

# Short CV

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NAME	Yahao Chen
CONTACT INFORMATION	Affiliation: Bernoulli Institute, University of Groningen Address: Nijenborgh 4, 9747 AG Groningen, The Netherlands Phone: +33(0) 768334227 Web: <a href="https://chenyahao.github.io/">https://chenyahao.github.io/</a> Emails: <a href="mailto:yahao.chen@rug.nl">yahao.chen@rug.nl</a> <a href="mailto:chenyahao1991@gmail.com">chenyahao1991@gmail.com</a>
RESEARCH INTERESTS	Linear and nonlinear differential-algebraic equations (DAEs): solution theory, feedback linearization, canonical forms, structural analysis; Geometric methods for linear and nonlinear control systems; Nonlinear control theory: stability and stabilization, singular perturbation, etc; Non-smooth dynamics: Jumps and impulses of DAEs with inconsistent initial values, switched DAEs.
BACKGROUNDS	<b>University of Groningen (RUG), the Netherlands</b> Postdoctoral Researcher (Applied Mathematics, September 2019-Now) <ul style="list-style-type: none"><li>• Project: “<i>Analysis and control of switched differential algebraic equations</i>” (PI: S. Trenn), NWO Vidi grant 639.032.733</li></ul> <b>Institut National des Sciences Appliquées (INSA) de Rouen, France</b> PhD (Applied Mathematics, October 2015-June 2019) <ul style="list-style-type: none"><li>• Dissertation: “<i>Geometric analysis of differential-algebraic equation control systems: linear, nonlinear and linearizable</i>”</li></ul> <b>Northeastern University (NEU), China</b> MSc (Control Science and Engineering, October 2012-July 2015) <ul style="list-style-type: none"><li>• Dissertation: “<i>Anti-windup Compensator for Control Systems Subject to Actuator Saturation</i>”</li></ul>
JOURNAL PUBLICATIONS	Y. Chen* and W. Respondek (2021), Geometric analysis of differential-algebraic equations via linear control theory, <i>SIAM Journal on Control and Optimization</i> , 59, pp. 103-130.  Y. Chen* and W. Respondek (2021), From Morse triangular form of ODE control systems to feedback canonical form of DAE control systems, accepted by <i>Journal of the Franklin Institute</i> , preprint available from <a href="https://arxiv.org/abs/2103.14913">https://arxiv.org/abs/2103.14913</a> .  Y. Chen*, S. Trenn and W. Respondek (2021), Normal forms and internal regularization of nonlinear differential-algebraic control systems, <i>International Journal of Robust and Nonlinear Control</i> , in press, doi: <a href="https://doi.org/10.1002/rnc.5623">10.1002/rnc.5623</a> .  Y. Chen* and W. Respondek (2021), Geometric analysis of nonlinear differential-algebraic equations via nonlinear control theory, submitted to <i>Journal of Differential Equations</i> , available from <a href="https://arxiv.org/abs/2103.16711">https://arxiv.org/abs/2103.16711</a> .  Y. Chen* and W. Respondek (2021), Feedback linearization of nonlinear differential-algebraic control systems, submitted to <i>Nonlinear Dynamics</i> , preprint available from <a href="https://arxiv.org/abs/2104.02141">https://arxiv.org/abs/2104.02141</a> .

	Y. Chen* and S. Trenn (2021), Impulse-free jump solutions for nonlinear differential-algebraic equations, submitted to <i>Nonlinear Analysis: Hybrid Systems</i> , available from the website of the authors.	
CONFERENCES PUBLICATIONS	<p>Y. Chen* and S. Trenn (2021), An approximation for nonlinear differential-algebraic equations via singular perturbation theory, accepted by IFAC Conference on Analysis and Design of Hybrid Systems, in press.</p> <p>Y. Chen* and S. Trenn (2021), The differentiation index of nonlinear differential-algebraic equations versus the relative degree of nonlinear control systems, PAMM, 20(1), e202000162.</p> <p>Y. Chen* and S. Trenn (2021), On geometric and differentiation index of nonlinear differential-algebraic equations, accepted by 24th International Symposium on Mathematical Theory of Networks and Systems (MTNS 2020), in press.</p> <p>Y. Chen* and W. Respondek (2019), Yahao Chen, Witold Respondek, Internal and External Linearization of Semi-Explicit Differential Algebraic Equations, IFAC-PapersOnLine, Volume 52, Issue 16, 2019, Pages 292-297.</p> <p>J. Dong, Y. Chen, G.H. Yang (2014), Reliable fuzzy stabilization against sensor faults, 2014 International Conference on Mechatronics and Control (ICMC), pp. 2059-2062. IEEE.</p>	
TEACHING EXPERIENCE	Spring 2021 TA, Project Systems Theory, University of Groningen Winter 2020 Lecturer, Advanced Systems Theory, University of Groningen Spring 2018 TA, Calculus Differential, INSA de Rouen	
AWARDS	2015-2019 Scholarship from Chinese Scholarship Council (CSC) 2012-2014 Highest distinction in general scholarship; First-Class Honours. 2013 Third Prize in National Mathematical Contest in Modeling 2012-2013 Merit Student	
GRADUATE COURSEWORK	<input type="checkbox"/> Calculus <input type="checkbox"/> Linear Control Theory <input type="checkbox"/> Linear Algebra <input type="checkbox"/> Differential Geometry <input type="checkbox"/> Partial Differential Equations <input type="checkbox"/> Nonlinear Control Systems	<input type="checkbox"/> Differential Equations <input type="checkbox"/> Analog and Digital Electronics <input type="checkbox"/> Automatic Control Principal <input type="checkbox"/> Matrix Analysis <input type="checkbox"/> Intelligent Control Systems
SCIENTIFIC PROJECT EXPERIENCE	2013-2015 Control system design for rotor/fixed wing aircrafts. (participate) PI: Prof.Jiuxiang Dong, Prof.Guang-Hong Yang Institute of Navigation and Control Theory, NEU, China. 2013-2014 Research on the control design of Denso 6-Axis robot arm. Advisor: Prof.Jiuxiang Dong Institute of Navigation and Control Theory, NEU, China.	
RELEVANT SKILLS	Languages: English (TOEFL ibt 99), French (TCF B1), Chinese (native). Programing: C/C++, Python.	

Others:            $\text{\LaTeX}$ , Matlab/Simulink, ROS, embedded system design (51 Single-chips, ARM STM32).

#### REFERENCES

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**Prof. Jiuxiang Dong**, Northeastern University, School of Information Science and Engineering, 110004 Shenyang, China, [dongjiuxiang@ise.neu.edu.cn](mailto:dongjiuxiang@ise.neu.edu.cn)