Son D. Tong

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🏠 *https://tongduyson.github.io/*

Ph.D. student at KULeuven, emphasis in control system

Education

Jun. 2016 (Expected)	**Ph.D. in Mechanical Engineering**, KULeuven, Leuven, Belgium. Advisors: Prof. Jan Swevers, Prof. Goele Pipeleers
Feb. 2012	**M.S. of Research in Mechatronics**, GIST, Gwangju, South Korea. Advisor: Prof. Hyo-Sung Ahn
Jun. 2009	**B.S. in Electrical Engineering**, HUST, Hanoi, Vietnam.

Experience

2012–Present — **Advance Control for Mechatronic Systems**, MECO Group.
- Experienced various control system topics:
  - Control theory: linear and nonlinear control, robust control, optimal control...
  - Design techniques: loop-shaping, PID, H-infinity, MIMO, feedforward control...
  - Numerical optimization: convex optimization, LMI
- Developed robust worst-case norm-optimal iterative learning control (ILC)
- Developed multivariable ILC analysis and design: structured and unstructured uncertainty.
- Proposed and designed a multi-objective ILC problem:
  - Robustness, convergence speed, converged error, input constraints
  - Efficient and reliable computation of the global optimum and straightforward computation of trade-off curves.
- Experimentally validated on lab-scale overhead crane and XY-Table setups.

2012–Present — **Marie Curie ITN Training Programme**, EU FP7 IMESCON Project.
- Model identification and feedback control design for the Amplifed Piezo Actuator (APA500L) of Cedrat Technologies (France).
- Spent secondment in Cedrat Tech. for model identification.
- Attended various trainings, meetings within the project.

2010–2012 — **Research Assistant**, Gwangju Institute of Science and Technology (GIST).
- Did research in Distributed Control and Autonomous Systems Lab. (GIST)
- Developed multiple points tracking iterative learning control

Skills

Control	System identification, analysis, control implementation, and validation
Programming	MATLAB, Simulink, LATEX, HTML dSPACE, LabVIEW

Awards

2012-2015	Marie-Curie Early Stage Researcher Fellowship
2011	Best presentation in session award, 2011 American Control Conference

2010-2012	GIST Scholarship for Master student
2009	International Internship Scholarship in South Korea
2005	HUST scholarship for exellent students

Teaching

2012-2015	Master course: Control Theory Exercise Sessions
2012-2015	Master course: System Theory Exercise Sessions

Professional Services

Journal reviewer	IEEE Transaction on Automatic Control (2014, 2015), Control & System Letters (2015), Mechatronics (2015, 2016), IET Control Theory & Applications (2015, 2016)
Conference reviewer	IEEE Conference on Decision and Control (2013), IFAC Adaptation and Learning in Control and Signal Processing (2013)

Selected Publications

Jul. 2015	Son, T.D., Pipeleers, G., and Swevers, J., "Robust monotonic convergent iterative learning control", *IEEE Transactions on Automatic Control*, Issue 99
Feb. 2016	Son, T.D., Pipeleers, G., and Swevers, J., "Multi-objective Iterative Learning Control using Convex Optimization", *European Journal of Control (submitted)*
May 2013	Son, T.D., Ahn, H.S., and Moore, K., " Iterative learning control in optimal tracking problems with specified data points", *Automatica*, Volume 49, Issue 5
Jun. 2015	Son, T.D., Pipeleers, G., and Swevers, J., "Robust analysis and synthesis with unstructured model uncertainty in lifted system iterative learning control", *2015 American Control Conference (ACC15)*, Chicago, USA,
Aug. 2014	Son, T.D., Pipeleers, G., and Swevers, J., "Experimental validation of robust iterative learning control on an overhead crane test setup", *The 19th World Congress IFAC 2014*, Cape Town, South Africa
Dec. 2013	Son, T.D., Pipeleers, G., and Swevers, J., "Robust optimal iterative learning control with model uncertainty", *The 52nd IEEE Conference on Decision and Control (CDC13)*, Florence, Italy
Jul. 2013	Son, T.D., Pipeleers, G., and Swevers, J., "Optimal iterative learning control design with trial-varying initial conditions", *The European Control Conference (ECC13)*, Zurich, Switzerland
Oct. 2012	Son, T.D., Ahn, H.S., "Optimal iterative learning control with uncertain reference points", *IEEE Multi-Conference on Systems and Control*, Dubrovnik, Croatia
Dec. 2011	Son, T.D., Ahn, H.S., "Iterative learning control for optimal multiple-point tracking", *The 50th IEEE Conference on Decision and Control and European Control Conference(CDC-ECC 2011)*, Orlando, USA
Jun. 2011	Son, T.D., Ahn, H.S., "Terminal iterative learning control with multiple intermediate pass points", *The 2011 American Control Conference (ACC11)*, San Francisco, USA (**The Best Presentation in Session Award**)