, 31(16):7985–8006, 2021.

[73] N. Strijbosch, N. Verschueren, K. Tiels, and T. Oomen. High precision sample positioning in electron microscopes - motion feedforward tuning for hysteretic piezo actuators. *Mikroniek*, 4:26–31, 2021.

[74] R. Voorhoeve and T. Oomen. Data-dependent orthogonal polynomials on generalized circles: A unified approach applied to δ-domain identification. *Automatica*, 131:109709, 2021.

[75] R. Voorhoeve, R. de Rozario, W. Aangenent, and T. Oomen. Identifying position-dependent mechanical systems: A modal approach with applications to wafer stage control. *IEEE Transactions on Control Systems Technology*, 29(1):194–206, 2021.

[76] L. Blanken, P. Bevers, S. Koekebakker, and T. Oomen. Sequential multiperiod repetitive control design with application to a roll-to-roll printer. *IEEE/ASME Transactions on Mechatronics*, 25(2):770–778, 2020.

[77] L. Blanken, S. Koekebakker, and T. Oomen. Multivariable repetitive control: Decentralized designs with application to continuous media flow printing. *IEEE/ASME Transactions on Mechatronics*, 25(1):294–304, 2020.

[78] L. Blanken, S. Koekebakker, and T. Oomen. Data-driven feedforward tuning using non-causal rational basis functions: With application to an industrial flatbed printer. *Mechatronics*, 71:102424, 2020.

[79] L. Blanken and T. Oomen. Kernel-based identification of non-causal systems with application to inverse model control. *Automatica*, 114:108830, 2020.

[80] L. Blanken and T. Oomen. Multivariable iterative learning control design procedures: From decentralized to centralized, illustrated on an industrial printer. *IEEE Transactions on Control Systems Technology*, 28(4):1534–1541, 2020.

[81] F. Boeren, A. Lanzon, and T. Oomen. Iterative identification and control using non-normalized coprime factors with application in wafer stage motion control. *IEEE Transactions on Control Systems Technology*, 28(2):413–424, 2020.

[82] N. Dirkx, J. van de Wijdeven, and T. Oomen. Frequency response function identification for multivariable motion control: Optimal experiment design with element-wise constraints. *Mechatronics*, 71:102440, 2020.

[83] E. Evers, N. Tuijl, R. Lamers, B. de Jager, and T. Oomen. Fast and accurate identification of thermal dynamics for precision motion control: Exploiting transient data and additional disturbance inputs. *Mechatronics*, 70:102401, 2020.

[84] U. Inyang-Udoh, Y. Guo, J. Peters, T. Oomen, and S. Mishra. Layer-to-layer predictive control of ink-jet 3D printing. *IEEE/ASME Transactions on Mechatronics*, 25(4):1783–1793, 2020.

[85] J. van Zundert, W. Ohnishi, H. Fujimoto, and T. Oomen. Improving intersample behavior in discrete-time system inversion: With application to LTI and LPTV systems. *IEEE/ASME Transactions on Mechatronics*, 25(1):55–65, 2020.

[86] J. van Zundert, T. Oomen, W. Aangenent, J. Verhaegh, D. Antunes, and M. Heemels. Beyond performance/cost tradeoffs in motion control: A multirate feedforward design with application to a dual-stage wafer system. *IEEE Transactions on Control Systems Technology*, 28(2):448–461, 2020.

[87] E. Evers, R. Lamers, and T. Oomen. Thermally induced deformations in electron microscopy: Challenges and opportunities for system identification. *Mikroniek*, 2:12–18, 2019.

[88] E. Evers, M. van de Wal, and T. Oomen. Beyond decentralized wafer/reticle stage motion control design: A double-Youla approach for enhancing synchronized motion. *Control Engineering Practice*, 83:21–32, 2019.

[89] R. de Rozario, A. Fleming, and T. Oomen. Finite-time learning control using frequency response data with application to a nanopositioning stage. *IEEE/ASME Transactions on Mechatronics*, 24(5):2085–2096, 2019.

[90] R. de Rozario and T. Oomen. Data-driven iterative inversion-based control: Achieving robustness through nonlinear learning. *Automatica*, 107:342–352, 2019.

[91] T. Vromen, C.-H. Dai, N. van de Wouw, T. Oomen, P. Astrid, A. Doris, and H. Nijmeijer. Mitigation of torsional vibrations in drilling systems: A robust control approach. *IEEE Transactions on Control Systems Technology*, 27(1):249–265, 2019.

[92] J. van Zundert, F. Luijten, and T. Oomen. Exact and causal inversion of nonminimum-phase systems: A squaring-down approach for overactuated systems. *IEEE/ASME Transactions on Mechatronics*, 24(6):2953–2963, 2019.

[93] J. van Zundert and T. Oomen. Beyond equidistant sampling for performance and cost: A loop-shaping approach applied to a motion system. *International Journal of Robust and Nonlinear Control*, 29(2):408–432, 2019.

[94] J. van Zundert and T. Oomen. Stable inversion of LPTV systems with application in position-dependent and non-equidistantly sampled systems. *International Journal of Control*, 92(5):1022–1032, 2019.

[95] M. Beijen, R. Voorhoeve, M. Heertjes, and T. Oomen. Experimental estimation of transmissibility matrices for industrial multi-axis vibration isolation systems. *Mechanical Systems and Signal Processing*, 107:469–483, 2018.

[96] F. Boeren, L. Blanken, D. Bruijnen, and T. Oomen. Optimal estimation of rational feedforward controllers: An instrumental variable approach and noncausal implementation on a wafer stage. *Asian Journal of Control*, 20(1):1–18, 2018.

[97] J. Bolder, S. Kleinendorst, and T. Oomen. Data-driven multivariable ILC: Enhanced performance by eliminating L and Q filters. *International Journal of Robust and Nonlinear Control*, 28(12):3728–3751, 2018.

[98] Y. Guo, J. Peters, T. Oomen, and S. Mishra. Control-oriented models for ink-jet 3D printing. *Mechatronics*, 56:211–219, 2018.

[99] T. Oomen. Advanced motion control for precision mechatronics: Control, identification, and learning of complex systems. *IEEJ Journal of Industry Applications*, 7(2):127–140, 2018.

[100] T. Oomen. Learning in machines. *Mikroniek*, 6:5–11, 2018.

[101] E. van Solingen, J. van Wingerden, and T. Oomen. Frequency-domain optimization of fixed-structure controllers. *International Journal of Robust and Nonlinear Control*, 28(12):3784–3805, 2018.

[102] R. Voorhoeve, A. van der Maas, and T. Oomen. Non-parametric identification of multivariable systems: A local rational modeling approach with application to a vibration isolation benchmark. *Mechanical Systems and Signal Processing*, 105:129–152, 2018.

[103] J. van Zundert and T. Oomen. On inversion-based approaches for feedforward and ILC. *Mechatronics*, 50:282–291, 2018.

[104] B. Altın, J. Willems, T. Oomen, and K. Barton. Iterative learning control of iteration varying systems via robust update laws with experimental implementation. *Control Engineering Practice*, 62:36–45, 2017.

[105] L. Blanken, F. Boeren, D. Bruijnen, and T. Oomen. Batch-to-batch rational feedforward control: from iterative learning to identification approaches, with application to a wafer stage. *IEEE/ASME Transactions on Mechatronics*, 22(2):826–837, 2017.

[106] F. Boeren, D. Bruijnen, and T. Oomen. Enhancing feedforward controller tuning via instrumental variables: With application to nanopositioning. *International Journal of Control*, 90(4):746–764, 2017.

[107] J. Bolder, J. van Zundert, S. Koekebakker, and T. Oomen. Enhancing flatbed printer accuracy and throughput: Optimal rational feedforward controller tuning via iterative learning control. *IEEE Transactions on Industrial Electronics*, 64(5):4207–4216, 2017.

[108] E. Geerardyn and T. Oomen. A local rational model approach for $\mathcal{H}_\infty$ norm estimation: With application to an active vibration isolation system. *Control Engineering Practice*, 68:63–70, 2017.

[109] R. van der Maas, A. van der Maas, R. Voorhoeve, and T. Oomen. Accurate FRF identification of LPV systems: nD-LPM with application to a medical X-ray system. *IEEE Transactions on Control Systems Technology*, 25(4):1724–1735, 2017.

[110] T. Oomen and C. R. Rojas. Sparse iterative learning control with application to a wafer stage: Achieving performance, resource efficiency, and task flexibility. *Mechatronics*, 47:134–137, 2017.

[111] J. Stoev, J. Ertveldt, T. Oomen, and J. Schoukens. Tensor methods for MIMO decoupling and control design using frequency response functions. *Mechatronics*, 45:71–81, 2017.

[112] F. Boeren, A. Bareja, T. Kok, and T. Oomen. Frequency-domain ILC approach for repeating and varying tasks: With application to semiconductor bonding equipment. *IEEE/ASME Transactions on Mechatronics*, 21(6):2716–2727, 2016.

[113] J. Bolder and T. Oomen. Inferential iterative learning control: A 2D-system approach. *Automatica*, 71:247–253, 2016.

[114] M. Heertjes, B. van der Velden, and T. Oomen. Constrained iterative feedback tuning for robust control of a wafer stage system. *IEEE Transactions on Control Systems Technology*, 24(1):56–66, 2016.

[115] R. van Herpen, O. Bosgra, and T. Oomen. Bi-orthonormal polynomial basis function framework with applications in system identification. *IEEE Transactions on Automatic Control*, 61(11):3285–3300, 2016.

[116] J. van Zundert, J. Bolder, S. Koekebakker, and T. Oomen. Resource-efficient ILC for LTI/LTV systems through LQ tracking and stable inversion: Enabling large tasks on a position-dependent industrial printer. *Mechatronics*, 38:76–90, 2016.

[117] J. van Zundert, J. Bolder, and T. Oomen. Optimality and flexibility in iterative learning control for varying tasks. *Automatica*, 67:295–302, 2016.

[118] T. Oomen, E. Grassens, and F. Hendriks. Inferential motion control: An identification and robust control framework for unmeasured performance variables. *IEEE Transactions on Control Systems Technology*, 23(4):1602–1610, 2015.

[119] F. Boeren, R. van Herpen, T. Oomen, M. van de Wal, and M. Steinbuch. Non-diagonal $\mathcal{H}_\infty$ weighting function design: Exploiting spatial-temporal deformations for precision motion control. *Control Engineering Practice*, 35:35–42, 2015.

[120] F. Boeren, T. Oomen, and M. Steinbuch. Iterative motion feedforward tuning: a data-driven approach based on instrumental variable identification. *Control Engineering Practice*, 37:11–19, 2015.

[121] J. Bolder and T. Oomen. Rational basis functions in iterative learning control - with experimental verification on a motion system. *IEEE Transactions on Control Systems Technology*, 23(2):722–729, 2015.

[122] F. Boeren, D. Bruijnen, N. van Dijk, and T. Oomen. Joint input shaping and feedforward for point-to-

point motion: Automated tuning for an industrial nanopositioning system. *Mechatronics*, 24(6):572–581, 2014.

[123] J. Bolder, T. Oomen, S. Koekebakker, and M. Steinbuch. Using iterative learning control with basis functions to compensate medium deformation in a wide-format inkjet printer. *Mechatronics*, 24(8):944–953, 2014.

[124] M. Heertjes, T. Oomen, and D. Trumper. Guest editorial introduction to the special issue on control of high-precision motion systems. *Mechatronics*, 24(6):547–548, 2014.

[125] R. van Herpen, T. Oomen, E. Kikken, M. van de Wal, W. Aangenent, and M. Steinbuch. Exploiting additional actuators and sensors for nano-positioning robust motion control. *Mechatronics*, 24(6):619–631, 2014.

[126] R. van Herpen, T. Oomen, and M. Steinbuch. Optimally conditioned instrumental variable approach for frequency-domain system identification. *Automatica*, 50(9):2281–2293, 2014.

[127] S. Navalkar, E. van Solingen, J. van Wingerden, T. Oomen, E. Pasterkamp, and G. van Kuik. Subspace predictive repetitive control to mitigate periodic loads on large scale wind turbines. *Mechatronics*, 24(8):916–925, 2014.

[128] T. Oomen. Controlling aliased dynamics in motion systems? An identification for sampled-data control approach. *International Journal of Control*, 87(7):1406–1422, 2014. Invited paper.

[129] T. Oomen, R. van Herpen, S. Quist, M. van de Wal, O. Bosgra, and M. Steinbuch. Connecting system identification and robust control for next-generation motion control of a wafer stage. *IEEE Transactions on Control Systems Technology*, 22(1):102–118, 2014.

[130] T. Oomen, R. van der Maas, C. R. Rojas, and H. Hjalmarsson. Iterative data-driven $\mathcal{H}_\infty$ norm estimation of multivariable systems with application to robust active vibration isolation. *IEEE Transactions on Control Systems Technology*, 22(6):2247–2260, 2014.

[131] T. Oomen and S. van der Meulen. High performance continuously variable transmission control through robust-control-relevant model validation. *Journal of Dynamic Systems, Measurements, and Control*, 135(6):061018, 2013.

[132] T. Oomen and O. Bosgra. System identification for achieving robust performance. *Automatica*, 48(9):1975–1987, 2012.

[133] D. Rijlaarsdam, T. Oomen, P. Nuij, J. Schoukens, and M. Steinbuch. Uniquely connecting frequency domain representations for given order polynomial Wiener-Hammerstein systems. *Automatica*, 48(9):2381–2384, 2012.

[134] C. R. Rojas, T. Oomen, H. Hjalmarsson, and B. Wahlberg. Analyzing iterations in identification with application to nonparametric $\mathcal{H}_\infty$-norm estimation. *Automatica*, 48(11):2776–2790, 2012.

[135] T. Oomen, J. van de Wijdeven, and O. Bosgra. System identification and low-order optimal control of intersample behavior in ILC. *IEEE Transactions on Automatic Control*, 56(11):2734–2739, 2011.

[136] T. Oomen, J. van de Wijdeven, and O. Bosgra. Suppressing intersample behavior in iterative learning control. *Automatica*, 45(4):981–988, 2009.

[137] T. Oomen, M. van de Wal, and O. Bosgra. Design framework for high-performance optimal sampled-data control with application to a wafer stage. *International Journal of Control*, 80(6):919–934, 2007.

National Journal Publications

[138] J. Bolder, F. Boeren, and T. Oomen. Intelligente regeltechniek voor nieuwe generatie mechatronica. *Aandrijftechniek*, 10:22–24, 2014.

Books and Book Chapters

[139] T. Oomen. *Learning in Control: Inaugural Lecture*. Eindhoven University of Technology, Eindhoven, The Netherlands, 2024.

[140] T. Oomen and M. Steinbuch. Model-based control for high-tech mechatronic systems. In M. Indri and R. Oboe, editors, *Mechatronics and Robotics: New Trends and Challenges*. Taylor & Francis, 2020.

[141] T. Oomen. Control for precision mechatronics. In J. Baillieul and T. Samad, editors, *Encyclopedia of Systems and Control*. Springer Nature, 2nd edition, 2020.

[142] L. Blanken, J. van Zundert, R. de Rozario, N. Strijbosch, and T. Oomen. Multivariable iterative learning control: Analysis and designs for engineering applications. In C. Novara and S. Formentin, editors, *Data-Driven Modeling, Filtering and Control*, pages 109–138. IET The Institution of Engineering and Technology, 2019.

[143] T. Oomen and M. Steinbuch. Identification for robust control of complex systems: Algorithm and motion application. In M. Lovera, editor, *Control-oriented modelling and identification: theory and applications*. IET, 2015. Invited book chapter.

[144] T. Oomen. *System Identification for Robust and Inferential Control with Applications to ILC and Precision Motion Systems*. PhD thesis, Eindhoven University of Technology, Eindhoven, The Netherlands, 2010.

[145] M. Steinbuch, J. van de Wijdeven, T. Oomen, K. van Berkel, and G. Leenknegt. Recovering data from cracked optical discs using Hankel iterative learning control. In P. M. J. Van den Hof, C. Scherer, and P. S. C. Heuberger, editors, *Model-Based Control: Bridging Rigorous Theory and Advanced Technology*, pages 147–166. Springer, New York, New York, United States, 2009.

Refereed Proceedings

[146] R. Goetz, N. van de Wouw, T. Oomen, M. van de Wal, B. Sharif, and H. Zwart. Optimal co-design of sensor placement and state observer for lithography application. In *Proceedings of the 9th Conference on Control Technology and Applications*, San Diego, California, United States, 2025.

[147] T. de Groot, T. Oomen, and S. van den Eijnden. Nonlinear loopshaping for robust active vibration isolation. In *10th IFAC Symposium on Mechatronic Systems*, Paris, France, 2025.

[148] M. van Haren, M. Mae, L. Blanken, and T. Oomen. Frequency-domain identification of closed-loop multirate systems: Applied to dual-stage actuator hard disk drives. In *10th IFAC Symposium on Mechatronic Systems*, Paris, France, 2025.

[149] M. van der Hulst, R. González, K. Classens, P. Tacx, N. Dirkx, J. van de Wijdeven, and T. Oomen. Frequency domain identification for multivariable motion control systems: Applied to a prototype wafer stage. In *10th IFAC Symposium on Mechatronic Systems*, Paris, France, 2025.

[150] M. Mae, M. van Haren, K. Classens, W. Ohnishi, T. Oomen, and H. Fujimoto. Fixed-structure sampled-data feedforward control for multivariable motion systems. In *10th IFAC Symposium on Mechatronic Systems*, Paris, France, 2025.

[151] M. van Meer, M. van Noije, K. Tiels, E. Evers, L. Blanken, G. Witvoet, and T. Oomen. Self-calibrating position measurements: Applied to imperfect hall sensors. In *2025 IFAC Symposium on Mechatronic Systems*, Paris, France, 2025.

[152] G. Sonzongi, R. González, K. Tiels, M. Mazzoleni, T. Oomen, and F. Previdi. Motion control tuning for time-delayed systems with integral action. In *10th IFAC Symposium on Mechatronic Systems*, Paris, France, 2025.

[153] R. A. González, M. van Haren, T. Oomen, and C. R. Rojas. Sampling in parametric and nonparametric system identification: Aliasing, input conditions, and consistency. In *Proceedings of the 2025 American Control Conference*, Denver, Colorado, United States, 2025.

[154] T. Ickenroth, M. van Haren, J. Kon, M. van Meer, J. van Hulst, and T. Oomen. Automatic basis function selection in iterative learning control: A sparsity-promoting approach applied to an industrial printer. In *Proceedings of the 2025 American Control Conference*, Denver, Colorado, United States, 2025.

[155] L. van de Kamp, I. Franklin, B. van Loon, T. Oomen, and N. van de Wouw. MIMO-decoupling to improve pressure and flow tracking in mechanical ventilation. In *Proceedings of the 2025 American Control Conference*, Denver, Colorado, United States, 2025.

[156] Z. Zhuang, M. van Meer, H.-f. Tao, T. Oomen, W. Paszke, T. Liu, and E. Rogers. Iterative learning control for closed-loop systems with actuatorsaturation using alternating projection. In *Proceedings of the 2025 IEEE 14th Data Driven Control and Learning Systems Conference*, Wuxi, China, 2025.

[157] R. Dinkla, T. Oomen, S. P. Mulders, and J.-W. van Wingerden. Data-enabled predictive repetitive control. In *Proceedings of the 63rd Conference on Decision and Control*, pages 6749–6754, Milan, Italy, 2024.

[158] K. Classens, T. Ickenroth, W. Heemels, and T. Oomen. Optimal fault detection for closed-loop linear uncertain systems. In *Proceedings of the 63rd Conference on Decision and Control*, pages 1326–1331, Milan, Italy, 2024.

[159] R. A. González, K. Classens, C. R. Rojas, J. S. Welsh, and T. Oomen. Statistical analysis of block coordinate descent algorithms for linear continuous-time system identification. In *Proceedings of the 63rd Conference on Decision and Control*, Milan, Italy, 2024.

[160] J. Kon, R. Tóth, J. van de Wijdeven, M. Heertjes, and T. Oomen. Guaranteeing stability in structured input-output models: With application to system identification. In *Proceedings of the 63rd Conference on Decision and Control*, pages 1565–1570, Milan, Italy, 2024.

[161] E. Rogers, B. Chu, K. Moore, T. Oomen, and Y. Tan. Iterative learning control — algorithms, applications and future research directions. In *Proceedings of the 63rd Conference on Decision and Control*, pages 2252–2268, Milan, Italy, 2024.

[162] M. van Meer, K. van Schie, G. Witvoet, and T. Oomen. Automated model-free commutation for coarse pointing actuators in free-space optical communication. In *Proceedings of the 2024 IEEE Conference on Advanced Intelligent Mechatronics (AIM)*, Boston, Massachusetts, United States, 2024.

[163] K. Tsurumoto, W. Ohnishi, T. Koseki, M. van Haren, and T. Oomen. Integrated rational feedforward in frequency-domain iterative learning control for highly task-flexible motion control. In *Proceedings of the 2024 IEEE Conference on Advanced Intelligent Mechatronics (AIM)*, Boston, Massachusetts, United States, 2024.

[164] E. Catenaro, L. Aarnoudse, S. Formentin, and T. Oomen. Efficient tuning for motion control in diverse systems: A Bayesian framework. In *20th IFAC Symposium on System Identification*, pages 354–359, Boston, Massachusetts, United States, 2024.

[165] T. Ickenroth, V. Breschi, T. Oomen, and S. Formentin. Iterative feedback tuning with automated reference model selection. In *20th IFAC Symposium on System Identification*, pages 211–216, Boston, Massachusetts, United States, 2024.

[166] M. van Dael, G. Witvoet, B. Swinkels, D. Bersanetti, M. Pinto, J. Casanueva, M. Mantovani, P. Spinicelli, C. de Rossi, and T. Oomen. Iterative interaction decoupling for multivariate time-varying systems applied to a gravitational wave detector. In *Proceedings of the European Control Conference*, pages 2447–2452, Stockholm, Sweden, 2023.

[167] S. van den Eijnden, T. L. Chaffey, T. Oomen, and M. Heemels. Scaled graphs for reset control systems. In *Proceedings of the European Control Conference*, pages 1466–1471, Stockholm, Sweden, 2024.

[168] M. van Haren, K. Tsurumoto, M. Mae, L. Blanken, W. Ohnishi, and T. Oomen. A frequency-domain approach for enhanced performance and task flexibility in finite-time ILC. In *Proceedings of the European Control Conference*, pages 1189–1194, Stockholm, Sweden, 2023.

[169] J. Kon, J. van de Wijdeven, D. Bruijnen, R. Tóth, M. Heertjes, and T. Oomen. Unconstrained parameterization of stable LPV input-output models: with application to system identification. In *Proceedings of the European Control Conference*, pages 2136–2141, Stockholm, Sweden, 2023.

[170] M. van Meer, G. Witvoet, and T. Oomen. Robust commutation design: Applied to switched reluctance motors. In *Proceedings of the European Control Conference*, pages 2441–2446, Stockholm, Sweden, 2024.

[171] K. Tsurumoto, W. Ohnishi, T. Koseki, M. van Haren, and T. Oomen. Combined time-domain optimization design for task-flexible and high performance ILC. In *Proceedings of the European Control Conference*, pages 1183–1188, Stockholm, Sweden, 2024.

[172] L. Aarnoudse and T. Oomen. Efficient MIMO iterative feedback tuning via randomization. In *Proceedings of the 62nd Conference on Decision and Control*, pages 4512–4517, Singapore, 2023.

[173] L. Aarnoudse, A. Pavlov, J. Kon, and T. Oomen. Nonlinear repetitive control for mitigating noise amplification. In *Proceedings of the 62nd Conference on Decision and Control*, pages 2891–2896, Singapore, 2023.

[174] L. M. Chaouach, T. Oomen, and D. Boskos. Comparing structured ambiguity sets for stochastic optimization: Application to uncertainty quantification. In *Proceedings of the 62nd Conference on Decision and Control*, pages 8268–8273, Singapore, 2023.

[175] M. van Haren, L. Mirkin, L. Blanken, and T. Oomen. Beyond Nyquist in frequency response function identification: Applied to slow-sampled systems. In *Proceedings of the 62nd Conference on Decision and Control*, pages 3494–3499, Singapore, 2023.

[176] J. Kon, J. van de Wijdeven, D. Bruijnen, R. Tóth, M. Heertjes, and T. Oomen. Direct learning for parameter-varying feedforward control: A neural-network approach. In *Proceedings of the 62nd Conference on Decision and Control*, pages 3720–3725, Singapore, 2023.

[177] M. van Meer, R. A. González, G. Witvoet, and T. Oomen. Nonlinear Bayesian identification for motor commutation: Applied to switched reluctance motors. In *Proceedings of the 62nd Conference on Decision and Control*, pages 5488–5493, Singapore, 2023.

[178] M. Poot, J. Portegies, D. Kostić, and T. Oomen. Rational basis functions in iterative learning control for multivariable systems. In *Proceedings of the 62nd Conference on Decision and Control*, pages 4644–4649, Singapore, 2023.

[179] R. Dinkla, T. Oomen, J.-W. van Wingerden, and S. Mulders. Data-driven LIDAR feedforward predictive wind turbine control. In *Proceedings of the 7th Conference on Control Technology and Applications*, pages 559–565, Bridgetown, Barbados, 2023.

[180] N. Dirkx, K. Tiels, and T. Oomen. Iterative robust experiment design for MIMO system identification via the S-lemma. In *Proceedings of the 7th Conference on Control Technology and Applications*, pages 998–1003, Bridgetown, Barbados, 2023.

[181] N. van Rijt, A. M. A. Faza, T. Oomen, and A. Eielsen. Learning control applied to a digital-to-analogue converter. In *Proceedings of the 7th Conference on Control Technology and Applications*, pages 91–96, Bridgetown, Barbados, 2023.

[182] H. Jung, P. Tacx, T. Oomen, and S. Oh. Novel disturbance observer relevant parametric system identification based on robust stability criterion. In *Proceedings of the 7th Conference on Control Technology and Applications*, pages 1010–1015, Bridgetown, Barbados, 2023.

[183] L. Aarnoudse, A. Pavlov, and T. Oomen. Nonlinear iterative learning control: A frequency-domain approach for fast convergence and high accuracy. In *IFAC 22nd Triennial World Congress*, pages 2039–2044, Yokohama, Japan, 2023.

[184] K. Classens, M. Heemels, and T. Oomen. Direct shaping of minimum and maximum singular values: An $\mathcal{H}_-/\mathcal{H}_\infty$ synthesis approach for fault detection filters. In *IFAC 22nd Triennial World Congress*, pages 12141–12146, Yokohama, Japan, 2023.

[185] M. van Dael, J. Casanueva Diaz, G. Witvoet, B. Swinkels, M. Pinto, D. Bersanetti, M. Mantovani, C. de Rossi, P. Spinicelli, and T. Oomen. Integrating H_2 synthesis and dynamic error budgetting for improved gravitational wave detection. In *IFAC 22nd Triennial World Congress*, pages 3767–3772, Yokohama, Japan, 2023.

[186] R. Dinkla, S. P. Mulders, J.-W. van WIngerden, and T. Oomen. Closed-loop aspects of data-enabled predictive control. In *IFAC 22nd Triennial World Congress*, pages 1467–1472, Yokohama, Japan, 2023.

[187] N. Dirkx, K. Tiels, and T. Oomen. A time-frequency local polynomial approach to FRM estimation from incomplete data. In *IFAC 22nd Triennial World Congress*, pages 4335–4340, Yokohama, Japan, 2023.

[188] A. Elton, R. A. González, J. Welsh, C. R. Rojas, and T. Oomen. Blind non-parametric estimation of SISO continuous-time systems. *IFAC 22nd Triennial World Congress*, pages 4624–4629, Yokohama, Japan 2023.

[189] R. A. González, K. Tiels, and T. Oomen. Identifying Lebesgue-sampled continuous-time impulse response models: A kernel-based approach. In *IFAC 22nd Triennial World Congress*, pages 4600–4605, Yokohama, Japan, 2023.

[190] M. van Haren, L. Blanken, and T. Oomen. A kernel-based identification approach to LPV feedforward: With application to motion systems. In *IFAC 22nd Triennial World Congress*, pages 6600–6605, Yokohama, Japan, 2023.

[191] L. van de Kamp, B. Hunnekens, N. van de Wouw, and T. Oomen. An estimation perspective on breathing effort disturbances in mechanical ventilation. In *IFAC 22nd Triennial World Congress*, pages 8885–8890, Yokohama, Japan, 2023.

[192] T. van Keulen, T. Oomen, and M. Heemels. Online feedforward parameter learning with robustness to set-point variations. In *IFAC 22nd Triennial World Congress*, pages 2069–2075, Yokohama, Japan, 2023.

[193] J. Kon, N. de Vos, D. Bruijnen, J. van de Wijdeven, M. Heertjes, and T. Oomen. Learning for precision motion of an interventional X-ray system: Add-on physics-guided neural network feedforward control. In *IFAC 22nd Triennial World Congress*, pages 8126–8131, Yokohama, Japan, 2022.

[194] M. van Meer, E. Deniz, G. Witvoet, and T. Oomen. Cascaded calibration of mechatronic systems via Bayesian inference. In *IFAC 22nd Triennial World Congress*, pages 3761–3766, Yokohama, Japan, 2023.

[195] M. Poot, J. van Hulst, K. W. Yan, D. Kostić, J. Portegies, and T. Oomen. Feedforward control in the presence of input nonlinearities: With application to a wirebonder. *IFAC 22nd Triennial World Congress*, pages 2045–2050, Yokohama, Japan 2023.

[196] P. Tacx, M. Teurlings, R. Habraken, G. Witvoet, M. Heertjes, and T. Oomen. Spatio-temporal analysis of overactuated motion systems: A mechanical modeling approach. In *IFAC 22nd Triennial World Congress*, pages 9378–9483, Yokohama, Japan, 2023.

[197] R. Dinkla, T. Oomen, J.-W. van Wingerden, and S. P. Mulders. Closed-loop direct data-driven wind turbine control: Using wind speed preview information. In *Wind Energy Science Conference 2023 (WESC 2023)*, Glasgow, United Kingdom, 2023.

[198] R. van der Kruk, A. J. van Noorden, T. Oomen, R. van de Molengraft, and H. Bruyninckx. Robotic control for vibration reduction of swinging products. In *IEEE International Conference on Mechatronics*, pages 1–8, Loughborough, United Kingdom, 2023.

[199] L. Aarnoudse, J. Kon, K. Classens, M. van Meer, M. Poot, P. Tacx, N. Strijbosch, and T. Oomen. Cross-coupled iterative learning control for complex systems: A monotonically convergent and computationally

efficient approach. In *Proceedings of the 61st Conference on Decision and Control*, pages 1485–1490, 2022.

[200] L. Chaouach, D. Boskos, and T. Oomen. Uncertain uncertainty in data-driven stochastic optimization: Towards structured ambiguity sets. In *Proceedings of the 61st Conference on Decision and Control*, pages 4776–4781, Cancun, Mexico, 2022.

[201] M. van Haren, L. Blanken, and T. Oomen. Frequency domain identification of multirate systems: A lifted local polynomial modeling approach. In *Proceedings of the 61st Conference on Decision and Control*, pages 2795–2800, Cancun, Mexico, 2022.

[202] J. Kon, D. Bruijnen, J. van de Wijdeven, M. Heertjes, and T. Oomen. Unifying model-based and neural network feedforward: Physics-guided neural networks with linear autoregressive dynamics. In *Proceedings of the 61st Conference on Decision and Control*, pages 2475–2480, 2022.

[203] J.-W. van Wingerden, S. Mulders, R. Dinkla, T. Oomen, and M. Verhaegen. Data-enabled predictive control with instrumental variables: The direct equivalence with subspace predictive control. In *Proceedings of the 61st Conference on Decision and Control*, pages 2111–2116, Cancun, Mexico, 2022.

[204] L. Aarnoudse and T. Oomen. Automated MIMO motion feedforward control: Efficient learning through data-driven gradients via adjoint experiments and stochastic approximation. In *2022 Modeling, Estimation and Control Conference (MECC)*, Jersey City, New Jersey, United States, 2022.

[205] K. Classens, M. Mostard, J. van de Wijdeven, M. Heemels, and T. Oomen. Online detection of shifting resonances: A mechatronic system application. In *2022 Modeling, Estimation and Control Conference (MECC)*, Jersey City, New Jersey, United States, 2022.

[206] M. van Dael, G. Witvoet, B. Swinkels, M. Pinto, J. Casanueva, D. Bersanetti, M. Mantovani, M. Vardaro, and T. Oomen. Design for interaction: Factorized Nyquist based control design applied to a gravitational wave detector. In *2022 Modeling, Estimation and Control Conference (MECC)*, pages 1–6, Jersey City, New Jersey, United States, 2022.

[207] N. Dirkx, K. Tiels, and T. Oomen. Frequency response function identification from incomplete data: A wavelet-based approach. In *2022 Modeling, Estimation and Control Conference (MECC)*, Jersey City, New Jersey, United States, 2022.

[208] J. van Hulst, M. Poot, D. Kostić, K. W. Yan, J. Portegies, and T. Oomen. Feedforward control in the presence of input nonlinearities: A learning-based approach. In *2022 Modeling, Estimation and Control Conference (MECC)*, Jersey City, New Jersey, United States, 2022.

[209] M. Mae, M. van Haren, W. Ohnishi, T. Oomen, and H. Fujimoto. Feedforward with acceleration and snap using sampled-data differentiator for a multi-modal motion system. In *2022 Modeling, Estimation and Control Conference (MECC)*, Jersey City, New Jersey, United States, 2022.

[210] M. van Meer, M. Poot, J. Portegies, and T. Oomen. Gaussian process based feedforward control for nonlinear systems with flexible tasks: With application to a printer with friction. In *2022 Modeling, Estimation and Control Conference (MECC)*, Jersey City, New Jersey, United States, 2022.

[211] M. van Meer, G. Witvoet, and T. Oomen. Optimal commutation for switched reluctance motors using Gaussian Process regression. In *2022 Modeling, Estimation and Control Conference (MECC)*, Jersey City, New Jersey, United States, 2022.

[212] P. Tacx and T. Oomen. A one-step approach for centralized overactuated motion control of a prototype reticle stage. In *2022 Modeling, Estimation and Control Conference (MECC)*, 2022.

[213] K. Tsurumoto, W. Ohnishi, T. Koseki, N. Strijbosch, and T. Oomen. Non-causal state estimation for improved state tracking in iterative learning control. In *2022 Modeling, Estimation and Control Conference (MECC)*, Jersey City, New Jersey, United States, 2022.

[214] J. Reinders, B. Hunnekens, T. Oomen, and N. van de Wouw. Adaptive control for compensation of nonlinear hose characteristics in mechanical ventilation. In 10^{th} *European Nonlinear Oscillations Conference (ENOC 2022)*, Lyon, France, 2022.

[215] K. Classens, S. Verbeek, W. Heemels, and T. Oomen. Joint estimation of additive and parametric faults:

A model-based fault diagnosis approach towards predictive maintenance. In 11th *IFAC Symposium on Fault Detection, Supervision, and Safety of Technical Processes (SAFEPROCESS 2022)*, Pafos, Cyprus, 2022.

[216] J. Kon, M. Heertjes, and T. Oomen. Neural network training using closed-loop data: Hazards and an instrumental variable (IVNN) solution. In 14th *IFAC Workshop on Adaptive & Learning Control Systems (ALCOS 2022)*, pages 183–188, Casablanca, Morocco, 2022.

[217] T. Bloemers, T. Oomen, and R. Tóth. Frequency response data-driven LPV controller synthesis for MIMO systems. In *Proceedings of the 2022 American Control Conference*, pages 5205–5210, Atlanta, Georgia, United States, 2022.

[218] N. Dirkx, M. Bosselaar, and T. Oomen. A fast smoothing-based algorithm to generate l-infinity-norm constrained signals for multivariable experiment design. In *Proceedings of the 2022 American Control Conference*, pages 4796–4801, Atlanta, Georgia, United States, 2022.

[219] M. van Haren, M. Poot, J. Portegies, and T. Oomen. Position-dependent snap feedforward: A gaussian process framework. In *Proceedings of the 2022 American Control Conference*, pages 4778–4783, Atlanta, Georgia, United States, 2022.

[220] J. Kon, D. Bruijnen, J. van de Wijdeven, M. Heertjes, and T. Oomen. Physics-guided neural networks for feedforward control: An orthogonal projection-based approach. In *Proceedings of the 2022 American Control Conference*, pages 4377–4382, Atlanta, Georgia, United States, 2022.

[221] P. Tacx and T. Oomen. Bode analysis of uncertain multivariable systems. In *Proceedings of the 2022 American Control Conference*, pages 5056–5061, Atlanta, Georgia, United States, 2022.

[222] K. Tsurumoto, W. Ohnishi, T. Koseki, N. Strijbosch, and T. Oomen. Improved state estimation by non-causal state observer. In *IEEJ International Workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON)*, pages 447–450, Saitama, Japan, 2022.

[223] M. van Dael, G. Witvoet, B. Swinkels, and T. Oomen. Systematic feedback control design for scattered light noise mitigation in Virgo's MultiSAS. In *International Workshop on Advanced Motion Control*, pages 300–305, Padova, Italy, 2022.

[224] N. Dirkx, M. Bosselaar, and T. Oomen. Peak amplitude-constrained experiment design for FRF identification. In *International Workshop on Advanced Motion Control*, pages 256–261, Padova, Italy, 2022.

[225] M. van Haren, M. Poot, D. Kostić, R. van Es, J. Portegies, and T. Oomen. Gaussian process position-dependent feedforward: with application to a wire bonder. pages 268–273, Padova, Italy, 2022.

[226] N. Mooren, G. Witvoet, and T. Oomen. A Gaussian Process approach to multiple internal models in repetitive control. In *International Workshop on Advanced Motion Control*, pages 274–279, Padova, Italy, 2022.

[227] L. Aarnoudse and T. Oomen. Conjugate gradient MIMO iterative learning control using data-driven stochastic gradients. In *Proceedings of the 60th Conference on Decision and Control*, pages 3749–3754, Austin, Texas, United States, 2021.

[228] J. Kon, N. Strijbosch, S. Koekebakker, and T. Oomen. Intermittent sampling in repetitive control: Exploiting time-varying measurements. In *Proceedings of the 60th Conference on Decision and Control*, pages 6566–6571, Austin, Texas, United States, 2021.

[229] N. Strijbosch, K. Tiels, and T. Oomen. Hysteresis feedforward compensation: A direct tuning approach using hybrid-MEM-elements. In *Proceedings of the 60th Conference on Decision and Control*, Austin, Texas, United States, 2021.

[230] J. Reinders, L. van de Kamp, B. Hunnekens, T. Oomen, and N. van de Wouw. Flipped halfwave: Improved modeling of spontaneous breathing effor. In $11^{mathrmth}$ *IFAC Symposium on Biological and Medical Systems*, 2021.

[231] J. Reinders, B. Hunnekens, T. Oomen, and N. van de Wouw. Linear repetitive control for a nonlinear mechanical ventilation system using feedback linearization. In *Proceedings of the 5th Conference on Control Technology and Applications*, pages 719–726, San Diego, California, United States, 2021.

[232] K. Classens, M. Heemels, and T. Oomen. Digital twins in mechatronics: From model-based control to predictive maintenance. In *2021 IEEE International Conference on Digital Twins and Parallel Intelligence*, pages 336–339, Beijing, China, 2021.

[233] J. Lataire, R. Pintelon, and T. Oomen. An LTV approach to identifying nonlinear systems - with application to an RRR-robot. In *19th IFAC Symposium on System Identification*, Padova, Italy, 2021.

[234] P. Tacx, R. de Rozario, and T. Oomen. Model order selection in robust-control-relevant system identification. In *19th IFAC Symposium on System Identification*, Padova, Italy, 2021.

[235] M. Poot, J. Portegies, and T. Oomen. Kernel-based learning control for iteration-varying tasks applied to a printer with friction. In *Proceedings of the IEEE Conference on Advanced Intelligent Mechatronics (AIM)*, Delft, The Netherlands, 2021.

[236] T. Sieswerda, A. J. Fleming, and T. Oomen. Model-free multi-variable learning control of a five axis nanopositioning stage. In *IEEE International Conference on Mechatronics*, Delft, The Netherlands, 2021.

[237] T. Bloemers, R. Tóth, and T. Oomen. Frequency-domain data-driven controller synthesis for unstable LPV systems. In *Proceedings of the 4th IFAC Symposium on Linear Parameter-Varying Systems*, Milan, Italy, 2021.

[238] V. Breschi, M. van Meer, T. Oomen, and S. Formentin. On data-driven design of LPV controllers with flexible reference models. In *Proceedings of the 4th IFAC Symposium on Linear Parameter-Varying Systems*, Milan, Italy, 2021.

[239] L. Aarnoudse and T. Oomen. Model-free learning for massive MIMO systems: Stochastic approximation adjoint iterative learning control. In *Proceedings of the 2021 American Control Conference*, New Orleans, Louisiana, United States, 2021.

[240] K. Classens, W. Heemels, and T. Oomen. Closed-loop aspects in MIMO fault diagnosis with application to precision mechatronics. In *Proceedings of the 2021 American Control Conference*, New Orleans, Louisiana, United States, 2021.

[241] N. Dirkx, N. Mooren, and T. Oomen. Suppressing non-collocated disturbances in inferential motion control: With application to a wafer stage. In *Proceedings of the 2021 American Control Conference*, New Orleans, Louisiana, United States, 2021.

[242] P. Tacx and T. Oomen. Accurate $\mathcal{H}_\infty$-norm estimation via finite-frequency norms of local parametric models. In *Proceedings of the 2021 American Control Conference*, New Orleans, Louisiana, United States, 2021.

[243] S. Verbeek, T. Oomen, and A. A. Eielsen. Glicht compensation for a digital-to-analogue converter. In *Proceedings of the 2021 American Control Conference*, New Orleans, Louisiana, United States, 2021.

[244] L. Aarnoudse, W. Ohnishi, M. Poot, P. Tacx, N. Strijbosch, and T. Oomen. Control-relevant neural networks for intelligent motion feedforward. In *IEEE International Conference on Mechatronics*, Tokyo, Japan, 2021.

[245] K. Classens, M. Heemels, and T. Oomen. A closed-loop perspective on fault detection for precision motion control: With application to an overactuated system. In *IEEE International Conference on Mechatronics*, Tokyo, Japan, 2021.

[246] N. Dirkx and T. Oomen. Suppressing spatially distributed disturbances by exploiting additional sensors and actuators in inferential motion control. In *IEEE International Conference on Mechatronics*, Tokyo, Japan, 2021.

[247] W. Ohnishi, N. Strijbosch, and T. Oomen. Multirate state tracking for improving intersample behavior in iterative learning control. In *IEEE International Conference on Mechatronics*, Tokyo, Japan, 2021.

[248] N. Strijbosch and T. Oomen. Hybrid-MEM-element feedforward: With application to hysteretic piezoelectric actuators. In *Proceedings of the 59th Conference on Decision and Control*, pages 934–939, Jeju Island, Korea, 2020.

[249] I. A. Spiegel, T. van de Laar, T. Oomen, and K. Barton. A control-oriented dynamical model of

deposited droplet volume in electrohydrodynamic jet printing. In *ASME 2020 Dynamic Systems and Control*, Pittsburgh, Pennsylvania, 2020.

[250] M. Floren, T. Oomen, and J. Noël. A data-driven model predictive control approach toward feedback linearization of nonlinear mechanical systems. In *29th International Conference on Noise and Vibration Engineering (ISMA 2020) and 8th International Conference on Uncertainty in Structural Dynamics (USD 2020)*, Leuven, Belgium, 2020.

[251] L. Aarnoudse, N. Strijbosch, E. Verschueren, and T. Oomen. Commutation-angle iterative learning control for intermittent data: Enhancing piezo-stepper actuator waveforms. In *IFAC 21st Triennial World Congress*, pages 8706–8711, Berlin, Germany, 2020.

[252] N. Dirkx and T. Oomen. Multivariable experiment design with application to a wafer stage: a sequential relaxation approach for dealing with element-wise constraints. In *IFAC 21st Triennial World Congress*, pages 8686–8691, Berlin, Germany, 2020.

[253] E. Evers, R. Slenders, R. van Gils, and T. Oomen. Temperature dependent modelling of thermoelectric elements. In *IFAC 21st Triennial World Congress*, pages 8746–8751, Berlin, Germany, 2020.

[254] T. van Keulen, R. van der Weijst, and T. Oomen. Fast extremum seeking using multisine dither and online complex curve fitting. In *IFAC 21st Triennial World Congress*, pages 5436–5441, 2020.

[255] N. Mooren, G. Witvoet, and T. Oomen. Gaussian process repetitive control for suppressing spatial disturbances. In *IFAC 21st Triennial World Congress*, pages 1513–1518, Berlin, Germany, 2020.

[256] J.-P. Noël, J. Dietrich, and T. Oomen. Locating nonlinearities in mechanical systems: A dynamic network approach. In *IFAC 21st Triennial World Congress*, Berlin, Germany, 2020.

[257] M. Poot, J. Portegies, and T. Oomen. On the role of models in learning control: Actor-critic iterative learning control. In *IFAC 21st Triennial World Congress*, pages 1476–1481, Berlin, Germany, 2020.

[258] J. Reinders, R. Verkade, B. Hunnekens, N. van de Wouw, and T. Oomen. Improving mechanical ventilation for patient care through repetitive control. In *IFAC 21st Triennial World Congress*, pages 1441–1446, 2020.

[259] N. Strijbosch, I. Spiegel, K. Barton, and T. Oomen. Monotonically convergent iterative learning control for piecewise affine systems. In *IFAC 21st Triennial World Congress*, pages 1500–1505, Berlin, Germany, 2020.

[260] P. Tacx, R. de Rozario, and T. Oomen. Towards model order selection for robust-control-relevant system identification. In *IFAC 21st Triennial World Congress*, Berlin, Germany, 2020.

[261] U. Inyang-Udoh, Y. Guo, J. Peters, T. Oomen, and S. Mishra. Layer-to-layer predictive control of ink-jet 3D-printing. In *Proceedings of the 2020 IEEE Conference on Advanced Intelligent Mechatronics (AIM)*, Boston, Massachusetts, United States, 2020.

[262] L. Aarnoudse, N. Strijbosch, E. Verschueren, and T. Oomen. Long-range piezo-stepper actuators: Nanoscale accuracy through commutation-angle iterative learning control. In *ASPE 2020 Spring – Design and Control of Precision Mechatronic Systems*, pages 16–20, Cambridge, Massachusetts, United States, 2020.

[263] G. van der Veen, J. Stokkermans, N. Mooren, and T. Oomen. How learning control improves product quality in semiconductor assembly equipment. In *ASPE 2020 Spring – Design and Control of Precision Mechatronic Systems*, pages 1–5, Cambridge, Massachusetts, United States, 2020.

[264] E. Evers, R. Voorhoeve, and T. Oomen. On frequency response function identification for advanced motion control. In *International Workshop on Advanced Motion Control*, pages 319–324, Agder, Norway, 2020.

[265] N. Mooren, G. Witvoet, I. Açan, J. Kooijman, and T. Oomen. Suppressing position-dependent disturbances in repetitive control: With application to a substrate carrier system. In *International Workshop on Advanced Motion Control*, pages 331–336, Agder, Norway, 2020.

[266] T. Oomen. Learning for advanced motion control. In *International Workshop on Advanced Motion Control*, pages 65–72, Agder, Norway, 2020.

[267] B. Scheepens, B. Bukkems, T. Ruijl, E. Evers, and T. Oomen. Modelling & identification for thermal control of cooling water with varying flow. In *EUSPEN Special Interest Group on Thermal Issues Laboratory for Machine Tools and Production Engineering (WZL)*, Aachen, Germany, 2020.

[268] T. Bloemers, R. Tóth, and T. Oomen. Towards data-driven LPV controller synthesis based on frequency response functions. In *Proceedings of the 58th Conference on Decision and Control*, pages 5680–5685, Nice, France, 2019.

[269] N. Strijbosch and T. Oomen. Intermittent sampling in iterative learning control: a monotonically-convergent gradient-descent approach with application to time stamping. In *Proceedings of the 58th Conference on Decision and Control*, pages 6542–6547, Nice, France, 2019.

[270] T. Bloemers, R. Tóth, and T. Oomen. Data-driven LPV reference tracking for a control moment gyroscope. In *Proceedings of the 3rd IFAC Symposium on Linear Parameter-Varying Systems*, pages 134–139, Eindhoven, The Netherlands, 2019.

[271] M. Goubej, S. Meeusen, N. Mooren, and T. Oomen. Iterative learning control in high-performance motion systems: From theory to real-time implementation. In *IEEE Conference on Emerging Technlogies and Factory Automation*, pages 851–856, Zaragoza, Spain, 2019.

[272] L. Aarnoudse, C. Pannier, Z. Afkhami, T. Oomen, and K. Barton. Multi-layer spatial iterative learning control for micro-additive manufacturing. In *Joint Conference 8th IFAC Symposium on Mechatronic Systems and Proceedings of the 12th IFAC Symposium on Nonlinear Control Systems*, pages 372–377, Vienna, Austria, 2019.

[273] N. Dirkx, J. van de Wijdeven, and T. Oomen. Optimal experiment design for multivariable motion systems: with application to a next-generation wafer stage. In *Joint Conference 8th IFAC Symposium on Mechatronic Systems and Proceedings of the 12th IFAC Symposium on Nonlinear Control Systems*, pages 1511–1516, Vienna, Austria, 2019.

[274] E. Evers, N. Tuijl, R. Lamers, and T. Oomen. Identifying thermal dynamics for precision motion control. In *Joint Conference 8th IFAC Symposium on Mechatronic Systems and Proceedings of the 12th IFAC Symposium on Nonlinear Control Systems*, pages 319–324, Vienna, Austria, 2019.

[275] N. Mooren, G. Witvoet, and T. Oomen. From batch-to-batch to online learning control: Experimental motion control case study. In *Joint Conference 8th IFAC Symposium on Mechatronic Systems and Proceedings of the 12th IFAC Symposium on Nonlinear Control Systems*, pages 1013–1018, Vienna, Austria, 2019.

[276] R. de Rozario and T. Oomen. Learning control without prior models: Multi-variable model-free IIC, with application to wide-format printer. In *Joint Conference 8th IFAC Symposium on Mechatronic Systems and Proceedings of the 12th IFAC Symposium on Nonlinear Control Systems*, pages 366–371, Vienna, Austria, 2019.

[277] N. Strijbosch, P. Tacx, E. Verschueren, and T. Oomen. Commutation angle iterative learning control: Enhancing piezo-stepper actuator waveforms. In *Joint Conference 8th IFAC Symposium on Mechatronic Systems and Proceedings of the 12th IFAC Symposium on Nonlinear Control Systems*, pages 1451–1456, Vienna, Austria, 2019.

[278] M. Čech, J. Königsmarková, M. Goubej, T. Oomen, and A. Visioli. Essential challenges in motion control education. In *Proceedings of the 12th IFAC Symposium on Advances in Control Education*, pages 200–205, Philadelphia, Pennsylvania, United States, 2019.

[279] N. Mooren, G. Witvoet, and T. Oomen. Feedforward motion control: From batch-to-batch to on-line parameter estimation. In *Proceedings of the 2019 American Control Conference*, pages 947–952, Philadelphia, Pennsylvania, United States, 2019.

[280] J. Reinders, F. Heck, B. Hunnekens, T. Oomen, and N. van de Wouw. Online hose calibration for pressure control in mechanical ventilation. In *Proceedings of the 2019 American Control Conference*, pages 5414–5419, Philadelphia, Pennsylvania, United States, 2019.

[281] R. de Rozario, J. Langen, and T. Oomen. Multivariable learning control using frequency response data,

a robust framework with application to a motion system. In *Proceedings of the 2019 American Control Conference*, pages 2215–2220, Philadelphia, Pennsylvania, United States, 2019.

[282] N. Strijbosch and T. Oomen. Beyond quantization in iterative learning control: Exploiting time-varying time-stamps. In *Proceedings of the 2019 American Control Conference*, pages 2984–2989, Philadelphia, Pennsylvania, United States, 2019.

[283] G. Witvoet, J. Peters, S. Kuiper, and T. Oomen. Line-to-line repetitive control of a 6-DoF hexapod stage for overlay measurements using atomic force microscopy. In *Proceedings of the 2019 American Control Conference*, pages 2464–2989, Philadelphia, Pennsylvania, United States, 2019.

[284] J. van Zundert, W. Ohnishi, H. Fujimoto, and T. Oomen. System inversion for sampled-data feedforward control: Balancing on-sample and intersample behavior. In *Proceedings of the 2019 American Control Conference*, pages 4472–4477, Philadelphia, Pennsylvania, United States, 2019.

[285] R. Voorhoeve and T. Oomen. Numerically reliable identification of fast sampled systems: A novel δ-domain data-dependent orthonormal polynomial approach. In *Proceedings of the 57th Conference on Decision and Control*, pages 1433–1438, Miami Beach, Florida, United States, 2018.

[286] L. Blanken, I. van de Meijdenberg, and T. Oomen. Inverse system estimation for feedforward control: A kernel-based approach for systems in $\mathcal{RL}_\infty$. In *18th IFAC Symposium on System Identification*, pages 1050–1055, Stockholm, Sweden, 2018.

[287] E. Evers, B. de Jager, and T. Oomen. Improved local rational method by incorporating system knowledge: with application to mechanical and thermal dynamical systems. In *18th IFAC Symposium on System Identification*, pages 808–813, Stockholm, Sweden, 2018.

[288] R. de Rozario and T. Oomen. Frequency response function identification of LPV systems: a global approach with application to mechanical systems. In *18th IFAC Symposium on System Identification*, pages 108–113, Stockholm, Sweden, 2018.

[289] L. Blanken, G. Isil, S. Koekebakker, and T. Oomen. Data-driven feedforward learning using non-causal rational basis functions: Application to an industrial flatbed printer. In *Proceedings of the 2018 American Control Conference*, pages 6672–6677, Milwaukee, Wisconsin, United States, 2018.

[290] R. de Rozario, R. Pelzer, S. Koekebakker, and T. Oomen. Accommodating trial-varying tasks in iterative learning control for LPV systems, applied to printer sheet positioning. In *Proceedings of the 2018 American Control Conference*, pages 5213–5218, Milwaukee, Wisconsin, United States, 2018.

[291] J. van Zundert, F. Luijten, and T. Oomen. Achieving perfect causal feedforward control in presence of nonminimum-phase behavior - exploiting additional actuators and squaring down. In *Proceedings of the 2018 American Control Conference*, pages 6031–6036, Milwaukee, Wisconsin, United States, 2018.

[292] N. Mooren, R. Voorhoeve, N. Dirkx, and T. Oomen. Compensating quasi-static disturbances for inferential control: an observer-based approach applied to a wafer stage. In *IEEJ International Workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON)*, pages 1–2, Tokyo, Japan, 2018.

[293] R. de Rozario and T. Oomen. Enabling high precision for position-dependent motion systems using iterative learning control. In *IEEJ International Workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON)*, pages 1–2, Tokyo, Japan, 2018.

[294] N. Strijbosch, L. Blanken, and T. Oomen. Frequency domain design of iterative learning control and repetitive control for complex motion systems. In *IEEJ International Workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON)*, pages 1–2, Tokyo, Japan, 2018.

[295] J. van Zundert and T. Oomen. System inversion from the perspective of inverse model feedforward with application to a nonminimum-phase benchmark system. In *IEEJ International Workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON)*, pages 1–2, Tokyo, Japan, 2018.

[296] J. van Zundert and T. Oomen. LPTV loop-shaping with application to non-equidistantly sampled precision mechatronics. In *International Workshop on Advanced Motion Control*, pages 467–472, Tokyo, Japan, 2018.

[297] R. de Rozario and T. Oomen. Improving transient learning behavior in model-free inversion-based

iterative control with application to desktop printing. In *International Workshop on Advanced Motion Control*, pages 455–460, Tokyo, Japan, 2018.

[298] L. Blanken, I. van den Meijdenberg, and T. Oomen. Kernel-based regression of non-causal systems for inverse model feedforward estimation. In *International Workshop on Advanced Motion Control*, pages 461–466, Tokyo, Japan, 2018.

[299] T. Oomen and C. R. Rojas. Sparse iterative learning control (SPILC): When to sample for resource-efficiency? In *International Workshop on Advanced Motion Control*, pages 497–502, Tokyo, Japan, 2018.

[300] G. Rallo, S. Formentin, C. R. Rojas, T. Oomen, and S. M. Savaresi. Data-driven $\mathcal{H}_\infty$-norm estimation via expert advice. In *Proceedings of the 56th Conference on Decision and Control*, pages 1560–1565, Melbourne, Australia, 2017.

[301] L. Blanken, T. Hazelaar, S. Koekebakker, and T. Oomen. Multivariable repetitive control design framework applied to flatbed printing with continuous media flow. In *Proceedings of the 56th Conference on Decision and Control*, pages 4727–4732, Melbourne, Australia, 2017.

[302] L. Blanken, G. Isil, S. Koekebakker, and T. Oomen. Flexible ILC: Towards a convex approach for non-causal rational basis functions. In *IFAC 2017 Triennial World Congress*, pages 12613–12618, Toulouse, France, 2017.

[303] E. Evers, M. van de Wal, and T. Oomen. Synchronizing decentralized control loops for overall performance enhancement: A Youla framework applied to a wafer scanner. In *IFAC 2017 Triennial World Congress*, pages 11332–11337, Toulouse, France, 2017.

[304] T. van Keulen, L. Huijben, and T. Oomen. Identification of control-relevant diesel engine models using a local linear parametric approach. In *IFAC 2017 Triennial World Congress*, pages 8102–8107, Toulouse, France, 2017.

[305] R. de Rozario, R. Voorhoeve, W. Aangenent, and T. Oomen. Spatio-temporal identification of mechanical systems: With application to global feedforward control of an industrial wafer stage. In *IFAC 2017 Triennial World Congress*, pages 15140–15145, Toulouse, France, 2017.

[306] J. van Zundert and T. Oomen. Inverting nonminimum-phase systems from the perspectives of feedforward and ILC. In *IFAC 2017 Triennial World Congress*, pages 12607–12612, Toulouse, France, 2017.

[307] J. van Zundert and T. Oomen. On optimal feedforward and ILC: The role of feedback for optimal performance and inferential control. In *IFAC 2017 Triennial World Congress*, pages 6267–6272, Toulouse, France, 2017.

[308] Y. Guo, J. Peters, T. Oomen, and S. Mishra. Distributed model predictive control for ink-jet 3D printing process. In *Proceedings of the 2017 IEEE Conference on Advanced Intelligent Mechatronics (AIM)*, pages 436–441, Munich, Germany, 2017.

[309] M. Beijen, M. Heertjes, R. Voorhoeve, and T. Oomen. Evaluating performance of multivariable vibration isolators: A frequency domain identification approach applied to an industrial AVIS. In *Proceedings of the 2017 American Control Conference*, pages 3512–3517, Seattle, Washington, United States, 2017.

[310] R. de Rozario, T. Oomen, and M. Steinbuch. ILC and feedforward control for LPV systems: with application to a position-dependent motion system. In *Proceedings of the 2017 American Control Conference*, pages 3518–3523, Seattle, Washington, United States, 2017.

[311] J. van Zundert and T. Oomen. An approach to stable inversion of lptv systems with application to a position-dependent motion system. In *Proceedings of the 2017 American Control Conference*, pages 4890–4895, Seattle, Washington, United States, 2017.

[312] T. Oomen. Advanced motion control for next-generation precision mechatronics: Challenges for control, identification, and learning. In *IEEJ International Workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON)*, pages 1–12, Nagaoka, Japan, 2017.

[313] L. Blanken, S. Koekebakker, and T. Oomen. Design and modeling aspects in multivariable iterative

learning control. In *Proceedings of the 55th Conference on Decision and Control*, pages 5502–5507, Las Vegas, Nevada, United States, 2016.

[314] L. Blanken, R. de Rozario, S. Koekebakker, and T. Oomen. Advanced feedforward, repetitive, and iterative learning control for industrial printing systems. In *Proceedings of the 2016 DSPE Conference on Precision Mechatronics*, Sint Michielsgestel, The Netherlands, 2016.

[315] L. Blanken, J. Willems, S. Koekebakker, and T. Oomen. Design techniques for multivariable ILC: Application to an industrial flatbed printer. In 7th *IFAC Symposium on Mechatronic Systems &* 1st *Mechatronics Forum International Conference*, pages 213–221, Loughborough, United Kingdom, 2016.

[316] R. de Rozario, A. Fleming, and T. Oomen. Iterative control for periodic tasks with robustness considerations, applied to a nanopositioning stage. In 7th *IFAC Symposium on Mechatronic Systems &* 1st *Mechatronics Forum International Conference*, pages 623–628, Loughborough, United Kingdom, 2016.

[317] J. Stoev, T. Oomen, and J. Schoukens. Tensor methods for MIMO decoupling using frequency response functions. In 7th *IFAC Symposium on Mechatronic Systems &* 1st *Mechatronics Forum International Conference*, pages 447–453, Loughborough, UK, 2016.

[318] J. van Zundert, J. Bolder, S. Koekebakker, and T. Oomen. Resource-efficient ILC: Enabling large tasks on an industrial flatbed printer. In 7th *IFAC Symposium on Mechatronic Systems &* 1st *Mechatronics Forum International Conference*, pages 567–574, Loughborough, United Kingdom, 2016.

[319] R. Voorhoeve, N. Dirkx, T. Melief, W. Aangenent, and T. Oomen. Estimating structural deformations for inferential control: A disturbance observer approach. In 7th *IFAC Symposium on Mechatronic Systems &* 1st *Mechatronics Forum International Conference*, pages 642–648, Loughborough, UK, 2016.

[320] L. Blanken, F. Boeren, D. Bruijnen, and T. Oomen. Rational feedforward tuning: Approaches, stable inversion, and experimental comparison. In *Proceedings of the 2016 American Control Conference*, pages 2629–2634, Boston, Massachusetts, United States, 2016.

[321] A. van der Maas, R. van der Maas, R. Voorhoeve, and T. Oomen. Frequency response function identification of LPV systems: A 2D-LRM approach with application to a medical X-ray system. In *Proceedings of the 2016 American Control Conference*, pages 4598–4603, Boston, Massachusetts, United States, 2016.

[322] R. Voorhoeve, R. de Rozario, and T. Oomen. Identification for motion control: Incorporating constraints and numerical considerations. In *Proceedings of the 2016 American Control Conference*, pages 6209–6214, Boston, Massachusetts, United States, 2016.

[323] J. van Zundert, T. Oomen, D. Goswami, and W. Heemels. On the potential of lifted domain feedforward controllers with a periodic sampling sequence. In *Proceedings of the 2016 American Control Conference*, pages 4227–4232, Boston, Massachusetts, United States, 2016.

[324] F. Boeren, A. Bareja, T. Kok, and T. Oomen. Unified ILC framework for repeating and varying tasks: A frequency domain approach with application to semiconductor bonding equipment. In *Proceedings of the 54th Conference on Decision and Control*, pages 6724–6729, Osaka, Japan, 2015.

[325] F. Boeren, L. Blanken, D. Bruijnen, and T. Oomen. Rational iterative feedforward control: Optimal instrumental variable approach for enhanced performance. In *Proceedings of the 54th Conference on Decision and Control*, pages 6058–6063, Osaka, Japan, 2015.

[326] F. Felici and T. Oomen. Enhancing current density profile control in tokamak experiments using iterative learning control. In *Proceedings of the 54th Conference on Decision and Control*, pages 5370–5377, Osaka, Japan, 2015.

[327] R. van der Maas, A. van Rietschoten, and T. Oomen. Accurate frequency response function identification of LPV systems: A 2D local parametric modeling approach. In *Proceedings of the 54th Conference on Decision and Control*, pages 1465–1470, Osaka, Japan, 2015.

[328] S. Navalkar, T. Oomen, and J.-W. van Wingerden. IFT-LPV: Data-based tuning of fixed structure controllers for LPV systems. In *2015 IFAC Symposium on System Identification*, pages 721–726, Beijing, China, 2015.

[329] S. Formentin, A. Bisoffi, and T. Oomen. Asymptotically exact direct data-driven multivariable controller

tuning. In *2015 IFAC Symposium on System Identification*, pages 1349–1354, Beijing, China, 2015.

[330] R. Voorhoeve, A. van Rietschoten, E. Geerardyn, and T. Oomen. Identification of high-tech motion systems: An active vibration isolation benchmark. In *17th IFAC Symposium on System Identification*, pages 1250–1255, Beijing, China, 2015.

[331] J. Bolder and T. Oomen. Data-driven optimal ILC for multivariable systems: Removing the need for L and Q filter design. In *Proceedings of the 2015 American Control Conference*, Chicago, Illinois, United States, 2015.

[332] J. van Zundert, W. Aangenent, J. Verhaegh, T. Oomen, D. Antunes, and M. Heemels. Model-based feedforward design for multi-rate motion control of a wafer stage. In *Proceedings of the 2015 American Control Conference*, Chicago, Illinois, United States, 2015.

[333] J. van Zundert, J. Bolder, and T. Oomen. Iterative learning control for varying tasks: Achieving optimality for rational basis. In *Proceedings of the 2015 American Control Conference*, Chicago, Illinois, United States, 2015.

[334] T. Vromen, C.-H. Dai, N. van de Wouw, T. Oomen, P. Astrid, and H. Nijmeijer. Robust output-feedback control to eliminate stick-slip oscillations in drill-string systems. In *IFAC 2nd Workshop on Automatic Control in Offshore Oil and Gas Production*, Florianópolis, Brazil, 2015.

[335] J. Bolder, T. Oomen, and M. Steinbuch. Aspects in inferential iterative learning control: A 2D systems analysis. In *Proceedings of the 53rd Conference on Decision and Control*, Los Angeles, California, United States, 2014.

[336] F. Boeren, D. Bruijnen, and T. Oomen. Iterative feedforward tuning approach and experimental verification for nano-precision motion systems. In *ASME 2014 Dynamic Systems and Control*, San Antonio, Texas, 2014.

[337] E. Geerardyn, T. Oomen, and J. Schoukens. Estimating the H-infinity gain of an active vibration isolation system using local rational models. In *International Conference on Noise and Vibration Analysis*, Leuven, Belgium, 2014.

[338] E. Geerardyn, T. Oomen, and J. Schoukens. Enhancing $\mathcal{H}_\infty$ norm estimation using local LPM/LRM modeling: Applied to an AVIS. In *IFAC 19th Triennial World Congress*, pages 10856–10861, Cape Town, South Africa, 2014.

[339] R. van der Maas and T. Oomen. Robust active vibration isolation: A multivariable data-driven approach. In *IFAC 19th Triennial World Congress*, pages 4754–4759, Cape Town, South Africa, 2014.

[340] S. Navalkar, T. Oomen, and J.-W. van Wingerden. Subspace predictive repetitive control with reduced-dimension identification for wind turbine individual pitch control. In *IFAC 19th Triennial World Congress*, pages 6436–6441, Cape Town, South Africa, 2014.

[341] B. J. Van der Velden, T. Oomen, and M. F. Heertjes. Constrained iterative feedback tuning for robust high-precision motion control. In *IFAC 19th Triennial World Congress*, pages 4915–4920, Cape Town, South Africa, 2014.

[342] R. Voorhoeve, T. Oomen, R. van Herpen, and M. Steinbuch. On numerically reliable frequency-domain system identification: new connections and a comparison of methods. In *IFAC 19th Triennial World Congress*, pages 10018–10023, Cape Town, South Africa, 2014.

[343] F. Boeren, T. Oomen, and M. Steinbuch. Accuracy aspects in motion feedforward tuning. In *Proceedings of the 2014 American Control Conference*, pages 2178–2183, Portland, Oregon, United States, 2014.

[344] J. Bolder, T. Oomen, and M. Steinbuch. On inferential iterative learning control: with example on a printing system. In *Proceedings of the 2014 American Control Conference*, pages 1827–1832, Portland, Oregon, United States, 2014.

[345] R. van Herpen, T. Oomen, E. Kikken, M. van de Wal, W. Aangenent, and M. Steinbuch. Exploiting additional actuators and sensors for nano-positioning robust motion control. In *Proceedings of the 2014 American Control Conference*, pages 984–990, Portland, Oregon, United States, 2014.

[346] S. Navalkar, J. van Wingerden, E. van Solingen, T. Oomen, and G. van Kuik. Subspace predictive

repetitive control for wind turbine load alleviation using trailing edge flaps. In *Proceedings of the 2014 American Control Conference*, pages 4422–4427, Portland, Oregon, United States, 2014.

[347] F. Boeren and T. Oomen. Iterative feedforward control: A closed-loop identification problem and a solution. In *Proceedings of the 52nd Conference on Decision and Control*, pages 6694–6699, Florence, Italy, 2013.

[348] J. Bolder, T. Oomen, and M. Steinbuch. Exploiting rational basis functions in iterative learning control. In *Proceedings of the 52nd Conference on Decision and Control*, pages 7321–7326, Florence, Italy, 2013.

[349] F. Boeren, R. van Herpen, T. Oomen, M. van de Wal, and O. Bosgra. Enhancing performance through multivariable weighting function design in $\mathcal{H}_\infty$ loop-shaping: With application to a motion system. In *Proceedings of the 2013 American Control Conference*, pages 6051–6056, Washington, DC, 2013.

[350] T. Oomen, R. van der Maas, C. R. Rojas, and H. Hjalmarsson. Iteratively learning the $\mathcal{H}_\infty$-norm of multivariable systems applied to model-error-modeling of a vibration isolation system. In *Proceedings of the 2013 American Control Conference*, pages 6718–6723, Washington, DC, United States, 2013.

[351] R. van Herpen, T. Oomen, and O. Bosgra. Bi-orthonormal basis functions for improved frequency domain system identification. In *Proceedings of the 51st Conference on Decision and Control*, pages 3451–3456, Maui, Hawaii, United States, 2012.

[352] J. Bolder, B. Lemmen, S. Koekebakker, T. Oomen, O. Bosgra, and M. Steinbuch. Iterative learning control with basis functions for media positioning in scanning inkjet printers. In *Proceedings of the 2012 Multi-conference on Systems and Control*, pages 1255–1260, Dubrovnik, Croatia, 2012.

[353] R. van Herpen, T. Oomen, and O. Bosgra. Numerically reliable frequency-domain estimation of transfer functions: A computationally efficient methodology. In *16th IFAC Symposium on System Identification*, pages 595–600, Brussels, Belgium, 2012.

[354] T. Oomen and O. Bosgra. Selecting uncertainty structures in identification for robust control with an automotive application. In *16th IFAC Symposium on System Identification*, pages 601–606, Brussels, Belgium, 2012.

[355] D. Rijlaarsdam, T. Oomen, P. Nuij, J. Schoukens, and M. Steinbuch. New connections between frequency response functions for a class of nonlinear systems. In *16th IFAC Symposium on System Identification*, pages 280–285, Brussels, Belgium, 2012.

[356] T. Oomen, R. van Herpen, S. Quist, M. van de Wal, O. Bosgra, and M. Steinbuch. Next-generation wafer stage motion control: Connecting system identification and robust control. In *Proceedings of the 2012 American Control Conference*, pages 2455–2460, Montréal, Canada, 2012.

[357] T. Oomen, E. Grassens, F. Hendriks, R. van Herpen, and O. Bosgra. Inferential motion control: Identification and robust control with unmeasured performance variables. In *Proceedings of the 50th Conference on Decision and Control*, pages 964–969, Orlando, Florida, United States, 2011.

[358] T. Oomen, C. R. Rojas, H. Hjalmarsson, and B. Wahlberg. Analyzing iterations in identification with application to nonparametric $\mathcal{H}_\infty$-norm estimation. In *IFAC 18th Triennial World Congress*, pages 9972 – 9977, Milan, Italy, 2011.

[359] R. van Herpen, T. Oomen, and O. Bosgra. A robust-control-relevant perspective on model order selection. In *Proceedings of the 2011 American Control Conference*, pages 1224–1229, San Francisco, California, United States, 2011.

[360] T. Oomen, S. Quist, R. van Herpen, and O. Bosgra. Identification and visualization of robust-control-relevant model sets with application to an industrial wafer stage. In *Proceedings of the 49th Conference on Decision and Control*, pages 5530–5535, Atlanta, Georgia, United States, 2010.

[361] W. Heemels, R. Merry, and T. Oomen. Alternative frequency-domain stability criteria for discrete-time networked systems with multiple delays. In *2nd IFAC Workshop on Distributed Estimation and Control in Networked Systems*, pages 73–78, Annecy, France, 2010.

[362] W.-J. Evers, I. Besselink, A. Teerhuis, T. Oomen, and H. Nijmeijer. Experimental validation of a quarter truck model using asynchronous measurements with low signal-to-noise ratios. In *10th International*

Symposium on Advanced Vehicle Control, pages 177–182, Loughborough, United Kingdom, 2010.

[363] W.-J. Evers, I. Besselink, A. Teerhuis, T. Oomen, and H. Nijmeijer. Experimental validation of a truck roll model using asynchronous measurements with low signal-to-noise ratios. In *Proceedings of the 2010 American Control Conference*, pages 4588–4593, Maryland, Maryland, United States, 2010.

[364] R. van Herpen, T. Oomen, M. van de Wal, and O. Bosgra. Experimental evaluation of robust-control-relevance: A confrontation with a next-generation wafer stage. In *Proceedings of the 2010 American Control Conference*, pages 3493–3499, Baltimore, Maryland, United States, 2010.

[365] T. Oomen, S. van der Meulen, O. Bosgra, M. Steinbuch, and J. Elfring. A robust-control-relevant model validation approach for continuously variable transmission control. In *Proceedings of the 2010 American Control Conference*, pages 3518–3523, Baltimore, Maryland, United States, 2010.

[366] T. Oomen, O. Bosgra, and M. van de Wal. Identification for robust inferential control. In *Proceedings of the 48th Conference on Decision and Control*, pages 2581–2586, Shanghai, China, 2009.

[367] T. Oomen and O. Bosgra. Well-posed model uncertainty estimation by design of validation experiments. In *15th IFAC Symposium on System Identification*, pages 1199–1204, Saint-Malo, France, 2009.

[368] T. Oomen, R. van Herpen, and O. Bosgra. Robust-control-relevant coprime factor identification with application to model validation of a wafer stage. In *15th IFAC Symposium on System Identification*, pages 1044–1049, Saint-Malo, France, 2009.

[369] T. Oomen, J. van de Wijdeven, and O. Bosgra. Low-order system identification and optimal control of intersample behavior in ILC. In *Proceedings of the 2009 American Control Conference*, pages 271–276, St. Louis, Missouri, United States, 2009.

[370] M. Steinbuch, K. van Berkel, G. Leenknegt, T. Oomen, and J. van de Wijdeven. Reading of cracked optical discs using iterative learning control. In *Proceedings of the 2009 American Control Conference*, pages 258–263, St. Louis, Missouri, United States, 2009.

[371] T. Oomen and O. Bosgra. Estimating disturbances and model uncertainty in model validation for robust control. In *Proceedings of the 47th Conference on Decision and Control*, pages 5513–5518, Cancún, Mexico, 2008.

[372] T. Oomen, J. van de Wijdeven, and O. Bosgra. Suppressing intersample behavior in iterative learning control. In *Proceedings of the 47th Conference on Decision and Control*, pages 2391–2397, Cancún, Mexico, 2008.

[373] T. Oomen and O. Bosgra. Robust-control-relevant coprime factor identification: A numerically reliable frequency domain approach. In *Proceedings of the 2008 American Control Conference*, pages 625–631, Seattle, Washington, United States, 2008.

[374] T. Oomen, M. van de Wal, and O. Bosgra. Aliasing of resonance phenomena in sampled-data control design: Hazards, modeling, and a solution. In *Proceedings of the 2007 American Control Conference*, pages 2881–2886, New York, New York, United States, 2007.

[375] T. Oomen, M. van de Wal, and O. Bosgra. Exploiting $\mathcal{H}_\infty$ sampled-data control theory for high-precision electromechanical servo control design. In *Proceedings of the 2006 American Control Conference*, pages 1086–1091, Minneapolis, Minnesota, United States, 2006.

[376] T. Oomen, M. van de Wal, O. Bosgra, and M. Steinbuch. Optimal digital control of analog systems: A survey. In M. F. Heertjes, editor, *Proceedings of the 8th Philips Conference on Applications of Control Technology*, pages 139–144, Hilvarenbeek, The Netherlands, 2005.

[377] T. Ickenroth, A. Cerullo, S. Koekebakker, and T. Oomen. Automatic feedforward structure selection via sparse learning in control. In *DSPE Conference on Precision Mechatronics*, Sint-Michielsgestel, 2025.

[378] R. A. González, M. van Haren, T. Oomen, and C. R. Rojas. Implications of undersampling in system identification. In R. Carloni, J. Alonso-Mora, J. Dasdemir, and E. Lefeber, editors, *44th Benelux Meeting on Systems and Control*, Egmond aan Zee, The Netherlands, 2025.

[379] R. Goetz, H. Zwart, N. van de Wouw, and T. Oomen. Sensor placement in stochastic models for maximal transient and steady-state estimation performance. In R. Carloni, J. Alonso-Mora, J. Dasdemir, and E. Lefeber, editors, *44th Benelux Meeting on Systems and Control*, Egmond aan Zee, The Netherlands, 2025.

[380] M. van Hulst, R. González, K. Classens, P. Tacx, N. Dirkx, J. van de Wijdeven, and T. Oomen. Modal identification for multivariable motion systems: Applied to a prototype wafer-stage. In R. Carloni, J. Alonso-Mora, J. Dasdemir, and E. Lefeber, editors, *44th Benelux Meeting on Systems and Control*, Egmond aan Zee, The Netherlands, 2025.

[381] T. Ickenroth, M. van Haren, J. Kon, J. van Hulst, M. van Meer, and T. Oomen. Sparse learning approach to feedforward filter selection: Applied to an industrial flatbed printer. In R. Carloni, J. Alonso-Mora, J. Dasdemir, and E. Lefeber, editors, *44th Benelux Meeting on Systems and Control*, Egmond aan Zee, The Netherlands, 2025.

[382] L. van de Kamp, B. van Loon, N. van de Wouw, and T. Oomen. Switching and decoupling to improve pressure and flow tracking in mechanical ventilation. In R. Carloni, J. Alonso-Mora, J. Dasdemir, and E. Lefeber, editors, *44th Benelux Meeting on Systems and Control*, Egmond aan Zee, The Netherlands, 2025.

[383] M. van Meer, T. van Meijel, E. van Halsema, E. Verschueren, G. Witvoet, and T. Oomen. Flexible feedforward control of piezo-stepper actuators. In R. Carloni, J. Alonso-Mora, J. Dasdemir, and E. Lefeber, editors, *44th Benelux Meeting on Systems and Control*, Egmond aan Zee, The Netherlands, 2025.

[384] G. Sonzongi, M. Mazzoleni, F. Previdi, R. A. González, K. Tiels, and T. Oomen. Modified Smith predictor for integrative and delayed time systems. In R. Carloni, J. Alonso-Mora, J. Dasdemir, and E. Lefeber, editors, *44th Benelux Meeting on Systems and Control*, Egmond aan Zee, The Netherlands, 2025.

[385] K. Classens, W. Heemels, and T. Oomen. What does fault detection and isolation have to offer for precision motion systems? In *EUSPEN Special Interest Conference: Precision Motion Systems & Control*, Den Bosch, The Netherlands, 2024.

[386] M. van der Hulst, K. Classens, R. González, N. Dirkx, J. van de Wijdeven, and T. Oomen. Modal identification for multivariable motion systems. In *EUSPEN Special Interest Conference: Precision Motion Systems & Control*, page EUSPEN Special Interest Conference: Precision Motion Systems & Control, Den Bosch, The Netherlands, 2024.

[387] T. Ickenroth, M. van Haren, J. Kon, and T. Oomen. How to select feedforward filters for feedforward: A learning-based approach applied to a flatbed printer. In *EUSPEN Special Interest Conference: Precision Motion Systems & Control*, Den Bosch, The Netherlands, 2024.

[388] M. van Meer, R. A. González, G. Witvoet, and T. Oomen. Estimation and control of switched reluctance motors. In *EUSPEN Special Interest Conference: Precision Motion Systems & Control*, Den Bosch, The Netherlands, 2024.

[389] P. Tacx, G. Witvoet, M. Heertjes, and T. Oomen. Identification and control of overactuated mechatronic systems. In *EUSPEN Special Interest Conference: Precision Motion Systems & Control*, Den Bosch, The Netherlands, 2024.

[390] L. M. Chaouach, T. Oomen, and D. Boskos. A comparative study of structured ambiguity sets for stochastic optimization. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon,

D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 59, Blankenberge, Belgium, 2024.

[391] M. van Dael, G. Witvoet, B. Swinkels, and T. Oomen. Iterative decoupling for multivariate time-varying loops in the virgo gravitational wave detector. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 226, Blankenberge, Belgium, 2024.

[392] R. Dinkla, S. P. Mulders, T. Oomen, and van Wingerden Jan-Willem. Closed-loop data-enabled predictive control. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 162, Blankenberge, Belgium, 2024.

[393] R. Goetz, H. Zwart, N. van de Wouw, T. Oomen, and M. van de Wal. Measurement selection and observer design for optimal output estimation. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 28, Blankenberge, Belgium, 2024.

[394] R. A. González, K. Classens, C. R. Rojas, W. J. S., and T. Oomen. Additive continuous-time identification: With application to modal mechanical systems. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 263, Blankenberge, Belgium, 2024.

[395] M. van Haren, L. Mirkin, L. Blanken, and T. Oomen. Extending Nyquist limits in frequency response function identification: Applied to slow-sampled systems. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 30, Blankenberge, Belgium, 2024.

[396] T. Ickenroth, K. Classens, J. van de Wijdeven, W. Heemels, and T. Oomen. On robust fault detection for precision mechatronics. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 117, Blankenberge, Belgium, 2024.

[397] L. van de Kamp, B. Hunnekens, N. van de Wouw, and T. Oomen. Experiment design for mechanically ventilated patients. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 229, Blankenberge, Belgium, 2024.

[398] J. Kon, R. Tóth, J. van de Wijdeven, M. Heertjes, and T. Oomen. Unconstrained parametrization of all stable transfer functions. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 33, Blankenberge, Belgium, 2024.

[399] M. van Meer, G. Witvoet, and T. Oomen. Robust commutation for minimal average torque ripple in switched reluctance motors. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 115, Blankenberge, Belgium, 2024.

[400] M. Poot, J. Portegies, L. Oei, D. Kostić, and T. Oomen. Gaussian processes for advanced motion control. In L. Jacobs, A. Astudillo, J. Lataire, R. Sepulchre, J. Swevers, A. Pintelon, D. Peumans, and W. Decré, editors, *43rd Benelux Meeting on Systems and Control*, page 124, Blankenberge, Belgium, 2024.

[401] L. Aarnoudse and T. Oomen. (Machine) learning for feedforward in precision mechatronics. In *DSPE 5th Conference on Precision Mechatronics*, pages 146–149, Sint-Michielsgestel, The Netherlands, 2023.

[402] L. Aarnoudse, N. Strijbosch, P. Tacx, E. Verschueren, and T. Oomen. Commutation-angle domain iterative learning control: Learning waveforms for piezo stepper actuators. In *DSPE 5th Conference on Precision Mechatronics*, pages 144–145, Sint-Michielsgestel, The Netherlands, 2023.

[403] L. Blanken, M. van Haren, H. Kuppens, and T. Oomen. Learning of physics-based feedforwards for

position-dependent motion systems. In *DSPE 5th Conference on Precision Mechatronics*, page 140, Sint-Michielsgestel, The Netherlands, 2023.

[404] K. Classens, W. Heemels, and T. Oomen. Fault diagnosis for high-tech precision mechatronics: With application to a prototype wafer stage. In *DSPE 5th Conference on Precision Mechatronics*, page 150, Sint-Michielsgestel, The Netherlands, 2023.

[405] M. van Haren, L. Mirkin, L. Blanken, and T. Oomen. FRF identification above the Nyquist frequency. In *DSPE 5th Conference on Precision Mechatronics*, pages 120–121, Sint-Michielsgestel, The Netherlands, 2023.

[406] J. Kon, D. Bruijnen, J. van de Wijdeven, M. Heertjes, and T. Oomen. Learning for precision motion of mechatronic systems: Add-on physics-guided neural network feedforward control. In *DSPE 5th Conference on Precision Mechatronics*, pages 108–109, Sint-Michielsgestel, The Netherlands, 2023.

[407] M. van Meer, G. Witvoet, and T. Oomen. Reducing torque ripple in switched reluctance motors. In *DSPE 5th Conference on Precision Mechatronics*, page 131, Sint-Michielsgestel, The Netherlands, 2023.

[408] P. Tacx, M. Teurlings, R. Habraken, G. Witvoet, M. Heertjes, and T. Oomen. Mechanical models for advanced motion control. In *DSPE 5th Conference on Precision Mechatronics*, pages 142–143, Sint-Michielsgestel, The Netherlands, 2023.

[409] L. Aarnoudse and T. Oomen. (Machine) learning for feedforward in precision mechatronics. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 7–8, Tokyo, Japan, 2023.

[410] L. Blanken, M. van Haren, and T. Oomen. Learning for data-intensive industrial machines. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 13–14, Tokyo, Japan, 2023.

[411] K. Classens, W. Heemels, and T. Oomen. Fault diagnosis for precision mechatronics. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 17–18, Tokyo, Japan, 2023.

[412] M. van Dael, G. Witvoet, B. Swinkels, and T. Oomen. Control in gravitational wave detectors. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 19–20, Tokyo, Japan, 2023.

[413] N. Dirkx, K. Tiels, and T. Oomen. High-precision mechatronics: From experiment design to point of interest control. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 21–22, Tokyo, Japan, 2023.

[414] M. van Haren, L. Blanken, and T. Oomen. Identification and control for periodic and parameter-varying systems. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 25–26, Tokyo, Japan, 2023.

[415] J. Kon, D. Bruijnen, J. van de Wijdeven, M. Heertjes, and T. Oomen. Neural networks for feedforward control. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 33–34, Tokyo, Japan, 2023.

[416] M. van Meer, G. Witvoet, and T. Oomen. Identification, calibration and control for motor commutation. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 37–38, Tokyo, Japan, 2023.

[417] T. Oomen, L. Aarnoudse, L. Blanken, K. Classens, M. van Dael, N. Dirkx, R. González, M. van Haren, J. Kon, M. van Meer, M. Poot, P. Tacx, K. Tiels, and G. Witvoet. Learning in machines: From data to models, control performance, and monitoring. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 44–46, Tokyo, Japan, 2023.

[418] M. Poot, D. Kostić, J. Portegies, and T. Oomen. Feedforward control using Gaussian processes for semiconductor manufacturing equipment. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 47–48, Tokyo, Japan,

2023.

[419] P. Tacx, M. Teurlings, R. Habraken, G. Witvoet, M. Heertjes, and T. Oomen. Identification for multivariable precision mechatronics. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 51–52, Tokyo, Japan, 2023.

[420] G. Witvoet, M. van Dael, R. Geraldes, M. van Meer, N. Mooren, P. Tacx, and T. Oomen. Next-generation opto-mechatronic systems: control for free-space optical communication. In L. Aarnoudse, M. van Haren, M. Mae, and K. Tsuromoto, editors, *JSPS-NWO Seminar Research Network on Learning in Machines*, pages 59–60, Tokyo, Japan, 2023.

[421] L. M. Chaouach, D. Boskos, and T. Oomen. Reformulations for data-driven stochastic optimization problems with structured ambiguity sets. In R. Carloni, J. Alonso-Mora, B. Jayawardhana, and E. Lefeber, editors, *42nd Benelux Meeting on Systems and Control*, page 137, Elspeet, The Netherlands, 2023.

[422] K. Classens, W. Heemels, and T. Oomen. On nullspace-based fault diagnosis of complex mechatronic systems. In R. Carloni, J. Alonso-Mora, B. Jayawardhana, and E. Lefeber, editors, *42nd Benelux Meeting on Systems and Control*, page 164, Elspeet, The Netherlands, 2023.

[423] R. A. González, K. Tiels, and T. Oomen. Non-parametric continuous-time system identification with Lebesgue-sampled output measurements. In R. Carloni, J. Alonso-Mora, B. Jayawardhana, and E. Lefeber, editors, *42nd Benelux Meeting on Systems and Control*, page 103, Elspeet, The Netherlands, 2023.

[424] M. van Haren, L. Blanken, and T. Oomen. Joint physics-based and kernel-regularized LPV feedforward. In R. Carloni, J. Alonso-Mora, B. Jayawardhana, and E. Lefeber, editors, *42nd Benelux Meeting on Systems and Control*, page 168, Elspeet, The Netherlands, 2023.

[425] J. Kon, D. Bruijnen, J. van de Wijdeven, M. Heertjes, and T. Oomen. Feedforward control for an interventional X-ray: A physics-guided neural network approach. In R. Carloni, J. Alonso-Mora, B. Jayawardhana, and E. Lefeber, editors, *42nd Benelux Meeting on Systems and Control*, page 163, Elspeet, The Netherlands, 2023.

[426] M. van Meer, E. Deniz, G. Witvoet, and T. Oomen. Improving position sensor calibration via bayesian inference. In R. Carloni, J. Alonso-Mora, B. Jayawardhana, and E. Lefeber, editors, *42nd Benelux Meeting on Systems and Control*, page 161, Elspeet, The Netherlands, 2023.

[427] M. Poot, J. Portegies, and T. Oomen. Feedforward tuning with input nonlinearities: Application to magnetic saturation in wirebonders. In R. Carloni, J. Alonso-Mora, B. Jayawardhana, and E. Lefeber, editors, *42nd Benelux Meeting on Systems and Control*, page 122, Elspeet, The Netherlands, 2023.

[428] P. Tacx, M. Teurlings, G. Witvoet, M. Heertjes, and T. Oomen. Spatio-temporal modeling for next-generation motion control. In R. Carloni, J. Alonso-Mora, B. Jayawardhana, and E. Lefeber, editors, *42nd Benelux Meeting on Systems and Control*, page 166, Elspeet, The Netherlands, 2023.

[429] Z. Zhuang, M. van Meer, H. Tao, D. Zhou, and T. Oomen. Alternating projection-based optimal ILC for linear systems with non-uniform trial lengths under input constraints. In R. Carloni, J. Alonso-Mora, B. Jayawardhana, and E. Lefeber, editors, *42nd Benelux Meeting on Systems and Control*, page 64, Elspeet, The Netherlands, 2023.

[430] L. Aarnoudse, J. Kon, W. Ohnishi, M. Poot, P. Tacx, N. Strijbosch, and T. Oomen. Data-driven compensation of unmodeled dynamics for complex mechatronic systems – part III: Control-relevant neural networks for feedforward. In *Euspen Special Interest Group Meeting on Precision Motion Systems & Control*, 's-Hertogenbosch, The Netherlands, 2022.

[431] K. Classens, W. Heemels, and T. Oomen. Digital twins for precision mechatronics: Predictive maintenance via fault detection and isolation. In *Euspen Special Interest Group Meeting on Precision Motion Systems & Control*, 's-Hertogenbosch, The Netherlands, 2022.

[432] M. van Dael, G. Witvoet, B. Swinkels, and T. Oomen. Precision control for gravitational wave detectors. In *Euspen Special Interest Group Meeting on Precision Motion Systems & Control*, 's-Hertogenbosch, The Netherlands, 2022.

[433] M. van Haren, L. Blanken, and T. Oomen. Basis function feedforward for position-dependent systems. In *Euspen Special Interest Group Meeting on Precision Motion Systems & Control*, 's-Hertogenbosch, 2022.

[434] J. Kon, N. de Vos, D. Bruijnen, J. van de Wijdeven, M. Heertjes, and T. Oomen. Data-driven compensation of unmodeled dynamics for complex mechatronic systems – part II: Combining models and neural networks. In *Euspen Special Interest Group Meeting on Precision Motion Systems & Control*, 's-Hertogenbosch, The Netherlands, 2022.

[435] M. van Meer, G. Witvoet, and T. Oomen. Reducing torque ripple and power consumption in switched reluctance motors: a systematic approach to commutation function design. In *Euspen Special Interest Group Meeting on Precision Motion Systems & Control*, 's-Hertogenbosch, The Netherlands, 2022.

[436] M. Poot, M. van Haren, D. Kostić, J. Portegies, and T. Oomen. Data-driven compensation of unmodeled dynamics for complex mechatronic systems – part I: Position-dependent feedforward through gaussian process regression. In *Euspen Special Interest Group Meeting on Precision Motion Systems & Control*, 's-Hertogenbosch, The Netherlands, 2022.

[437] P. Tacx, R. Habraken, G. Witvoet, S. Kuiper, M. Heertjes, and T. Oomen. Design analysis of future deformable mirrors. In *Euspen Special Interest Group Meeting on Precision Motion Systems & Control*, 's-Hertogenbosch, The Netherlands, 2022.

[438] M. Mae, M. van Haren, W. Ohnishi, T. Oomen, and H. Fujimoto. Improving intersample performance with linearly parameterized feedforward using sampled-data differentiator. In *x*, page 259, Los Angeles, California, United States, 2022.

[439] L. Aarnoudse, J. Kon, W. Ohnishi, M. Poot, P. Tacx, N. Strijbosch, and T. Oomen. Neural networks for motion feedforward: Control-relevant training and non-causality. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 87, Brussels, Belgium, 2022.

[440] L. M. Chaouach, D. Boskos, and T. Oomen. Tightening ambiguity set characterizations for data-driven distributionally robust optimization. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 189, Brussels, Belgium, 2022.

[441] K. Classens, W. Heemels, and T. Oomen. On robust fault diagnosis of complex mechatronic systems. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 204, Brussels, Belgium, 2022.

[442] M. van Dael, G. Witvoet, B. Swinkels, and T. Oomen. Control in gravitational wave detectors. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 103, Brussels, Belgium, 2022.

[443] M. van Haren, L. Blanken, and T. Oomen. Multirate system identification using local polynomial modeling. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 93, Brussels, Belgium, 2022.

[444] J. van Hulst, M. Poot, D. Kostić, K. W. Yan, J. Portegies, and T. Oomen. Feedforward control in the presence of input nonlinearities: A learning-based approach. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 128, Brussels, Belgium, 2022.

[445] L. van de Kamp, J. Reinders, B. Hunnekens, T. Oomen, and N. van de Wouw. Using ANNs in dynamical systems to improve asynchrony detection in mechanical ventilation. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 168, Brussels, Belgium, 2022.

[446] J. Kon, D. Bruijnen, J. van de Wijdeven, M. Heertjes, and T. Oomen. Physics-guided neural networks for feedforward control: An orthogonal projection-based approach. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 171, Brussels, Belgium, 2022.

[447] M. Mae, M. van Haren, T. Oomen, W. Ohnishi, and H. Fujimoto. Flexible learning with prior knowledge: Iterative learning control with physically characterized basis function. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 174, Brussels, Belgium, 2022.

[448] M. van Meer, M. Poot, J. Portegies, and T. Oomen. Nonlinear feedforward control for a class of tasks: A gaussian process approach applied to a printer. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 121, Brussels, Belgium, 2022.

[449] M. Poot, J. Portegies, and T. Oomen. Data-driven tuning of rational feedforward controllers for non-cummutative MIMO systems. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 74, Brussels, Belgium, 2022.

[450] P. Tacx and T. Oomen. Visualisation of MIMO uncertainty structures for robust control. In A. Vande Wouwer, M. Kinnaert, E. Garone, and L. Dewasme, editors, *41st Benelux Meeting on Systems and Control*, page 38, Brussels, Belgium, 2022.

[451] M. Mae, M. van Haren, W. Ohnishi, T. Oomen, and H. Fujimoto. Feedforward of sampled-data system for high-precision motion control using basis functions with ZOH differentiator. In *Proceedings of the 2022 American Control Conference*, page 3350, Atlanta, Georgia, United States, 2022.

[452] M. Poot, J. Portegies, N. Mooren, M. van Haren, M. van Meer, and T. Oomen. Gaussian processes for advanced motion control. In *Proceedings of the 2022 American Control Conference*, page 3355, Atlanta, Georgia, United States, 2022.

[453] K. Tsurumoto, W. Ohnishi, T. Koseki, N. Strijbosch, and T. Oomen. A non-causal approach for suppressing the estimation delay of state observer. In *Proceedings of the 2022 American Control Conference*, page 3356, Atlanta, Georgia, United States, 2022.

[454] L. Aarnoudse and T. Oomen. Efficient model-free iterative learning control for massive MIMO systems using stochastic approximation. In J. Hendrikx and E. Lefeber, editors, *Benelux Meeting on Systems and Control*, Rotterdam, The Netherlands, 2021.

[455] K. Classens, W. Heemels, and T. Oomen. On closed-loop fault diagnosis of complex mechatronic systems. In J. Hendrikx and E. Lefeber, editors, *Benelux Meeting on Systems and Control*, Rotterdam, The Netherlands, 2021.

[456] J. Kon, N. Strijbosch, S. Koekebakker, and T. Oomen. Intermittent sampling in repetitive control: Exploiting time-varying measurements. In J. Hendrikx and E. Lefeber, editors, *Benelux Meeting on Systems and Control*, Rotterdam, The Netherlands, 2021.

[457] M. Poot, J. Portegies, and T. Oomen. Kernel-based learning control for iteration-varying tasks applied to a printer with friction. In J. Hendrikx and E. Lefeber, editors, *Benelux Meeting on Systems and Control*, Rotterdam, The Netherlands, 2021.

[458] P. Tacx and T. Oomen. Accurate $\mathcal{H}_\infty$-norm estimation via finite-frequency norms of local parametric models. In J. Hendrikx and E. Lefeber, editors, *Benelux Meeting on Systems and Control*, Rotterdam, The Netherlands, 2021.

[459] K. Classens, T. Oomen, W. Heemels, J. van de Wijdeven, M. van de Wal, and W. Aangenent. Digital twins in control: From fault detection to predictive maintenance in precision mechatronics. In *First EUSPEN Special Interest Group Meeting on Precision Motions Systems & Control*, 2020.

[460] N. Dirkx, J. van de Wijdeven, and T. Oomen. A multivariable experiment design framework for accurate FRF identification of complex systems. In *First EUSPEN Special Interest Group Meeting on Precision Motions Systems & Control*, 2020.

[461] E. Evers, B. de Jager, and T. Oomen. Advanced identification and control: Thermodynamics in precision mechatronics. In *First EUSPEN Special Interest Group Meeting on Precision Motions Systems & Control*, 2020.

[462] N. Mooren, G. Witvoet, and T. Oomen. Compensating position-dependent disturbances in mechatronic systems: A new repetitive control framework with applications to a substrate carrier. In *First EUSPEN*

Special Interest Group Meeting on Precision Motions Systems & Control, 2020.

[463] M. Poot, D. Kostić, R. Vromans, G. Maleas, J. Portegies, and T. Oomen. Learning for motion control in bonding machines: Bridging data-driven learning and physical modelling. In *First EUSPEN Special Interest Group Meeting on Precision Motions Systems & Control*, 2020.

[464] N. Strijbosch, L. Aarnoudse, P. Tacx, E. Verschueren, and T. Oomen. Long-range piezo actuators: Compensating hysteresis and commutation angle reproducible disturbances. In *First EUSPEN Special Interest Group Meeting on Precision Motions Systems & Control*, 2020.

[465] K. Classens, T. Oomen, W. Heemels, J. van de Wijdeven, M. van de Wal, and W. Aangenent. Towards predictive maintenance via digital twinning: Bridging data-driven and model-based fault detection and isolation. In *Accepted for Proceedings of the 2020 DSPE Conference on Precision Mechatronics*, 2020.

[466] N. Dirkx, J. van de Wijdeven, and T. Oomen. Accurate FRF identification of complex systems via multivariable experiment design. In *Accepted for Proceedings of the 2020 DSPE Conference on Precision Mechatronics*, Sint Michielsgestel, The Netherlands, 2020.

[467] E. Evers, R. Slenders, R. van Gils, and T. Oomen. Temperature-dependent modeling of thermoelectric elements. In *Accepted for Proceedings of the 2020 DSPE Conference on Precision Mechatronics*, 2020.

[468] M. Poot, D. Kostić, R. Vromans, G. Males, J. Portegies, and T. Oomen. Learning for motion control in bonding machines: Bridging data-driven learning and physical modelling. In *Accepted for Proceedings of the 2020 DSPE Conference on Precision Mechatronics*, Sint Michielsgestel, The Netherlands, 2020.

[469] L. Aarnoudse, N. Strijbosch, E. Verschueren, and T. Oomen. Commutation-angle iterative learning control for walking piezo-stepper actuators. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 152, Elspeet, The Netherlands, 2020.

[470] T. Bloemers, R. Tóth, and T. Oomen. Data-driven rational LPV controller synthesis for unstable systems using frequency response functions. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 144, Elspeet, The Netherlands, 2020.

[471] N. Dirkx, J. van de Wijdeven, and T. Oomen. Optimal experiment design for a wafer stage: A sequential relaxation approach. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 98, Elspeet, The Netherlands, 2020.

[472] N. Mooren, G. Witvoet, and T. Oomen. Gaussian process repetitive control for suppressing spatial disturbances: With application to a substrate carrier system. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 106, Elspeet, The Netherlands, 2020.

[473] J.-P. Noël, E. Evers, and T. Oomen. Nonlinear data-driven identification of thermo-electric systems. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 100, Elspeet, The Netherlands, 2020.

[474] W. Ohnishi, J. van Zundert, H. Fujimoto, and T. Oomen. Balancing on-sample and intersample behavior in sampled-data system inversion. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 107, Elspeet, The Netherlands, 2020.

[475] M. Poot, J. Portegies, and T. Oomen. On the role of models in learning control: Actor-critic iterative learning control. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 155, Elspeet, The Netherlands, 2020.

[476] J. Reinders, R. Verkade, B. Hunnekens, N. van de Wouw, and T. Oomen. Repetitive control to improve pressure tracking performance in mechanical ventilation of sedated patients. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 104, Elspeet, The Netherlands, 2020.

[477] N. Strijbosch and T. Oomen. Intermittent sampling in iterative learning control: A monotonically-convergent gradient-descent approach with application to time stamping. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 98, Elspeet, The Netherlands, 2020.

[478] P. Tacx, R. de Rozario, and T. Oomen. Model order selection for robust-control-relevant identification. In R. Carloni, B. Jayawardhana, and E. Lefeber, editors, *39th Benelux Meeting on Systems and Control*, page 148, Elspeet, The Netherlands, 2020.

[479] L. Blanken, S. Koekebakker, and T. Oomen. Multi-period repetitive control: Sequential design approach applied to a roll-to-roll industrial printer. In P. Patrinos, I. Markovsky, W. Michiels, J. Swevers, and S. Waldherr, editors, *38th Benelux Meeting on Systems and Control*, page 51, Lommel, Belgium, 2019.

[480] T. Bloemers, R. Tóth, and T. Oomen. Data-driven LPV synthesis: The FIR controller case. In P. Patrinos, I. Markovsky, W. Michiels, J. Swevers, and S. Waldherr, editors, *38th Benelux Meeting on Systems and Control*, page 111, Lommel, Belgium, 2019.

[481] N. Dirkx, J. van de Wijdeven, and T. Oomen. Exploiting directionality in optimal experiment design for multivariable systems. In P. Patrinos, I. Markovsky, W. Michiels, J. Swevers, and S. Waldherr, editors, *38th Benelux Meeting on Systems and Control*, page 65, Lommel, Belgium, 2019.

[482] E. Evers, B. de Jager, and T. Oomen. Identifying thermal dynamics for precision motion control. In P. Patrinos, I. Markovsky, W. Michiels, J. Swevers, and S. Waldherr, editors, *38th Benelux Meeting on Systems and Control*, page 109, Lommel, Belgium, 2019.

[483] N. Mooren, G. Witvoet, and T. Oomen. Data-driven feedforward control for mechatronic systems: Analysis, new approach and application. In P. Patrinos, I. Markovsky, W. Michiels, J. Swevers, and S. Waldherr, editors, *38th Benelux Meeting on Systems and Control*, page 54, Lommel, Belgium, 2019.

[484] R. de Rozario and T. Oomen. Learning control without prior models multi-variable model-free IIC applied to an industrial printer. In P. Patrinos, I. Markovsky, W. Michiels, J. Swevers, and S. Waldherr, editors, *38th Benelux Meeting on Systems and Control*, page 52, Lommel, Belgium, 2019.

[485] N. Strijbosch and T. Oomen. Beyond time-domain iterative learning control. In P. Patrinos, I. Markovsky, W. Michiels, J. Swevers, and S. Waldherr, editors, *2019 Benelux Meeting on Systems and Control*, page 53, Lommel, Belgium, 2019.

[486] J. Reinders, B. Hunnekens, T. Oomen, and N. van de Wouw. Adaptive pressure control applied to mechanically ventilated patients. In P. Patrinos, I. Markovsky, W. Michiels, J. Swevers, and S. Waldherr, editors, *38th Benelux Meeting on Systems and Control*, page 134, Lommel, Belgium, 2019.

[487] E. Evers, B. de Jager, and T. Oomen. Advanced identification & control for thermal systems. In *Proceedings of the 2018 DSPE Conference on Precision Mechatronics*, pages 143–144, Sint Michielsgestel, The Netherlands, 2018.

[488] S. Koekebakker and T. Oomen. Learning and repetitive control in printing cooperation Océ-TU/e 2010-2018. In *Proceedings of the 2018 DSPE Conference on Precision Mechatronics*, pages 149–150, Sint Michielsgestel, The Netherlands, 2018.

[489] N. Mooren, R. Voorhoeve, N. Dirkx, R. de Rozario, and T. Oomen. Inferential motion control of a wafer stage: From disturbance observers to position-dependency. In *Proceedings of the 2018 DSPE Conference on Precision Mechatronics*, pages 145–146, Sint Michielsgestel, The Netherlands, 2018.

[490] R. de Rozario, N. Strijbosch, L. Blanken, S. Koekebakker, and T. Oomen. What does learning control have to offer for your machine? a lot! we will demonstrate it on industrial printers. In *Proceedings of the 2018 DSPE Conference on Precision Mechatronics*, pages 141–142, Sint Michielsgestel, The Netherlands, 2018.

[491] J. van Zundert, T. Oomen, W. Aangenent, and M. Heemels. Multirate control for high accuracy and low cost: Dual-stage experiments. In *Proceedings of the 2018 DSPE Conference on Precision Mechatronics*, pages 123–124, Sint Michielsgestel, The Netherlands, 2018.

[492] L. Blanken, S. Koekebakker, and T. Oomen. Data-driven inverse-model feedforward control using non-causal rational basis functions. In R. Carloni, D. Jeltsema, and M. Lazar, editors, *37th Benelux Meeting on Systems and Control*, page 142, Soesterberg, The Netherlands, 2018.

[493] E. Evers, B. de Jager, and T. Oomen. Local rational method with prior system knowledge: With application to mechanical and thermal systems. In R. Carloni, D. Jeltsema, and M. Lazar, editors,

37th Benelux Meeting on Systems and Control, page 21, Soesterberg, The Netherlands, 2018.

[494] N. Mooren, N. Dirkx, R. Voorhoeve, and T. Oomen. Inferential control of a wafer stage using disturbance observers. In R. Carloni, D. Jeltsema, and M. Lazar, editors, *37th Benelux Meeting on Systems and Control*, page 138, Soesterberg, The Netherlands, 2018.

[495] M. Beijen, M. Heertjes, R. Voorhoeve, and T. Oomen. Estimating transmissibility functions in industrial vibration isolation systems by combining floor and shaker excitations. In P. Van Dooren and J. Hendrickx, editors, *36th Benelux Meeting on Systems and Control*, page 70, Spa, Belgium, 2017.

[496] L. Blanken, S. Koekebakker, and T. Oomen. Design framework for multivariable ILC: (de)centralized design & modeling considerations. In P. Van Dooren and J. Hendrickx, editors, *36th Benelux Meeting on Systems and Control*, page 40, Spa, Belgium, 2017.

[497] E. Evers, M. van de Wal, and T. Oomen. Synchronized motion control for overall performance enhancement: A Youla framework applied to a wafer scanner. In P. Van Dooren and J. Hendrickx, editors, *36th Benelux Meeting on Systems and Control*, page 72, Spa, Belgium, 2017.

[498] R. de Rozario, A. Fleming, and T. Oomen. Frequency response function-based iterative control applied to a nanopositioner. In P. Van Dooren and J. Hendrickx, editors, *36th Benelux Meeting on Systems and Control*, page 41, Spa, Belgium, 2017.

[499] J. van Zundert, S. Koekebakker, and T. Oomen. Feedforward and learning for LTV systems with application to a position-dependent printer. In P. Van Dooren and J. Hendrickx, editors, *36th Benelux Meeting on Systems and Control*, page 74, Spa, Belgium, 2017.

[500] R. de Rozario, R. Voorhoeve, W. Aangenent, and T. Oomen. Position-dependent modeling for next-generation motion control of a wafer stage. In *Proceedings of the 2016 DSPE Conference on Precision Mechatronics*, page 135, Sint Michielsgestel, The Netherlands, 2016.

[501] J. van Zundert, T. Oomen, D. Goswami, and M. Heemels. Beyond traditional sampling strategies for enhanced performance and cost-effectiveness. In *Proceedings of the 2016 DSPE Conference on Precision Mechatronics*, pages 127–128, Sint Michielsgestel, The Netherlands, 2016.

[502] L. Blanken, F. Boeren, D. Bruijnen, and T. Oomen. Batch-to-batch rational feedforward tuning: From learning to identification approaches. In R. Carloni, D. Jeltsema, and M. Lazar, editors, *35th Benelux Meeting on Systems and Control*, page 122, Soesterberg, The Netherlands, 2016.

[503] L. Huijben, T. van Keulen, and T. Oomen. Identification for control of heavy-duty diesel engines via parametric and local parametric approaches. In R. Carloni, D. Jeltsema, and M. Lazar, editors, *35th Benelux Meeting on Systems and Control*, page 51, Soesterberg, The Netherlands, 2016.

[504] A. van der Maas, R. van der Maas, R. Voorhoeve, and T. Oomen. Identifying a C-arc medical X-ray system: A 2D-LRM approach. In R. Carloni, D. Jeltsema, and M. Lazar, editors, *35th Benelux Meeting on Systems and Control*, page 131, Soesterberg, The Netherlands, 2016.

[505] R. de Rozario, R. Voorhoeve, W. Aangenent, and T. Oomen. Identification of position-dependent mechanical systems. In R. Carloni, D. Jeltsema, and M. Lazar, editors, *35th Benelux Meeting on Systems and Control*, page 112, Soesterberg, The Netherlands, 2016.

[506] J. van Zundert, T. Oomen, W. Aangenent, and W. M. Heemels. Enhancing performance and cost-effectiveness in motion control via multi-rate sampling. In R. Carloni, D. Jeltsema, and M. Lazar, editors, *35th Benelux Meeting on Systems and Control*, page 123, Soesterberg, The Netherlands, 2016.

[507] L. Blanken, F. Boeren, D. Bruijnen, and T. Oomen. Iterative feedforward control with application to a wafer stage. In *34th Benelux Meeting on Systems and Control*, page 112, Lommel, Belgium, 2015.

[508] R. Voorhoeve and T. Oomen. Identification for control of high-tech motion systems. In *34th Benelux Meeting on Systems and Control*, page 48, Lommel, Belgium, 2015.

[509] J. van Zundert, J. Bolder, S. Koekebakker, and T. Oomen. Iterative learning control for varying tasks. In *34th Benelux Meeting on Systems and Control*, page 116, Lommel, Belgium, 2015.

[510] F. Boeren, D. Bruijnen, T. Oomen, and M. Steinbuch. Advances in optimization-based feedforward tuning. In *Proceedings of the 2nd DSPE Conference on Precision Mechatronics*, Sint Michielsgestel,

The Netherlands, 2014.

[511] J. Bolder, T. Oomen, S. Koekebakker, and M. Steinbuch. Intelligent feedforward: increasing performance and extrapolation capabilities by learning. In *Proceedings of the 2nd DSPE Conference on Precision Mechatronics*, Sint Michielsgestel, The Netherlands, 2014.

[512] F. Boeren, T. Oomen, D. Bruijnen, and M. Steinbuch. Iterative feedforward control: Enhanced accuracy and efficiency. In R. Carloni, M. Lazar, and T. van den Boom, editors, *33rd Benelux Meeting on Systems and Control*, page 131, Heijen, The Netherlands, 2014.

[513] J. Bolder, T. Oomen, S. Koekebakker, and M. Steinbuch. Inferential iterative learning control: Internal stability and performance aspects. In R. Carloni, M. Lazar, and T. van den Boom, editors, *33rd Benelux Meeting on Systems and Control*, page 52, Heijen, The Netherlands, 2014.

[514] E. Geerardyn, T. Oomen, and J. Schoukens. Estimating the $\mathcal{H}_\infty$ norm with the local rational method takes less data. In R. Carloni, M. Lazar, and T. van den Boom, editors, *33rd Benelux Meeting on Systems and Control*, page 67, Heijen, The Netherlands, 2014.

[515] R. Voorhoeve, T. Oomen, and M. Steinbuch. Numerically reliable identification of complex systems. In R. Carloni, M. Lazar, and T. van den Boom, editors, *33rd Benelux Meeting on Systems and Control*, page 120, Heijen, The Netherlands, 2014.

[516] F. Boeren, T. Oomen, O. Bosgra, R. van Herpen, and M. Steinbuch. On robust performance for lightly damped systems: Non-normalized coprime factors and weighting function design. In M. Kinnaert and A. V. Wouwer, editors, *32nd Benelux Meeting on Systems and Control*, page 31, Houffalize, Belgium, 2013.

[517] J. Bolder, T. Oomen, S. Koekebakker, O. Bosgra, and M. Steinbuch. Iterative learning control with rational basis functions. In M. Kinnaert and A. V. Wouwer, editors, *32nd Benelux Meeting on Systems and Control*, page 58, Houffalize, Belgium, 2013.

[518] E. Geerardyn, T. Oomen, and J. Schoukens. The local polynomial method (LPM) for $\mathcal{H}_\infty$ robust control. In M. Kinnaert and A. V. Wouwer, editors, *32nd Benelux Meeting on Systems and Control*, page 47, Houffalize, Belgium, 2013.

[519] R. van der Maas and T. Oomen. Multivariable data-driven uncertainty modeling for robust active vibration isolation. In M. Kinnaert and A. V. Wouwer, editors, *32nd Benelux Meeting on Systems and Control*, page 21, Houffalize, Belgium, 2013.

[520] J. Bolder, T. Oomen, S. Koekebakker, O. Bosgra, and M. Steinbuch. Learning control systems for high performance printing. In *Proceedings of the 1st DSPE Conference on Precision Mechatronics*, page 111, Deurne, The Netherlands, 2012.

[521] R. van Herpen, T. Oomen, and O. Bosgra. High-performance motion control of lightweight systems: Advanced modeling. In *Proceedings of the 1st DSPE Conference on Precision Mechatronics*, page 125, Deurne, The Netherlands, 2012.

[522] F. Boeren, R. van Herpen, T. Oomen, O. Bosgra, and M. van de Wal. Weighting function design for inferential and over-actuated control of lightweight motion systems. In H. Stigter and T. van den Boom, editors, *31st Benelux Meeting on Systems and Control*, page 131, Heijen, The Netherlands, 2012.

[523] R. van Herpen, T. Oomen, and O. Bosgra. A robust-control-relevant perspective on model order selection. In J. Swevers, J. Vandewalle, J. V. Impe, I. Smets, J. Schoukens, P. Guillaume, R. D. Keyser, and C. Ionescu, editors, *30th Benelux Meeting on Systems and Control*, page 38, Lommel, Belgium, 2011.

[524] R. van Herpen, T. Oomen, O. Bosgra, and M. van de Wal. Towards model order selection in view of robust control for motion systems with dominant flexible dynamics. In H. Stigter and G. Meinsma, editors, *29th Benelux Meeting on Systems and Control*, page 30, Heeze, The Netherlands, 2010.

[525] T. Oomen, R. van Herpen, O. Bosgra, and M. van de Wal. High performance beyond-rigid-body control of next-generation flexible stages. In M. Hamers, editor, *Proceedings of the 10th Philips Conference on Applications of Control Technology*, pages 135–136, Hilvarenbeek, The Netherlands, 2009.

[526] R. van Herpen, T. Oomen, M. van de Wal, and O. Bosgra. Robust beyond-rigid-body control of next

generation wafer stages. In M. Gevers and R. Sepulchre, editors, *28th Benelux Meeting on Systems and Control*, page 152, Spa, Belgium, 2009.

[527] T. Oomen and O. Bosgra. Dealing with flexible modes in 6 DOFs robust control. In J. Swevers, J. Schoukens, R. Pintelon, P. Guillaume, J. Van Impe, I. Smets, B. Demeulenaere, and B. De Moor, editors, *26th Benelux Meeting on Systems and Control*, page 24, Lommel, Belgium, 2007.

[528] T. Oomen and O. Bosgra. Dealing with flexible modes in 6 DOFs robust servo control. In G. Z. Angelis, editor, *Proceedings of the 9th Philips Conference on Applications of Control Technology*, pages 133–134, Hilvarenbeek, The Netherlands, 2007.

[529] T. Oomen, M. van de Wal, O. Bosgra, and M. Steinbuch. Optimal digital control of analog systems. In L. Catoire and M. Kinnaert, editors, *24th Benelux Meeting on Systems and Control*, page 56, Houffalize, Belgium, 2005.

[530] T. A. E. Oomen, D. Kostić, B. de Jager, and M. Steinbuch. The RRR-robot feedback control design via iterative feedback tuning. In B. de Jager and V. Verdult, editors, *23rd Benelux Meeting on Systems and Control*, page 21, Helvoirt, The Netherlands, 2004.

Poster Presentations

[531] K. Classens, M. van Dael, M. van Haren, M. van der Hulst, T. Ickenroth, M. van Meer, and T. Oomen. Fault detection for mechatronics. Precision Fair, Den Bosch, The Netherlands, 2024.

[532] M. van Haren, R. S. Smith, L. Mirkin, L. Blanken, and T. Oomen. Non-parametric identification beyond the Nyquist frequency. Poster presentation at 26th ERNSI Workshop on System Identification, Venice, Italy, 2024.

[533] J. Kon, R. Tóth, J. van de Wijdeven, M. Heertjes, and T. Oomen. Guaranteeing stability in transfer function identification through unconstrained parametrizations. Poster presentation at 26th ERNSI Workshop on System Identification, Venice, Italy, 2024.

[534] T. Oomen. Advanced motion control for precision mechatronics: Identification, learning, and control. 10^{th} Nagamori award ceremony, 2024.

[535] M. van Haren, L. Mirkin, L. Blanken, and T. Oomen. Identifying frequency response functions: A fast and accurate approach that enables measuring above the Nyquist frequency. Poster presentation at 2023 Precisiebeurs, Den Bosch, The Netherlands.

[536] M. van Dael, M. Poot, M. van Meer, M. van Haren, and T. Oomen. Advanced feedforward control for motion systems. Poster presentation at 2023 Precisiebeurs, Den Bosch, The Netherlands.

[537] R. A. González, A. L. Cedeño, K. Tiels, and T. Oomen. Identification of linear state-space models subject to truncated Gaussian disturbances. Poster presentation at 2023 ERNSI Workshop on System Identification, Stockholm, Sweden.

[538] K. Tiels, R. A. González, and T. Oomen. Control variates for multivariate truncated probability density funcions with applications in system identification. Poster presentation at 2023 ERNSI Workshop on System Identification, Stockholm, Sweden.

[539] L. Aarnoudse and T. Oomen. (Machine) learning for feedforward in precision mechatronics. Poster presentation at JSPS-NWO Seminar Research Network on Learning in Machines, Tokyo, Japan.

[540] M. van Dael, G. Witvoet, B. Swinkels, and T. Oomen. Time-varying interaction in gravitational wave detectors. Poster presentation at JSPS-NWO Seminar Research Network on Learning in Machines, Tokyo, Japan.

[541] N. Dirkx and T. Oomen. Robust-control-relevant experiment design and system identification. Poster presentation at JSPS-NWO Seminar Research Network on Learning in Machines, Tokyo, Japan.

[542] M. van Haren, L. Mirkin, L. Blanken, and T. Oomen. FRF identification above the Nyquist frequency. Poster presentation at JSPS-NWO Seminar Research Network on Learning in Machines, Tokyo, Japan.

[543] J. Kon, D. Bruijnen, M. Heertjes, and T. Oomen. Neural networks for feedforward control. Poster presentation at JSPS-NWO Seminar Research Network on Learning in Machines, Tokyo, Japan.

[544] M. van Meer, G. Witvoet, and T. Oomen. Identification and robust control for motor commutation. Poster presentation at JSPS-NWO Seminar Research Network on Learning in Machines, Tokyo, Japan.

[545] M. Poot, J. Portegies, N. Mooren, M. van Haren, M. van Meer, and T. Oomen. Gaussian processes for advanced motion control. Poster presentation at JSPS-NWO Seminar Research Network on Learning in Machines, Tokyo, Japan.

[546] K. Classens, M. Heemels, and T. Oomen. Signal-to-noise aspects in closed-loop fault identification. Poster presentation at 2022 ERNSI Workshop on System Identification, Leuven, Belgium.

[547] N. Dirkx, K. Tiels, and T. Oomen. Frequency domain identification with missing data. Poster presentation at 2022 ERNSI Workshop on System Identification, Leuven, Belgium.

[548] K. Tiels, N. Strijbosch, and T. Oomen. Compensation of hysteresis phenomena in a walking piezo actuator via hybrid-MEM-element identification. Poster presentation at 2022 ERNSI Workshop on System Identification, Leuven, Belgium.

[549] P. Tacx and T. Oomen. Identifying mechanical systems for control. Poster presentation at 2022 ERNSI Workshop on System Identification, Leuven, Belgium.

[550] M. Poot, M. van Meer, M. van Haren, J. Portegies, N. Mooren, and T. Oomen. Gaussian processes for advanced motion control. Precision Fair, Den Bosch, The Netherlands.

[551] K. Classens, W. Heemels, and T. Oomen. Identifying faults: A closed-loop perspective. Poster presentation at 29th ERNSI Workshop on System Identification, Rennes, France.

[552] N. Dirkx and T. Oomen. Robust-control-relevant experiment design and system identification applied to a wafer stage. Poster presentation at 29th ERNSI Workshop on System Identification, Rennes, France.

[553] P. Tacx and T. Oomen. Accurate $\mathcal{H}_\infty$-norm estimation via finite-frequency norms of MIMO local parametric models. Poster presentation at 29th ERNSI Workshop on System Identification, Rennes, France.

[554] T. Bloemers, T. Oomen, and R. Tóth. Data-driven LPV controller synthesis in the frequency-domain. Poster presentation at 28th ERNSI Workshop on System Identification, Maastricht, The Netherlands, 2019.

[555] E. Evers, B. de Jager, and T. Oomen. Local rational approximation with prescribed poles for improved frequency response function identification. Poster presentation at 28th ERNSI Workshop on System Identification, Maastricht, The Netherlands, 2019.

[556] L. Blanken and T. Oomen. Kernel-based regression of non-causal systems of inverse model feedforward estimation. Poster presentation at 27th ERNSI Workshop on System Identification, Cambridge, United Kingdom, 2018.

[557] R. de Rozario and T. Oomen. A global approach to frequency response function identification of LPV systems: With application to motion systems. Poster presentation at 27th ERNSI Workshop on System Identification, Cambridge, United Kingdom, 2018.

[558] L. Blanken and T. Oomen. Identification of inverse models for feedforward control: Non-causal basis functions & optimal IV approach. Poster presentation at 26th ERNSI Workshop on System Identification, Lyon, France, 2017.

[559] R. de Rozario, R. Voorhoeve, and T. Oomen. Parametrizing mechanical systems using matrix fraction descriptions, with application to spatio-temporal identification. Poster presentation at 26th ERNSI Workshop on System Identification, Lyon, France, 2017.

[560] R. de Rozario, R. Voorhoeve, and T. Oomen. A frequency-domain parametric identification approach for position-dependent mechanical systems. Poster presentation at 25th ERNSI Workshop on System Identification, Cison di Valmarino, Italy, 2016.

[561] R. Voorhoeve and T. Oomen. LRM for multivariable and position-dependent mechanical systems. Poster presentation at 25th ERNSI Workshop on System Identification, Cison di Valmarino, Italy, 2016.

[562] F. Boeren, L. Blanken, and T. Oomen. Identification of inverse model for feedforward compensation: An optimal IV approach. Poster presentation at 24th ERNSI Workshop on System Identification, Varberg, Sweden, 2015.

[563] R. Voorhoeve and T. Oomen. Identification of complex mechatronic systems. Poster presentation at 24th ERNSI Workshop on System Identification, Varberg, Sweden, 2015.

[564] F. Boeren and T. Oomen. Data-driven feedforward tuning based on closed-loop identification techniques. Poster presentation at 23nd ERNSI Workshop on System Identification, Oostende, Belgium, 2014.

[565] E. Geerardyn, T. Oomen, and J. Schoukens. The local polynomial method for $\mathcal{H}_\infty$ norm estimation. Poster presentation at 23nd ERNSI Workshop on System Identification, Oostende, Belgium, 2014.

[566] E. Geerardyn, T. Oomen, and J. Schoukens. The local rational method for $\mathcal{H}_\infty$ norm estimation. Poster presentation at 2014 DYSCO Study Day, Namur, Belgium, 2014.

[567] R. Voorhoeve, T. Oomen, and M. Steinbuch. Numerically reliable identification of complex systems. Poster presentation at 23nd ERNSI Workshop on System Identification, Oostende, Belgium, 2014.

[568] E. Geerardyn, T. Oomen, and J. Schoukens. The local polynomial method for $\mathcal{H}_\infty$ norm estimation. Poster presentation at 22nd ERNSI Workshop on System Identification, Pont-à-Mousson, France, 2013.

[569] T. Oomen and R. van Herpen. Bi-orthonormal basis functions for improved frequency domain system identification. Poster presentation at 22nd ERNSI Workshop on System Identification, Pont-à-Mousson, France, 2013.

[570] T. Oomen, C. R. Rojas, H. Hjalmarsson, and B. Wahlberg. On the properties of iterative schemes. Poster presentation at 19th ERNSI Workshop on System Identification, Cambridge, United Kingdom, 2010.

[571] T. Oomen and O. Bosgra. Transparently connecting model uncertainty identification and robust control design by adopting a new coordinate frame. Poster presentation at 18th ERNSI Workshop on System Identification, Stift Vorau, Austria, 2009.

Data sets

[572] R. Voorhoeve, A. van der Maas, E. Geerardyn, and T. Oomen. System identification (SYSID) benchmark for an active vibration isolation system (AVIS). `http://dx.doi.org/10.4121/uuid:494e738d-e2aa-49e4-b076-ac96d3a142e8`.