

THOMAS EDWARD BEAUDUIN

155 West 3rd Avenue
Vancouver, BC, Canada
+1 360 559 5805

Lenniksesteenweg, 444
B-1500 Halle, Belgium
+32 476 01 4340

WORK EXPERIENCE

- 2017 - 2020 **MTT Innovation Inc.** **Vancouver, Canada**
Internal & External Venturing | 2019 - present
Joined the Executive Committee of the newly appointed CTO in the parent company, Barco NV, as advisor on R&D portfolio management and new acquisitions. Charged with coaching R&D globally to change corporate culture from a siloed product-driven structure to technology-driven internal ventures.
- Sr. Research Engineer, project lead* | 2017 - 2019
Set up and led 3 key projects on technical and business development. Including, a Horizon-3 computational optics innovation in additive manufacturing with a focused team of 3 scientists, a Horizon-2 foundational laser assembly technology with \$5M in funding and a Belgo-Canadian team of 15 engineers and a Horizon-1 Joint Development for a common platform with a large consumer electronics company.
- Awarded the IEEE Under-35 Innovator of the Year Award in Industrial Electronics, 2019.
- 2014 - 2017 **The University of Tokyo, 東京大学** **Tokyo, Japan**
Research Associate, Department of Electrical Engineering
Conducted research on optimal control theory in an all-Japanese lab. Published new control algorithms based on high-order statistical modeling and demonstrated them in industry with a small team of researchers and partners including Nikon, Mori-Seiki and Toyota for their upcoming electrical vehicle.
- Awarded the Mori-Seiki Corporation President's Research Fellowship, 2015 - 2017.

EDUCATION

- 2012 - 2014 **Catholic University of Leuven** **Leuven, Belgium**
Earned a Master of Science in Mechatronics Engineering. English program, cum laude.
- Technical University of Munich** | 2012 - 2013 **Munich, Germany**
Selected for a joint university program abroad with an Erasmus Scholarship for a full academic year. Specialized in Robotics and Automotive Manufacturing. German program, cum laude.
- 2009 - 2012 **Catholic University of Leuven** **Leuven, Belgium**
Earned a Bachelor of Science in Mechanical Engineering. Dutch program, cum fructu.

EXTRA-CURRICULAR

- 2009 - 2020 **Vandewiele Group** **Kortrijk, Belgium**
Board Member | 2015 - present
Joined the board of family group, turnover of \$520M, to guide technology investments and acquisitions.
Engineering Intern | 2009 - 2015
Yearly summer internship, first at key textile customers in Belgium, Turkey and Russia, then at machinery R&D divisions in Belgium and Sweden and finally at production sites in China.
- 2009 - 2012 **Rugby, captain of the University Team** **Leuven, Belgium**
Asked to lead the university team, following 6 years as a fullback for a 1st division team in Brussels. Organized bi-weekly trainings, brought in international players and changed team tactics and culture. Led the team to the provincial final the first year and the national final the two following years.
- 2009 - 2012 **Scouting, Federation of Catholic Scouts** **Brussels, Belgium**
Responsible for the junior section of a scouts group in a disadvantaged neighborhood of Brussels.
- Languages Fluent in Dutch, English and French. Good knowledge of German and basic understanding of Japanese.
- Personal Avid interest in History, Paintings and Architecture.

Electric Vehicles

in collaboration with Toyota Motor Corporation, Advanced Engineering Division

- [1] S. Yamada, **T. Beauduin**, H. Fujimoto, T. Kanou and E. Katsuyama “Active model-based suppression of secondary ride for electric vehicles with in-wheel motors,” in *IEEE Transactions on Vehicular Technology*, xx (x), 2020. Impact Factor: 6.41 | Status: In Print.
- [2] **T. Beauduin**, S. Yamada, H. Fujimoto, T. Kanou and E. Katsuyama, “Control-oriented modelling and experimental modal analysis of electric vehicles with geared In-Wheel motors,” in *IEEE International Conference on Advanced Intelligent Mechatronics (AIM)*, 2017. Impact Factor: 1.02 | Status: Published.
- [3] S. Yamada, **T. Beauduin**, H. Fujimoto, T. Kanou and E. Katsuyama, “Model-based longitudinal vibration suppression control for electric vehicles with geared in-wheel motors,” in *IEEE International Conference on Advanced Intelligent Mechatronics (AIM)*, 2017. Impact Factor: 1.02 | Status: Published.

Precision Machining

in collaboration with Mori-Seiki Corporation, Servo Development Group

- [4] **T. Beauduin**, H. Fujimoto, Y. Terada and N. Kumagai, “Distributed Friction Modeling and Compensation for Precision Machining,” in *International Journal of Machine Tools and Manufacture*, xx (x), 2020. Impact Factor: 6.03 | Status: Submitted.
- [5] **T. Beauduin**, H. Fujimoto and Y. Terada, “Distributed and Parameter-Varying Friction Compensation for Ball-Screw Feed Drive Systems,” in *IEEE International Workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON)*, 2017. Impact Factor: 0.56 | Status: Published.
- [6] **T. Beauduin** and H. Fujimoto, “Adaptive vibration suppression perfect tracking control for linear time-varying systems with application to ball-screw feed drives,” in *IEEE 14th International Workshop on Advanced Motion Control (AMC)*, 2016. Impact Factor: 0.67 | Status: Published.
- [7] **T. Beauduin**, H. Fujimoto and Y. Terada, “Control-Oriented Modeling and Parametric Identification of Coupled Dynamics in Ball-Screw-Driven Systems,” in *IEEE International Workshop on Sensing, Actuation, Motion Control, and Optimization (SAMCON)*, 2016. Impact Factor: 0.56 | Status: Published.

Semiconductor Machinery

in collaboration with Nikon Corporation, FDP Lithography Business Unit

- [8] W. Ohnishi, **T. Beauduin**, and H. Fujimoto, “High-precision tracking control for non-minimum phase system: General framework of finite time preactuation with multirate feedforward,” in *IEEE/ASME Transactions on Mechatronics*, 24 (2), 2020. Impact Factor: 5.71 | Status: Submitted.
- [9] W. Ohnishi, **T. Beauduin**, and H. Fujimoto, “Preactuated Multirate Feedforward Control for Independent Stable Inversion of Unstable Intrinsic and Discretization Zeros,” in *IEEE/ASME Transactions on Mechatronics*, 24 (2), 2019. Impact Factor: 4.99 | Status: Published.
- [10] W. Ohnishi, **T. Beauduin**, and H. Fujimoto, “Optimal State Trajectory Regeneration for Nonminimum Phase Systems: No Preactuation Approach,” in *IEEE Annual Conference of Industrial Electronics, (IECON)*, 2018. Impact Factor: 1.12 | Status: Published.
- [11] **T. Beauduin** and H. Fujimoto, “Identification of System Dynamics with Time Delay: a Two-Stage Frequency Domain Approach,” in *The 20th World Congress of the International Federation of Automatic Control (IFAC)*, 2017. Impact Factor: 0.96 | Status: Published.
- [12] W. Ohnishi, **T. Beauduin**, and H. Fujimoto, “Preactuated multirate feedforward for a high-precision stage with continuous time unstable zeros,” in *The 20th World Congress of the International Federation of Automatic Control (IFAC)*, 2017. Impact Factor: 0.96 | Status: Published.

Optics

- [-] Patent pending in computational optics, 2019.