

Simone Baldi

Curriculum vitae

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About me

Short bio I was born in Florence, Italy, in 1983. I received the B.Sc., M.Sc. and Ph.D. degrees from the Faculty of Engineering, University of Florence (Italian: *Università degli Studi di Firenze*), Italy, in 2005, 2007 and 2011 respectively, under the supervision of Prof. **Edoardo Mosca** (IEEE Life Fellow, IFAC Fellow). During my Ph.D. studies I have been a research visitor at *Cyprus University of Technology* and *University of Southern California* collaborating with Prof. **Petros Ioannou** (IEEE Life Fellow, IFAC Fellow, former editor-in-chief of IEEE-ITS). I am currently Professor at the Jiangsu Provincial Key Lab of Networked Collective Intelligence of *Southeast University* (SEU), and I hold a visiting position at the Delft Center for Systems and Control of *Delft University of Technology*, where I was Assistant Professor in the period June 2014-April 2019. Prior to this, I held Postdoctoral Researcher positions at the *Information Technologies Institute* (I.T.I.), Centre for Research & Technology Hellas (CE.R.T.H.), Thessaloniki, Greece collaborating with Prof. **Elias Kosmatopoulos** (founder of ConvCAO lab) and Prof. **Markos Papageorgiou** (IEEE Fellow, IFAC Fellow, former editor-in-chief of *Transp. Reas. C*), and at the Networks Research Laboratory (NetRL), Department of Computer Science of University of Cyprus collaborating with Prof. Petros Ioannou and Prof. **Andreas Pitsillides**.

My main research interests are in the area of control theory and include adaptive and learning systems, adaptive optimization for control of large-scale systems, switching supervisory control with multiple models. Within European projects, I have participated to the development and implementation of learning algorithms in intelligent traffic solutions (cooperation with Prof. Markos Papageorgiou and **Traffic Control Department of city of Chania**) and in smart buildings (cooperation with prof. Elias Kosmatopoulos, **Honeywell, Fraunhofer Institute for Building Physics**, and **Dutch Central Government Real Estate Agency**).

Generalities

Date of birth **June 19th, 1983**
Birthplace **Florence, Italy**
Citizenship **Italian**
Gender **Male**

Current position

Full Professor, *School of Mathematics*, Southeast University, Nanjing, China.

Visiting professor, *Delft Center for Systems and Control*, Delft University of Technology, The Netherlands.

Research interests

Switched, Hybrid control systems; Adaptive and learning systems; Adaptive optimization for control.

Applications: Networked control systems; Smart buildings; Unmanned vehicles.

Education

- January 2008— **Ph.D. degree**, *University of Florence (Italian: Università degli Studi di Firenze) - Department of Systems and Information Engineering*, Florence, Italy.
- December 2010 Three years PhD school in Systems and Information Engineering.
Supervisor: Prof. Edoardo Mosca.
- September 2005—July 2007 **M.Sc. degree**, *University of Florence - Faculty of Engineering*, Florence, Italy, Grades: *110/110 summa cum laude*.
Two years Master of Science program in Automatic Control Systems Engineering.
Master thesis: 'Synthesis of Robust PID Controllers in the presence of Actuator Saturation with Application to Automotive Problems', Supervisor: Prof. Edoardo Mosca.
- September 2002—July 2005 **B.Sc. degree**, *University of Florence - Faculty of Engineering*, Florence, Italy, Grades: *110/110 summa cum laude*.
Three years Bachelor of Science program in Electrical Engineering.
Bachelor thesis: 'Predictive Hard-Disk Drive Control', Supervisor: Prof. Edoardo Mosca.

Ph.D. thesis

- Title *Discrete-Time Robust Adaptive Control by Mixing Precomputed Controllers*
Supervisor Prof. Edoardo Mosca (external collaboration with Prof. Petros Ioannou)

Languages

- Italian **Mother tongue**
- English **Very good**
- Greek **Good (B2 diploma)**
- Dutch **Good (B2 diploma)**
- Chinese **Fair (HSK4 diploma)**
- French **Basic**

Previous research positions

University and research centers

- May 2019–present **Professor**, *School of Mathematics, Southeast University, Nanjing, China.*
Joined the Jiangsu Provincial Key Lab of Networked Collective Intelligence. I am also affiliated with the School of Cyber Science and Engineering of Southeast University.
- June 2014–April 2019 **Assistant professor**, *Delft Center for Systems and Control, Delft University of Technology, Delft, The Netherlands.*
2019 Joined the Hybrid and Distributed Systems and Control group, headed by Prof. Bart De Schutter.
- August 2012–May 2014 **Postdoctoral fellow**, *CERTH - The Centre for Research & Technology Hellas, Thessaloniki, Greece.*
2014 Advisor: Prof. Elias Kosmatopoulos
Research on adaptive control and adaptive optimization for control of uncertain nonlinear systems; Applications in energy-efficient control of building management systems and traffic control in urban networks. Test benches: ZUB building (Kassel, Germany), TUC building (Chania Greece), Chania urban traffic network (Chania, Greece).
- January 2011–July 2012 **Postdoctoral fellow**, *University of Cyprus - Department of Computer Science, Nicosia, Cyprus.*
2012 Advisors: Prof. Petros Ioannou, Prof. Andreas Pitsillides
Research on hybrid control systems, with emphasis on adaptive control with multiple models and switching/mixing logics. Research on Active Queue Management algorithms for congestion control of TCP flows.

Research and Industry

- January 2009–December 2010 **Consultant**, *National Institute for Astrophysics, Arcetri, Italy.*
Research project: Automated procedures for tuning of controller parameters for internal metrology of deformable mirrors in Adaptive Optics. Test benches: Large Binocular Telescope (prototype for Arizona, USA).
- February 2008–December 2010 **Consultant**, *PowerSoft s.r.l., Florence, Italy.*
Collaborators: Claudio Lastrucci and Paolo Desii
Project IPAL "*Development of an Acoustic Distortion Compensator*": analysis of a loud-speaker system and research of an adaptive control scheme coping with non-linear effects, different acoustic loads and plant thermal and wear phenomena.
- January–July 2007 **Internship program**, *Magneti Marelli Powertrain S.p.A., Bologna, Italy.*
Supervisor: dr. Saverio Armeni
Application of anti-windup controllers synthesized using LMI optimization algorithms to the automotive throttle position servoing problem.

University and Professional qualifications

- March 2015: *Basiskwalificatie onderwijs* (University Teaching Qualification), Delft University of Technology, Delft, The Netherlands
- March 2015: *Personal Development Programme* (part of the TU Delft Tenure Track programme), Delft University of Technology, Delft, The Netherlands
- January 2008: national *qualifying examination for engineering license* (Section A), Università degli Studi di Firenze, Florence, Italy
- January 2006: national *qualifying examination for engineering license* (Section B), Università degli Studi di Firenze, Florence, Italy

Visiting Positions

- February–**Visiting Professor**, *Rijksuniversiteit Groningen*, Groningen, The Netherlands.
March 2020 Hosts: Prof. Harry Trentelman and Prof. Bart Besselink
Research theme: Traffic flow control via autonomous vehicles.
- April 2018 **Visiting Professor**, *Southeast University*, Nanjing, China.
Host: Prof. Wenwu Yu
Research theme: Networked intelligence through adaptive control
- July–August **Visiting Researcher**, *Honeywell Prague Laboratory*, Prague, Czech Republic.
2016 Hosts: Dr. Petr Stluka, Dr. Ondrej Holub
Research theme: Dual estimation, constructing energy models from data.
- July–August **Visiting Researcher**, *Honeywell Prague Laboratory*, Prague, Czech Republic.
2015 Hosts: Dr. Petr Stluka, Dr. Ondrej Holub
Research theme: Virtual sensors, analytic design of sensors and predictability of sensor quality.
- September **Visiting Post-Doc**, *Technical University of Crete*, Chania, Greece.
2011 Host: Prof. Dimitrios Rovas
Research theme: Study on energy-building dynamics, simulation software and the state of art in control of Positive Energy Buildings.
- May 2011 **Visiting Post-Doc**, *Democritus University of Trace*, Xanthi, Greece.
Host: Prof. Elias Kosmatopoulos
Research theme: Study on numerical methods for nonlinear optimal control and related software tools.
- February–**Visiting PhD**, *University of Southern California*, Los Angeles, USA.
April 2010 Host: Prof. Petros Ioannou
Research theme: Research and development of hybrid control algorithms for uncertain systems.
- September–**Visiting PhD**, *Cyprus University of Technology*, Limassol, Cyprus.
December
2009 Host: Prof. Petros Ioannou
Research theme: Research and development of robust adaptive control algorithms.

Editorial roles

Associate editor

Journal of The Franklin Institute

(Editor-in-Chief: Prof. James Lam) from January 2023.

Technical editor

IEEE/ASME Transactions on Mechatronics

(Editor-in-Chief: Prof. I-Ming Chen, Prof. Huijun Gao) from January 2022.

Associate editor

IEEE Control Systems Letters

(Editor-in-Chief: Prof. Maria Elena Valcher) from January 2021.

Senior editor (Subject editor)

International Journal for Adaptive Control and Signal Processing

(Editor-in-Chief: Prof. Mike J. Grimble) from March 2019.

Guest editor

- "Innovative solutions towards autonomous modular facade systems" on *Energies, MDPI*, (together with Dr. Iakovos T. Michailidis and Dr. Hu Du), 2022.
- "Recent advances in robust adaptive control" on *International Journal of Adaptive Control and Signal Processing*, (together with Profs. Elias Kosmatopoulos, Spandan Roy, Shuai Yuan, Sayan Basu Roy, and Le Li), Vol. 36(2), 2022. DOI:10.1002/ACS.3376
- "Control for hybrid systems: applications and methods for adaptation and optimality" on *Optimal Control Applications and Methods, Wiley*, (together with Profs. Shuai Yuan, Yiming Wan, and Lixian Zhang), Vol. 41(6), 2020. DOI:10.1002/OCA.2683
- "Recent advances in control and verification for hybrid systems" on *IET Control Theory and Application*, (together with Profs. Weiming Xiang, Guisheng Zhai, Taylor T. Johnson, and Chengzhi Yuan), Vol. 13(9), 2019. DOI:10.1049/IET-CTA.2019.0394

Program Chair Conference co-organizer

2019 International Workshop on Complex-systems for Future Technologies and Applications (2019 IWCFTA), October 10th-13th, Nanjing, China.

Publicity co-chair Conference co-organizer

15th IFAC Symposium on Large Scale Complex Systems (LSS 2019), May 26th-28th, Delft, Netherlands.

International Program Committee member Associate Editor for conferences
2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022),
October 1st-5th, 2023, Detroit, Michigan, USA.

42nd Chinese Control Conference (CCC2023), July 24th-26th, 2022, Tianjin, China.

2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022),
October 23rd-27th, 2022, Kyoto, Japan.

41st Chinese Control Conference (CCC2022), July 25th-27th, 2022, Hefei, China.

2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2021),
September 27th-October 1st, 2021, Prague, Czech Republic.

40th Chinese Control Conference (CCC2021), July 26th-28th, 2021, Shanghai, China.

39th Chinese control conference (CCC2020), July 27th-29th, 2020, Shenyang, China.

IFAC International Workshop on Adaptive and Learning Control Systems (ALCOS 2019),
December 4th-6th, 2019, Winchester, UK.

5th IFAC International Conference on Intelligent Control and Automation Sciences (ICONS 2019),
August 21st-23rd, 2019, Belfast, Northern Ireland.

38th Chinese control conference (CCC2019), July 27th-30th, 2019, Guangzhou, China.

37th Chinese control conference (CCC2018), July 25th-27th, 2018, Wuhan, China.

6th IFAC Workshop on Periodic Control Systems (6th PSYCO 2016), June 29th, 2016,
Eindhoven, The Netherlands.

Invited session proposer

- "Identification and Control of Cyber-Physical Systems" for *13th IEEE International Conference on Control and Automation (IEEE ICCA 2017)*, Ohrid, Macedonia (main proposer).
- "Energy-efficient control of buildings" for *2016 European Control Conference (ECC2016)*, Aalborg, Denmark (main proposer, together with Prof. Pierluigi Siano, University of Salerno).

Technical committees

Società Italiana Docenti e Ricercatori in Automatica (SIDRA) *Italian Society of Teachers and Scholars in Automatic Control*, member from May 2017.

IEEE TC Systems Identification & Adaptive Control, member from September 2016.

IFAC TC 1.2 Adaptive and Learning Systems, member from September 2014.

Public engagement activities

Jury member *Delft Climathon 2018* (organized by Climate-KIC, supported by EIT, a body of the European Union), October 26th, 2018, Delft, The Netherlands.

Expert referent *Symposium on Urban Energy Innovation* (organized by the TU Delft Platform Urban Energy), May 30th, 2018, Delft, The Netherlands.

Expert member *Delft Climathon 2017* (organized by Climate-KIC, supported by EIT, a body of the European Union), October 28th, 2017, Delft, The Netherlands.

Member of multidisciplinary research platforms

Board Member of TU Delft Urban Energy platform, the TU Delft platform collecting all researchers working in the urban energy area, member from January 2018 till March 2019.

Board Member of Smart Energy Efficiency platform, the TU Delft platform collecting all researchers working in the smart buildings and smart demand area, member from January 2017 till March 2019.

Staff Member of PowerWeb platform, the TU Delft platform collecting all researchers working in the smart energy grid area, member from January 2015 till March 2019.

Member of education committees

Member of Board of Studies (opleidingscommissie) for MSc in Systems and Control of TU Delft. The board discusses and evaluates the quality of the education activities: member from November 2017 till March 2019.

Activity as reviewer

Journals (*total ~250 journal submissions reviewed*): Applied Energy; Automatica; Energy and Buildings; Energy Conversion and Management, European Journal of Control; IEEE Transactions on Automatic Control; IEEE Transactions on Neural Networks and Learning Systems; IEEE Transactions on Industrial Electronics; IEEE Transactions on Systems, Man and Cybernetics: Systems; IEEE Intelligent Transportation Systems Transactions and Magazine; IEEE/ASME Transactions on Mechatronics; IEEE Transactions on Aerospace and Electronic Systems; Nonlinear Analysis: Hybrid Systems; IET Control Theory & Applications; International Journal of Adaptive Control and Signal Processing; International Journal of Robust and Nonlinear Control; International Journal of Systems Science; SIAM Journal on Control and Optimization; Systems & Control Letters

Conferences (*total ~150 conference submissions reviewed*): ACC2011 to ACC2023; ASCC19; CDC2012 to CDC2021; CPHS2020; CUE2016; DDCLS22; ECC2015 to ECC2022; ICAR2021; ICCA2017 to ICCA2022; ICCPS2018; ICONS 2022; ICRA2023; ICUAS20 to ICUAS22; World Congress IFAC2017, IFAC2020; ISTTT24; ITSC2016 to ITSC2019; IV'18 to IV'21; MATHMOD2015; MED2013 to MED2022; MICON2021; NECSYS19; NoCoS2019; REM2016; ROCON2012; SIAM-CT15

Books (*1 book and 4 book proposals evaluated*): Springer-Verlag, UK, Engineering; CRC Press, Taylor & Francis group

Activity as scientific evaluator

Evaluator for the National Science Centre Poland (NCN), *Kraków, Poland* (2020, 3 proposals evaluated)

Evaluator for the Swiss National Science Foundation (SNSF), *Berne, Switzerland* (2015, 1 proposal evaluated)

Evaluator for METRANS Transportation Centre, *U.S. and California Departments of Transportation* (2014, 1 proposal evaluated)

Evaluator for the Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI), *Ministry of National Education, Romania* (2012 and 2014, 5 proposals evaluated)

Teaching experience

Academic Year 2022/2023 (SEU)

Hybrid and Complex Systems, *Southeast University*, China.

Area: MSc School of Mathematics, Q1. Main instructor.

Nonlinear Systems, *Southeast University*, China.

Area: BSc School of Mathematics, Q1. Co-instructor together with prof. Wenwu Yu.

Academic Year 2021/2022 (SEU)

Hybrid and Complex Systems, *Southeast University*, China.

Area: MSc School of Mathematics, Q1. Main instructor.

Nonlinear Systems, *Southeast University*, China.

Area: BSc School of Mathematics, Q1. Co-instructor together with prof. Wenwu Yu.

Academic Year 2020/2021 (SEU)

Adaptive switched systems with application in networked systems, *National Institute of Technology Patna*, India.

Area: PhD Summer School on Recent Trends in Control System Engineering, Q4 (hosted by prof. Gagan Deep Meena and dr. Abhilash Patel). Main instructor.

Adaptive Control, *Northwestern Polytechnical University*, China.

Area: MSc Summer School, Q4 (hosted by Prof. Le Li). Main instructor.

Control methods for autonomous systems, *Southeast University*, China.

Area: BSc School for Chien-Shiung Wu Honor College, Q1. Main instructor.

Hybrid and Complex Systems, *Southeast University*, China.

Area: MSc School of Mathematics, Q1. Main instructor.

Nonlinear Systems, *Southeast University*, China.

Area: BSc School of Mathematics, Q1. Co-instructor together with prof. Wenwu Yu.

Academic Year 2019/2020 (SEU)

Adaptive Control, *Northwestern Polytechnical University*, China.

Area: MSc Summer School, Q4 (hosted by Prof. Le Li). Main instructor.

Hybrid and Complex Systems, *Southeast University*, China.

Area: MSc School of Mathematics, Q1. Main instructor.

Nonlinear Systems, *Southeast University*, China.

Area: BSc School of Mathematics, Q1. Co-instructor together with prof. Wenwu Yu.

Academic Year 2018/2019 (TU Delft)

Adaptive Control, *Northwestern Polytechnical University*, China.

Area: MSc Summer School, Q4 (hosted by Prof. Le Li). Main instructor.

Adaptive Control, *Xidian University, Xi'an*, China.

Area: MSc Xidian International Weeks 2019, Q4 (hosted by Prof. Jing Chang). Main instructor.

Adaptive Control, *Utrecht*, The Netherlands.

Area: Dutch Institute for Systems and Control (DISC) PhD School, Q1. Main instructor together with Prof. Baris Fidan, University of Waterloo.

Adaptive Control, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, SC42120, Q3. Main instructor.

Multivariable and Robust Control, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, SC42010, Q3. Main instructor together with Prof. Giulia Giordano.

[Academic Year 2017/2018 \(TU Delft\)](#)

Adaptive Control with Networked-induced Constraints, *Southeast University*, China.

Area: PhD School, Q4 (hosted by Prof. Wenwu Yu and dr. Fan Zhang). Main instructor.

Integration Project Vehicle Engineering, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, ME41040, Q1-Q4. Responsible for project design and supervision.

Adaptive Control, *Utrecht*, The Netherlands.

Area: Dutch Institute for Systems and Control (DISC) PhD School, Q1. Main instructor together with Prof. Pietro Tesi, RUG.

Adaptive and Predictive Control, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, SC42040, Q3. Main instructor.

[Academic Year 2016/2017 \(TU Delft\)](#)

Integration Project Vehicle Engineering, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, ME41040, Q1-Q4. Responsible for project design and supervision.

Endocrine System Modeling and Control, *Delft University of Technology*, The Netherlands.

Area: BSc in Clinical Technology, KT2100, Q1. Co-instructor together with Prof. Robert Babuska.

Adaptive and Predictive Control, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, SC42040, Q3. Main instructor.

[Academic Year 2015/2016 \(TU Delft\)](#)

BSc final project, *Delft University of Technology*, The Netherlands.

Area: BSc in Mechanical Engineering, WBTP303, Q1-Q4. (coordinator: prof. Lucia Nicola). Member of the jury for assessment of mini-paper, presentation and defense (60% of the final grade).

Endocrine System Modeling and Control, *Delft University of Technology*, The Netherlands.

Area: BSc in Clinical Technology, KT2100, Q1. Co-instructor together with Prof. Robert Babuska.

Adaptive Control, *Utrecht*, The Netherlands.

Area: Dutch Institute for Systems and Control (DISC) PhD School, Q1. Main instructor together with Prof. Pietro Tesi, RUG.

Adaptive and Predictive Control, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, SC4060, Q3. Main instructor.

Academic Year 2014/2015 (TU Delft)

BSc final project, *Delft University of Technology*, The Netherlands.

Area: BSc in Mechanical Engineering, WBTP303, Q1-Q4. (coordinator: prof. Lucia Nicola). Member of the jury for assessment of mini-paper, presentation and defense (60% of the final grade).

Model Predictive Control, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, SC4060, Q3. Co-instructor together with Prof. Ton van den Boom.

Integration project Systems and Control, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, SC4050, Q4 (Coordinators: profs. Robert Babuska and Gabriel Lopes). Member of the evaluation committee for final written report + discussion (40%+40% of the grade).

Academic Year 2013/2014 (TU Delft)

Integration project Systems and Control, *Delft University of Technology*, The Netherlands.

Area: MSc in Systems and Control, SC4050, Q4 (Coordinator: profs. Robert Babuska). Member of the evaluation committee for final written report + discussion (40%+40% of the grade).

Tutorial activity

PhD main supervisor *Southeast University, Nanjing, China.*

- He Yuchen: ‘ ‘ ,
March 2023 - ongoing
- Sun Danping: ‘ ‘ ,
March 2023 - ongoing
- Chen Xiaoting: ‘ ‘ ,
September 2022 - ongoing
- Li Jing: ‘ ‘ ,
March 2022 - ongoing
- Yang Kang: ‘ ‘ ,
March 2022 - ongoing
- Wang Jiwei: ‘ ‘ ,
March 2021 - ongoing
- Xia Xin: ‘*Adaptive autopilots control for unmanned vehicles*’,
March 2021 - ongoing
- Li Peng: ‘*Adaptive robust control for unmanned vehicles*’,
September 2020 - ongoing
- Min Xiao: ‘*Funnel-based distributed control*’,
September 2020 - ongoing

Delft University of Technology, Delft, The Netherlands.

- Tian Tao: ‘*Adaptive control of interconnected and multi-agent systems*’,
September 2018 - October 2022
- Ximan Wang: ‘*Navigation and coordination of unmanned aerial vehicles under uncertainty*’,
May 2018 - November 2022
- Maolong Lv: ‘*Adaptive distributed control of uncertain multi-agent systems in the power-chained form*’,
February 2018 - October 2021
- Shuai Yuan: ‘*Control of switched linear systems: adaptation and robustness*’,
September 2014 - July 2014
(graduated *cum laude*, awarded to less than 5% of PhD students in TU Delft)

Postdoc main supervisor *Delft University of Technology, Delft, The Netherlands.*

- Luigi A. Passos: ‘*Comfortable natural ventilation and energy reduction*’
July 2019 - July 2022 (co-supervised with prof. Bart De Schutter),
- Spandan Roy: ‘*Autonomous control for construction crane vessels*’
August 2018 - August 2019 (co-supervised with dr. Milinko Godjevac)
- Thuan Le Quang: ‘*Optimal control of piecewise affine systems*’
February 2015 - February 2016 (co-supervised with prof. Ton van den Boom)

- PhD *Southeast University, Nanjing, China.*
- co-supervisor
- Qiu Meng: *'Longitudinal and lateral control for automated driving'*
May 2019 - ongoing (main supervisor: prof. Yu Wenwu)
 - Lu Peifen: *'Distributed cooperative control of several classes of nonholonomic 'mobile robots'* May 2019 - September 2020 (main supervisor: prof. Yu Wenwu)
- Delft University of Technology, Delft, The Netherlands.*
- Leila Gharavi: *'Control of evasive manoeuvres for automated driving'*
February 2021 - ongoing (main supervisor: prof. Bart De Schutter)
 - Zhou Su: *'Maintenance optimization for railway infrastructure networks'*
May 2014 - August 2018 (main supervisor: prof. Bart De Schutter)
- University of Groningen, Groningen, The Netherlands.*
- Di Liu: *'Formation control of connected vehicles: from cooperative to mixed human-driven/automated platoons'* October 2019 - July 2022
(main supervisors: profs. Harry L. Trentelman, Bart Besselink)
- CERTH - The Centre for Research & Technology Hellas, Thessaloniki, Greece.*
- Christos Korkas: *'Distributed optimization for demand response in smart grids'*
October 2013 - December 2017 (co-supervised with prof. Elias Kosmatopoulos)
(graduated with *αριστα*, cum laude)
 - Iakovos Michailidis: *'Optimal and adaptive control for large-scale sensor networks'*
August 2012 - April 2016 (co-supervised with prof. Elias Kosmatopoulos)
(graduated with *αριστα*, cum laude)
- Postdoc *Delft University of Technology, Delft, The Netherlands.*
- co-supervisor
- Andres Hunt: *'Adaptive hysteresis compensation for magnetic actuators'*
December 2017 - December 2018 (main supervisor: prof. Hassan HosseinNia)

MSc students

MSc daily supervisor, Southeast University, Nanjing, China

- Tian Ran: ' ' (School of Mathematics)
- Wen Quihao: ' ' (School of Mathematics)
- Luo Miao: ' ' (School of Artificial Intelligence)
- Zheng Meijuan: ' ' (School of Mathematics)
- Li Miao: ' ' (School of Mathematics)
- Xing Kaiyue: ' ' (School of Mathematics)
- Chen Xiangqian: ' ' (School of Artificial Intelligence)
- Tian Xia: ' ' (School of Mathematics)
- Hu Fanfan: ' ' (School of Mathematics)
- Liu Quan: ' ' (School of Artificial Intelligence)
- Hao Yuna: ' ' (School of Artificial Intelligence)
- He Yuchen: ' ' (School of CyberScience and Engineering)
- Zhang Zichen: ' ' (School of Mathematics)
- Chen Xiaoting: '*Adaptive and optimal control of multi-zone buildings*' (School of Mathematics), admitted to PhD program on June, 2022
- Zhang Yajie: '*The integrated mathematical models and energy management systems of smart buildings*' (School of Mathematics), defended on May 20th, 2022

MSc daily supervisor, Delft University of Technology, The Netherlands

- Zobeer A. Mohammad: '*Vector-field formation control: fixed-wing formation control based on time-varying vector field*', defended on December 12th, 2020, with grade: 8.5
- Satish Singh: '*Adaptive formation control and semi-physical simulator for multi-fixed Wing UAVs*', defended on November 26th, 2019, with grade: 7
- Jordy Anninga: '*Adaptive control for a ball-balancing robot*', (performed at ALTEN), defended on October 16th, 2019, with grade: 8
- Xander Gerrmann: '*System-level modeling of Airborne Wind Energy (AWE) Systems*', (performed at KitePower, and co-supervised with prof. Roland Schmehl and dr. Sebastian Rapp, Faculty of Aerospace Engineering - TU Delft), defended on September 23rd, 2019, with grade: 8
- Arun Geo Thomas: '*Autopilot design for software-in-the-loop validation of fixed-wing UAV guidance laws*', defended on August 8th, 2019, with grade: 7.5
- Vittorio Giammarino: '*Analysis and control of mixed traffic flow on a ring with a single autonomous vehicle*' (co-supervised with dr. Paolo Frasca and dr. Maria Laura Delle Monache, GIPSA-lab), defended on July 11th, 2019, with grade: 8.5
- Vishrut Jain: '*Longitudinal control for heterogeneous vehicle platooning with uncertain dynamics*', defended on July 9th, 2019, with grade: 8
- Sribalaji Coimbatore Anand: '*Optimal tracking strategies for uncertain ensembles of thermostatically controlled loads*', defended on July 4th, 2019, with grade: 8
- Anna Deichler: '*Generalization and locality in the AlphaZero algorithm. A study in single-player, fully observable, deterministic environments*' (co-supervised with dr. Thomas Moerland, Faculty of Electrical Engineering, Mathematics & Computer Science - TU Delft), defended on May 16th, 2019, with grade: 8.5

- Ilario Azzollini: '*Adaptive synchronization over uncertain multi-agent systems*', defended on October 4th, 2018, with grade: 9 (cum laude)
- Marco Romagnuolo: '*Estimating uncertainties in cooperative networks*', defended on July 19th, 2018, with grade: 7.5
- Muhammad Ridho Rosa: '*Synchronization of uncertain heterogeneous agents: an adaptive virtual model reference approach*', defended on July 11th, 2018, with grade: 7.5
- Stefano Farí: '*Adaptive path following for Unmanned Aerial Vehicles*' (guest from Politecnico Milano, co-supervised with prof. Marco Lovera), defended on December 18th, 2017 in Milan
- Jayesh Ramesh Chandiramani: '*Decision making under uncertainty for automated vehicles in urban situations*' (co-supervised with dr. Mohsen Sefati, RWTH Aachen University), defended on November 7th, 2017, with grade: 8.5
- Siva Subramanian Swaminathan: '*Modelling and control of cyber-physical & human systems in an office building*', defended on November 7th, 2017, with grade: 7
- Linda Chen: '*Development of CRONE reset control for mechatronic system application*' (co-supervised with dr. Hassan HosseinNia and dr. Niranjana Saikumar, Precision and Microsystems Engineering - TU Delft), defended on October 17th, 2017, with grade: 8
- Dhruv Jagga: '*Hybrid adaptive integrated chassis control*', defended on August 29th, 2017, with grade: 7
- Youssef Abou Harfouch: '*Adaptive strategies to platooning*', defended on July 28th, 2017, with grade: 9 (cum laude)
- Nikolaos Moustakis: '*Adaptive control in networked control systems*', defended on June 22nd, 2017, with grade: 9 (cum laude)
- Reinoudt Noodeljk: '*High-precision control for constant-distance scanning electrochemical microscopy*' (co-supervised with dr. Yaiza Gonzalez Garcia, Materials Science and Engineering - TU Delft), defended on June 20th, 2017, with grade: 7
- Alexander de Winter: '*Design and implementation of a path following system for an autonomous vehicle*', defended on March 14th, 2017, with grade: 7.5
- Shreyans Jain: '*Automation of Caeli, a high-performance raman lidar*' (co-supervised with dr. Arnoud Apituley, KNMI, and Dimitra Malali, Geoscience and remote sensing - TU Delft), defended on December 6th, 2016, with grade: 6.5
- Xi Cao: '*Controlled dosing of femto-litre volume liquids using hollow cantilevers*' (co-supervised with dr. Murali Ghatkesar and dr. Hassan HosseinNia, Precision and Microsystems Engineering - TU Delft), defended on November 29th, 2016, with grade: 7.5
- Yangyu Zhang: '*Transition of control for truck driver safety*' (co-supervised with ms. Natalie Richardson, TU Munich and dr. Riender Happee, BioMechanical Engineering - TU Delft), defended on September 26th, 2016, with grade: 7
- Jeroen van Lanen: '*Online policy iteration for optimal control of input-saturated systems*', defended on September 26th, 2016, with grade: 8
- Yuzhang Wang: '*Optimal swing-up control of an inverted pendulum*', defended on June 27th, 2016, with grade: 6.5
- Harish Satyavada: '*Control of a subsea multi-phase boosting station*' (co-supervised with dr. Rosa Castañé Selga and dr. Axel Busboom, General Electric Global Research, Munich), defended on June 27th, 2016, with grade: 8
- Leon Kuiper: '*Model predictive control for efficiency improvement of a gas to liquids pilot plant*' (co-supervised with dr. Michael Wartmann and dr. Adrie Huesman, SHELL), defended on February 17th, 2016, with grade: 9 (cum laude)

- Adem Idriz: '*Safe interaction between lateral and longitudinal adaptive cruise control in autonomous vehicles*', defended on August 28th, 2015, with grade: 7.5
- Max Thone: '*Continuous performance monitoring of advanced process control loops*' (co-supervised with Brugt Douwes, SHELL, and dr. Max Potters, Delft Center for Systems and Control), defended on August 28th, 2015, with grade: 8.5
- Debarghya Ghosh: '*Optimal model distribution in adaptive switching control*', defended on June 26th, 2015, with grade: 8

MSc daily supervisor, *The Centre for Research & Technology Hellas (CERTH)*, Thessaloniki, Greece

- Dimitrios Gessos: '*Design and evaluation of control systems for smart urban traffic networks*' (in Greek)
- Athanasios Karagevrekis: '*VSmart grids using non-linear optimization methods*' (in Greek)
- Christos Korkas: '*Development and evaluation of automated control system for smart grids*' (in Greek)

MSc co-supervisor, *Delft University of Technology*, The Netherlands

- Xander Gerrmann: '*Kitepower: software design and simulation*', 3-month internship at KitePower, TU Delft, concluded on June 29th, 2018
- Sabyasachi Neogi: '*Time-varying multivariable control of HVAC systems*', 3-month internship in cooperation with The Green Village, TU Delft, concluded on October 31st, 2017
- Harish Satyavada: '*Control of a subsea single-phase boosting station*', 3-month internship at the General Electric Global Research, Munich (supervised by dr. Simone Schuler), concluded on January 12th, 2016
- Adem Idriz: '*Radar data acquisition, extraction and visualization*', 3-month internship at the Dutch Automated Vehicle Initiative (supervised by dr. Dimitrios Kotiadis), concluded on February 24th, 2015

MSc co-supervisor, *University of Florence*, Italy

- Daniela Selvi: '*Analisi delle prestazioni nei sistemi di controllo a non minima rotazione di fase*' (in Italian)
- Daniele Mari: '*Sintesi dei parametri di controllo per la metrologia interna di specchi deformabili per ottica adattiva*' (in Italian)
- Marco Piatti: '*Integrazione di un controllore in auto sintonia nel controllo adattativo a commutazione*' (in Italian)

BSc students

BSc daily supervisor, Southeast University, Nanjing, China

- Zhang Tianhao, Zhang Haoran: '*Unmanned aerial vehicles*' (SRTP project), defended on: May 21st, 2022
- Ming Gao, Chen Junyi, Zhao Heng: '*Cooperative automated vehicles*' (SRTP project), defended on: November 20th, 2021
- Jingzhao Zhao: '*Adaptive formation of UAVs*', defended on: May 5th, 2020

BSc daily supervisor, Delft University of Technology, The Netherlands

- Lex Heunks, Wouter Huygen, Mike de Pont, Arjan Vonk: '*Modelling occupancy behaviour in office buildings*', final evaluation: 7, January 9th, 2018
- Steven Adams, Joël Croese, Jeroen Eblè, Jaap-Jan van Senden, Max van der Linden: '*Toward Tower C climate automation*', final evaluation: 8, January 12th, 2017
- Bjorn Ram, Markos Wahid, Ab Broshuis, Yonis Le Grand: '*From microscope to nanoscope*' (co-supervised with dr. Yaiza Gonzalez Garcia, final evaluation: 8, June 10th, 2016
- Maarten Kwakkenbos, Jim Daniël Teunis, Sterre Kuipers, Jasper Wolfhagen, Justin Mulder: '*Real-time platform for energy efficiency and HVAC testing*', final evaluation: 8, June 7th, 2016
- Rein Fris, Philippe Pauli, Peywand Sulyman, Etienne Teunissen: '*Energy modelling of the tower C of the 3mE Faculty*', final evaluation: 8.5, June 7th, 2016
- Leonard Gulp, Nicoline Dammers, Johan Bek, and Floris van Drunen: '*Energy modelling of the tower C of the 3mE faculty*', final evaluation: 7.5, January 19th, 2016
- Sergej Stammes, Vincent de Leeuw, Fabian Fischer, and Rik Bekkers: '*Adaptive cruise control for heterogeneous strings of vehicles*', final evaluation: 7.5, January 20th, 2015

Scholarships, grants and prizes:

- January 2023: **Outstanding Reviewer** for *Control Engineering Practice* for the year 2022 (World-class level prize)
- December 2021: **Excellent Reviewer** for *AIAA Journal of Guidance, Control, and Dynamics* (JGCD) for the year 2021 (World-class level prize)
- December 2021: **Best paper award** (best paper on theory) at the *18th IEEE International Conference on Networking, Sensing and Control (IEEE ICNSC 2021)*, with Dongdong Yue, Wenying Xu and Jinde Cao (World-class level prize)
- May 2021: **Outstanding reviewer** for *Asian Journal of Control* for the year 2020 (World-class level prize)
- March 2021: **Outstanding reviewer** for *IET Control Theory and Applications* for the year 2020 (World-class level prize)
- March 2020: **Outstanding reviewer** for *IEEE/CAA Journal of Automatica Sinica* for the year 2019 (World-class level prize)
- May 2019: **Outstanding reviewer** for *IET Control Theory and Applications* for the year 2018 (World-class level prize)
- January 2019: **Outstanding reviewer** for *Energies* for the year 2018 (Energies 10th Anniversary Outstanding Reviewer Awards, World-class level prize)
- February 2018: **Outstanding reviewer** for *Automatica* for the year 2017 (World-class level prize)
- February 2018: **Strategic research funding** (€60.000 for postdoc, of which €30.000 for my group) for the proposal "System Integration and Autonomous Operation of Construction Crane Vessels" (with dr. Milinko Godjevac), from the MTT and DCSC departments of TU Delft (University level grant)
- August 2017: **Best Reviewer** of *Applied Energy* for the year 2016
- February 2017: **Cohesion funding** (€60.000 for postdoc and lab setup, of which €20.000 for my group) for the proposal "*Energy-efficient Switchable Magnet Actuators (ESMA)*" (with dr. Hassan HosseinNia and dr. Winfred Mugge), from the 3mE faculty of TU Delft (University level grant, pass rate 47%)
- April 2016: **Intelligent Energy Management Challenge prize** (€15.000) for the proposal "*Rapidly self-tuning self-reconfigurable energy management and control (AGILE)*" (together with researchers from CERTH, Greece) from the Swedish Energy Agency (World-class level prize)
- March 2016: **Strategic research funding** (€25.000 for lab setup) for the proposal "*Distributed Intelligent Climate Control in DCSC department*" (with dr. Manuel Mazo), from the DCSC department of TU Delft (University level grant)
- January 2016: **Cohesion funding** (€60.000 for lab setup, of which €30.000 for my group) for the proposal "*Controlled dosing of femto-litre volume liquids using hollow cantilevers*" (with dr. Murali Ghatkesar and dr. Hassan HosseinNia), from the 3mE faculty (University level grant, pass rate 43%)
- February 2015: **Energy System Integration prize** (€15.000) for the pre-proposal "*SYMPHONY*", from Delft Energy Initiative (National level prize, pass rate 23%).

- January 2015: **Cohesion funding** (€70.000 for lab setup, of which €35.000 for my group) for the proposal "*Constant-distance scanning electrochemical microscopy to study localised corrosion failures*" (co-applicant: dr. Yaiza González García), from the 3mE faculty (University level grant, pass rate 46%)

Research projects

ENERGY-USER: *"Research on clean energy - user collaborative control and management technology for smart communities"* supported by Ministry of Science and Technology of China, under the International Cooperation Programme, contract SQ2021YFE010412 (cooperation with University of the Witwatersrand)

Main investigator

Funding for my group: ¥200.000 (for salary and scientific personnel costs)

Coordinator: prof. Simone Baldi. Timeline: 2022-2024.

ADA-BUILD: *"Research on smart adaptive buildings with learning-based energy management"* supported by Natural Science Foundation of China, under the International Young Scientists Programme, contract 62150610499

Main investigator

Funding for my group: ¥800.000 (for salary and scientific personnel costs)

Coordinator: prof. Simone Baldi. Timeline: 2022-2024.

SELF-ORG-CACC: *"Research on vehicle self-organizing formation based on cooperative adaptive cruise control"* supported by Natural Science Foundation of China, under the General Project Programme, contract 62073074

Main investigator

Funding for my group: ¥500.000 (for salary and scientific personnel costs)

Coordinator: prof. Simone Baldi. Timeline: 2021-2024.

EVOLVE: *"Control of evasive manoeuvres for automated driving: solving the edge cases"* supported by the NWO Toegepaste en Technische Wetenschappen (TTW), under the Open Technology Programme, contract NWO 18484

Writer of the proposal, main investigator (TU Delft side) and co-supervisor of PhD student (ms. Leila Gharavi).

Funding for my group: €250.000 (for PhD salary and scientific personnel costs)

Coordinator: prof. Barys Shyrokau. Timeline: 2021-2025.

RECON-STRUCT: *"Networked and Cooperative Adaptation for Smart Infrastructures"* supported by the Fundamental Research Funds for the Central Universities, contract 4007019109

Main investigator.

Funding for my group: ¥1.000.000 (for salary and scientific personnel costs)

Coordinator: prof. Simone Baldi. Timeline: 2019-2021

CONVERGE: *"COMfortabele Natuurlijke Ventilatie en EnergieReductie in de GEbouwde omgeving (Comfortable Natural Ventilation and Energy Reduction in the Built Environment)"* supported by Netherlands Enterprise Agency (RVO.nl), under the program TKI-Urban Energy, Topsector Energy, contract TEUE318008

Main investigator (TU Delft side), and supervisor of one Postdoc (Dr. Luigi de Araujo Passos).

Funding for my group: €306.000 (for postdoc salary and scientific personnel costs)

Coordinators: dr. Simone Baldi and prof. Bart De Schutter (TU Delft). Timeline: 2019-2022.

INNOVATIES RIJSWIJK: *"Monitoring the Rijksvastgoedbedrijf testbed in Rijswijk"* (supported by Central Government Real Estate Agency - Rijksvastgoedbedrijf, under the program Green Technologies 3.0,

<https://www.rijksvastgoedbedrijf.nl/actueel/nieuws/2016/02/29/test-met-energieneutraal-kantoor> (in Dutch)).

Co-applicant and task leader in WP1: 'Baseline model and data validation'.

Funding for my group: €20.000

Coordinator: Ms. Willy Spanjer, The Green Village. Timeline: 2016-2019.

AGILE-EQUILLY: *"Rapidly self-tuning self-reconfigurable energy management and control"* (supported by NineSigma and Swedish Energy Agency, Prize Contest #4190170, <http://www.energimyndigheten.se/en/news/2016/the-winners-of-intelligent-energy-management-challenge/>).

Writer of proposal and member of the research team.

Prize: €10.000

Coordinator: Prof. Elias Kosmatopoulos and researchers from CERTH. Timeline: 2017-2019.

AMBI: *"Advanced Methods for Building Diagnostics and Maintenance"* (supported by the European Commission, Marie-Curie call FP7-PEOPLE-2012-IAPP, under the contract #324432, https://cordis.europa.eu/project/rcn/106312_en.html).

Visiting researcher, involved for 5 man-months, task leader in WP2 'Virtual Sensors'.

Funding for my group: €12.000

Coordinator: Dr. Ondrej Holub. Timeline: 2013-2017.

DAVI: *"Dutch Automated Vehicle Initiative"* (supported by TU Delft, TNO, the RWD and Connekt, <http://davi.connekt.nl/>).

Member of the research team: supervision of 4 MSc students on topics 'adaptive and predictive control for autonomous vehicles'.

Coordinator: Dr. Riender Happee. Timeline: 2013-2018.

CENTAUR: *"Crowded Environment Monitoring for Activity Understanding and Recognition"* (supported by the European Commission, Marie-Curie call FP7-PEOPLE-2012-IAPP, under the contract #324359,

https://cordis.europa.eu/project/rcn/106672_en.html/).

Member of the research team: supervision of 4 MSc students on topics 'adaptive and predictive control for autonomous vehicles'.

Coordinator: Dr. Vit Libal. Timeline: 2013-2017.

PYRAMIDS: *"Multi-Party Risk Management and Key Performance Indicator Design at the Whole System Level"* (supported by Explorail, Partnership STW, ProRail, NWO - 438-12-300, Netherlands Organisation for Scientific Research, <http://www.nwo.nl/en/research-and-results/research-projects/90/2300174890.html>).

Co-applicant and co-supervisor of one PhD student (Ms. Zhou Su) working on WP1 'Modelling of interaction between stakeholders' and WP3 'Multi-agent approaches for service contracting'.

Coordinator: Prof. Bart De Schutter. Timeline: 2014-2018.

LOCAL4GLOBAL: *"Systems-of-systems that act locally for optimizing globally"*

(supported by the European Commission FP7-ICT-2013.3.4 Small/Medium-scale focused research project, under the contract #611538,

https://cordis.europa.eu/project/rcn/110048_en.html).

Involved for around 8 man-months, task leader in WP3 'Learning in Technological Systems-of Systems'.

Coordinator: Prof. Elias Kosmatopoulos. Timeline: 2012-2016.

NOPTILUS: *"Autonomous, self-learning, optimal and complete underwater systems"*

(supported by the European Commission FP7-ICT-2009-6, Cognitive Systems and Robotics programme, under the contract #270180,

https://cordis.europa.eu/project/rcn/97844_en.html).

Involved for around 8 man-months, task leader in WP5 'Cooperative motion control of autonomous underwater vehicles' and 'Adaptive autonomous navigation under time-varying currents'.

Coordinator: Prof. Elias Kosmatopoulos. Timeline: 2011-2015.

AGILE: *"Rapidly-deployable, self-tuning, self-reconfigurable nearly-optimal control design for large-scale nonlinear systems"*

(supported by the European Commission FP7-ICT-5-3.5, Engineering of Networked Monitoring and Control Systems, under the contract #257806, https://cordis.europa.eu/project/rcn/95306_en.html).

Involved for around 30 man-months, leader of WP2 'Nearly-optimal large-scale control systems design', WP3 'Self-tuning and reconfiguration capabilities in large-scale systems'; task leader in WP5 'Control Integration in Chania Traffic Network' and 'Control Integration Chania Smart Building'.

Coordinator: Prof. Elias Kosmatopoulos. Timeline: 2010-2014.

Keynote speaker

- ▶ **Wuxi Collective Future Artificial Intelligence Research Institute**, Wuxi, China
Talk: *"Share experience about cooperation with industry and academia"*, June 26th 2021
Talk given at the Xuelang Forum on Networked Collective Intelligence and Smart Energy Innovation
- ▶ **Zhejiang University**, Hangzhou, Zhejiang, China
Talk: *"On mixed traffic with human-driven and autonomous vehicles"*, September 18th 2020
Talk given at the 4th CACC International Conference on Vehicular Technology and Intelligence
- ▶ **Chinese Institute of Command and Control**, IEEE Harbin Section, Harbin Institute of Technology
Talk: *"Cooperative and Autonomous Platoons of Vehicles"*, September 18th 2020
Talk given at the 2020 IEEE International Conference on Unmanned Systems (IEEE ICUS 2020)
- ▶ **Jiangsu Provincial Conference Center**, Nanjing, China
Talk: *"Controls in smart buildings: experiences from European projects"*, October 13th 2019
Talk given at the 2019 International Workshop on Complex-systems for Future Technologies and Applications (2019 IWCFTA)
- ▶ **Dalian University of Technology**, Dalian, Liaoning, China
Talk: *"Adaptive switched systems with application in networked systems"*, May 12th 2019
Talk given at the 15th China Networks Science Forum (CNetSci 2019)

Invited talks (excluding conference presentations)

- **Fragrant City Institute of Intelligent Electromechanical Industry and Technology of Hubei Province**, Xianning, Hubei, China
Talk: *"Control methods for autonomous systems"*, September 8th 2021
- **Artificial Intelligence club at SEU**, Nanjing, China
Talk: *"Research activities in adaptive and autonomous systems"*, July 12th 2021
- **University of Oxford**, Oxford, United Kingdom
Talk: *"On mixed traffic with human-driven and autonomous vehicles"*, February 1th 2021 (online)
- **Artificial Intelligence club at SEU**, Nanjing, China
Talk: *"Research activities in adaptive and autonomous systems"*, October 12th 2020
- **Chien-Shiung Wu Honor College**, Nanjing, China
Talk: *"Research activities and open problems in adaptive and learning control"*, November 30th 2017
- **Rijksuniversiteit Groningen (University of Groningen)**, Groningen, The Netherlands
Talk: *"Traffic flow on a ring with a single autonomous vehicle: a string stability perspective"*, February 8th 2020
- **Harbin Institute of Technology**, Harbin, China
Talk: *"Stability notions in mixed traffic scenarios with human-driven and autonomous vehicles"*, January 4th 2020
- **Seoul National University**, Seoul, South Korea
Talk: *"Adaptive strategies for platooning"*, September 8th 2019
- **Taiyuan University of Technology**, Taiyuan, Shanxi, China
Talk: *"Adaptive switched systems with application in networked systems"*, June 30th 2019
- **Faculty of Architecture and the Built Environment**, Delft, The Netherlands
Talk: *"Smart controls in smart buildings: experiences from EU projects"*, October 22nd, 2018 (Talk given for a delegation from Kuwait, lead by Ms. Eqbal Altayar (Department Manager - Ministry of Electricity & Water - Kuwait))
- **The University of Hong Kong**, Hong Kong
Talk: *"A novel Lyapunov function for a non-weighted L2 gain of asynchronously switched Linear Systems"*, November 30th 2017
- **City University of Hong Kong**, Hong Kong
Talk: *"Cooperative output regulation of heterogeneous unknown systems: a passification approach"*, November 29th 2017
- **Beijing Institute of Technology**, Beijing, China
Talk: *"Cooperative output regulation of heterogeneous unknown systems: a passification approach"*, November 23rd 2017
- **Beijing Jiaotong University**, Beijing, China
Talk: *"Adaptive strategies to platooning"*, November 22nd 2017

- **Northwestern Polytechnical University**, Xi'an, China
Talk: *"An adaptive switched control approach to heterogeneous platooning with inter-vehicle communication losses"*, November 21th 2017
- **China State Shipbuilding Corporation, System Engineering Research Institute**, Beijing, China
Talk: *"Adaptive Path Following for UAV in Time Varying Unknown Wind Environments"*, November 20th 2017
- **Premises of Rijksvastgoedbedrijf (The Central Government Real Estate Agency)**, The Hague, The Netherlands
Talk: *"Modelling and estimation of large-scale office buildings"*, February 7th 2017
- **The Green Village premises**, Delft, The Netherlands
Talk: *"Modelling the Rijkswaterstaat Office Building, Rijswijk: a Control-oriented approach"*, October 20th 2016
- **Honeywell Prague Laboratory**, Prague, Czech Republic
Talk: *"Handling uncertainty in HVAC control systems: from performance monitoring to demand response"*, August 31th 2016
- **Deltares**, Delft, The Netherlands
Talk: *"Energy Modelling of Large Office Buildings"*, April 29th 2016
- **University of Twente**, Enschede, The Netherlands
Talk: *"Mode-dependent Switching Adaptive Control with Application to Power Converters"*, April 14th 2016
- **Energy Master Class**, TU Delft Energy Club, Delft, The Netherlands
Talk: *"Demand response in blocks of buildings"*, May 21th 2015
- **Faculty of Electrical Engineering, Mathematics and Computer Science**, Delft, The Netherlands
Talk: *"Hybrid Systems"*, April 8th 2015
- **University of Twente**, Enschede, The Netherlands
Talk: *"Piecewise Polynomial Policy Iterations for Synthesis of Optimal Control Laws in Input-Saturated Systems"*, November 19th 2014
- **Delft University of Technology**, Delft, The Netherlands
Talk: *"Multi-Model Unfalsified Adaptive Switching Control"*, December 18th 2013
- **University of Cyprus**, Nicosia, Cyprus
Talk: *"Towards a Plug-and-Play Control for Complex Real-Life Systems"*, June 25th 2013
- **AFCON Software and Electronics Ltd**, Tel Aviv, Israel
Talk: *"Convex Control Design for Large-scale Nonlinear Systems"*, January 23rd 2012
- **Technical University of Crete**, Chania, Greece
Talk: *"Applications of control: energy efficiency in large-scale buildings"*, September 20th 2011
- **Aquis Corfu Palace**, Corfu, Greece
Talk: *"Control Design for large-scale nonlinear systems: the ConvCD methodology"*, June 19th 2011

- **Democritus University of Trace**, Xanthi, Greece
Talk: "*Nonlinear Control of Large Scale Complex Systems using Convex Control Design Tools*", May 11th 2011
- **University of Southern California**, Los Angeles, USA
Talk: "*Multi-Model Unfalsified Adaptive Switching Supervisory Control*", April 13th 2010
- **Cyprus University of Technology**, Limassol, Cyprus
Talk: "*Unfalsified Control via Multiple Models and Switching*", September 21th 2009

Talks for European projects

- ▷ **European Commission, European Research Council Executive Agency (ERCEA)**, Brussels, Belgium
Talk: "*Adaptive Dual Control of Hybrid Uncertain Systems*", June 12th 2018
Project officer: Dr. Jose Labastida
- ▷ **European Commission, European Research Council Executive Agency (ERCEA)**, Brussels, Belgium
Talk: "*Adaptive Dual Control of Hybrid Uncertain Systems*", June 28th 2017
Project officer: Dr. Jose Labastida
- ▷ **European Commission, European Research Council Executive Agency (ERCEA)**, Brussels, Belgium
Talk: "*Adaptive Dual Control of Hybrid Uncertain Systems*", June 6th 2016
Project officer: Dr. Jose Labastida
- ▷ **European Commission, Information Society and Media**, Brussels, Belgium
Talks: "*Integrated Building Control System: Real-life experiments*" and "*Integrated Control of Large-scale Systems: Smart Grids*", February 4th 2014
Project officer: Dr. Olivan-Tomas Zulema
- ▷ **European Commission, Information Society and Media**, Brussels, Belgium
Talks: "*Control System Design Tools for Large-scale Nonlinear Systems*" and "*Integrated Building Control System: Simulations*", October 5th 2012
Project officer: Dr. Olivan-Tomas Zulema
- ▷ **Fraunhofer Institute for Building Physics**, Kassel, Germany
Talk: "*Scalable and Nearly-Optimal Control for General Large-Scale Nonlinear Systems*", October 18th 2011
Project officer: Dr. Rolf Riemenschneider

Public engagement talks

- **Smart City event, organized by the TU Delft Energy Club, in collaboration with the Centre for Sustainability and DelftSEA**, Delft, The Netherlands
Talks: "*Adding Smartness to Buildings: Diagnostics and Control for Building Automation*", June 1th 2018
- **Symposium on Urban Energy Innovation, organized by TU Delft Platform Urban Energy**, Delft, The Netherlands
Talks: "*Smart Monitoring, Management & Control*", May 30th 2018
- **Climathon 2017, organized by Climate-KIC, the EU climate innovation initiative**, Delft, The Netherlands
Talks: "*Future Buildings and Social Energy*", October 27th 2017

- **DCSC Lunch colloquium**, Delft, The Netherlands
Talk: "*Optimal Control of Input-Saturated Systems*", January 21th 2015
- Decision-making meeting talks
- **Workshop on Urban Energy Research Programme**, organized by TU Delft Platform Urban Energy, Delft, The Netherlands
Talk: "*Digitization for energy efficiency*", March 14th 2018
- **Delft Energy Initiative (DEI)**, Theme leaders DEI pre-proposals System Integration, Delft, The Netherlands
Talk: "*Demand response in microgrids*", October 13th 2015
- **Opleidingscommissie-WerktuigBouwkunde**, Education Committee Mechanical Engineering, Delft, The Netherlands
Talk: "*Experience and discussion on education*", May 18th 2015
- **Dean's office**, Faculty of Mechanical, Maritime and Materials Engineering, Delft, The Netherlands
Talk: "*Research activity on adaptive control: Achievements and future plans*", April 9th 2015

Invited speakers

Guest speakers invited for talks (at SEU):

Prof. Sandra Hirche (Technical University of Munich)

Dr. Stefan Sosnowski (Technical University of Munich)

Invited for the: *"1st Joint Research Workshop of Southeast University and Technical University of Munich"*, November 11th 2022

Prof. Arjan van der Schaft (University of Groningen)

Prof. Ming Cao (University of Groningen)

Prof. Henk van Waarde (University of Groningen)

Prof. Kanat Camlibel (University of Groningen)

Prof. Harry Trentelman (University of Groningen)

Prof. Bart Besselink (University of Groningen)

Invited for the: *"1st Joint Research Workshop of Southeast University and University of Groningen"*, July 11th-12th 2022

Dr. Alessandro Bosso (University of Bologna)

Prof. Jihong Zhu (University of York)

Prof. Changliu Liu (Carnegie Mellon University)

Invited for the: *"58th Workshop of Research Center for Complex Systems and Network Sciences (Workshop on Mechatronics)"*, June 22nd 2022

Prof. Dario Bauso (University of Groningen)

Dr. Namhoon Cho (Cranfield University)

Prof. Maojiao Ye (Nanjing University of Science and Technology)

Invited for the: *"53rd Workshop of Research Center for Complex Systems and Network Sciences (Workshop on Game Theory and Optimization)"*, November 22nd 2021

Dr. Du Hu (Cardiff University)

Dr. Yuli Shan (University of Groningen)

Invited for the: *"47th Workshop of Research Center for Complex Systems and Network Sciences (Workshop on Climate Change)"*, May 27th 2021

Prof. Giuseppe Notarstefano (University of Bologna)

Dr. Henk van Waarde (University of Cambridge)

Dr. Junjie Jiao (Technical University of Munich)

Prof. Jiajia Jia (Jiangnan University)

Invited for the: *"46th Workshop of Research Center for Complex Systems and Network Sciences (Workshop on Data Driven and Structured Networks)"*, May 6th 2021

Prof. Xiang Yin (Shanghai Jiao Tong University)

Prof. Chengpu Yu (Beijing Institute of Technology)

Prof. Yiming Wan (Huazhong University of Science and Technology)

Dr. Jia Xu (Tongji University)

Prof. Shuai Yuan (Harbin Institute of Technology)

Invited for the: *"44th Workshop of Research Center for Complex Systems and Network Sciences"*, November 17th-18th 2020

Dr. Mohammad Pirani (University of Toronto, ON, Canada)

Invited for the graduate course: *"Resilient Networked Control Systems with Applications to Connected Vehicles"*, September 28th-October 2nd 2020

Prof. Spandan Roy (International Institute of Information Technology Hyderabad)
Prof. Lorenzo Marconi (University of Bologna)
Prof. Maria Laura Delle Monache (Inria Grenoble Rhone-Alpes)
Prof. Paolo Frasca (Univ. Grenoble Alpes, CNRS, Inria, Grenoble INP, GIPSA-Lab)
Invited for the: "*43rd Workshop of Research Center for Complex Systems and Network Sciences (Workshop on Unmanned Vehicles)*", September 4th 2020

[Guest speakers invited for talks \(at TU Delft\):](#)

Dr. Jinoh Lee (Istituto Italiano di Tecnologia, IIT)
Talk: "*Towards high performance robots with physical interaction capabilities*", March 28th 2019

Prof. Leonid Fridman (National Autonomous University of Mexico)
Talk: "*Sliding Mode Controllers: stages of evolution*", January 15th 2019

Prof. Baris Fidan (University of Waterloo)
Talk: "*Model reference adaptive control*", September 3rd 2018

Prof. Patrizio Colaneri (Politecnico di Milano)
Talk: "*Dual linear switched systems*", July 5th 2018

Prof. Lixian Zhang (Harbin Institute of Technology)
Talk: "*Analysis and Control of Nondeterministic Switched Systems: Challenges, Advances and Trends*", July 5th 2018

Prof. Lorenzo Marconi (University of Bologna)
Talks: "*Low-Power High-Gain Observers*", May 28th 2018 and "*Robust Output Regulation for Hybrid Systems*", May 29th 2018

Mr. Wilbert Prinssen (Technolution)
Co-referent at Symposium on Urban Energy Innovation: "*Smart Monitoring, Management & Control*", May 30th 2018

Dr. Balaji Kalluri (University of Singapore)
Talk: "*Non-intrusive Load Monitoring and Miscellaneous Electrical Loads in Office buildings: an outlook*", May 31th 2016

Prof. Paolo Frasca (University of Twente)
Talk: "*Distributed estimation with relative measurements*", January 21th 2015

Committee member in student defenses

PhD committees

PhD defenses

Invited committee member, (excluding own students), .

- Simone Mariano: '*Hybrid Lyapunov techniques applied to networked systems*'
Universite De Lorraine, March 27th, 2023
- Mi Lv: '*Attack detection and secure state estimation for cyber-physical systems*'
Southeast University, November 29th, 2022
- Francesco Acciani: '*Control over unreliable networks: consensus and platooning*'
University of Twente, June 17th, 2022
- Sulan He: '*Distributed consensus control of several kinds of multi-agent systems and its applications*', Southeast University, May 26th, 2022
- Guitao Yang: '*State estimation using a network of distributed observers*'
Imperial College, May 25th, 2022
- Di Liu: '*Secure operation of complex traffic networks using switching-based adaptive dynamic programming & increment learning*', Southeast University, September 28th, 2021
- Jun Ye: '*Smart offshore heavy lift operations*',
Delft University of Technology, October 27th, 2020
- Giuseppe Silano: '*Software-in-the-loop methodologies for the analysis and control design of small UAV systems*', University of Sannio, May 4th, 2020 (assessor)
- Alain Govaert: '*Network games and strategic play: social influence, cooperation, and exerting control*', University of Groningen, February 14th, 2020
- Nouman Ashraf: '*Feedback-based algorithms for energy management in intelligent networks*', Frederick University, Nicosia, Cyprus, November 13rd, 2019
- Qingkai Yang: '*Constructing tensegrity frameworks and related applications in multi-agent formation control*', University of Groningen, May 25th, 2018

PhD *Delft University of Technology*, Delft, The Netherlands,

Go/NoGo committees at TU Delft (excluding own students)

The aim of the Go/No Go review meeting is to express the expectations for successfully completing the PhD within four years and decide on continuation or premature termination of the PhD programme. The Go/No Go review meeting usually takes place 1 year after the PhD starting date.

- Erwin de Gelder: '*Performance assessment methodology for automated vehicles using real-world driving data*', DCSC, October 2nd, 2018
- Jesus Lago Garcia: '*Innovative controls for renewable source integration into smart energy systems*', DCSC, September 27th, 2017
- Tomas Pippia: '*Model-based control for hybrid and uncertain smart energy systems*', DCSC, September 27th, 2017
- Jun Ye: '*System integration and adaptive position control towards autonomous heavy lift operations*', M&TT, August 29th, 2017
- Sjoerd Boersma: '*Modeling and control of windparks*', DCSC, March 17th, 2016
- Arman Sharifi Kolarijani: '*Distributed optimization for multi-agent systems*', DCSC, March 17th, 2016
- Baptiste Sinquin: '*Data-driven algorithms for large-scale adaptive optics and experimental validation*' DCSC, October 29th, 2015
- Farid Alavi: '*Car as a power plant*', DCSC, October 13th, 2015

Member of *Southeast University*, Nanjing, China.

- MSc committees
- Wang Qian: '*Blockchain assisted decentralized federated learning under limited resource constraints*', School of Cyber Science and Engineering, June 27th, 2022
 - Liu Zhengqiang: '*Research on security technology on vehicle merging process of unmanned vehicles*', School of Cyber Science and Engineering, May 20th, 2022
 - Yu Longxin: '*Research on privacy preserving problem of several classes of collective intelligent networks*', School of Cyber Science and Engineering, May 20th, 2022
 - Wang Dongming: '*Casual network inference based on entropy*', School of Mathematics, May 20th, 2022

Member of *Delft University of Technology*, Delft, The Netherlands.

- MSc committees
- Bram Verlaan: '*An optimization based approach to autonomous drifting*', DCSC, April 30th, 2019
 - Sherin Grimbergen: '*The state space formulation of active inference: towards brain-inspired robot control*', DCSC+CoR, January 29th, 2019 (cum laude)
 - Radu Florea: '*State estimation for nanosatellite-class reaction wheels*', DCSC, December 18th, 2018
 - Francesco Pretagostini: '*Anti-lock braking control design using a nonlinear model predictive approach and wheel information*', CoR, October 26th, 2018 (cum laude)
 - Jose Libardo Navia Vela: '*Design and implementation of a development platform for indoor quadrotor flight control*', DCSC, September 27th, 2018
 - Silvan Viëtor: '*Tunable magnets: modeling and validation for dynamic and precision applications*', PME, August 28th, 2018
 - Yanggu Zheng: '*Real-time nonlinear MPC for extreme lateral stabilization of passenger vehicles*', CoR, July 11th, 2018 (cum laude)
 - Sander Bokseveld: '*A predictive energy management strategy for plug-in hybrid electric vehicles utilizing route preview*', PME, March 2nd, 2018 (cum laude)
 - Niels Berger: '*Lane change path planning with state-dependent safety constraints using nonlinear model predictive control*', DCSC, February 19th, 2018
 - Riemer Sorgedragter: '*Automated malaria diagnosis using convolutional neural networks in an on-field setting*', DCSC, January 23rd, 2018
 - Iris Snuverink: '*Deep learning for pixelwise classification of hyperspectral images*', DCSC, December 8th, 2017
 - Bingyu Zhou: '*Probabilistic motion planning in uncertain and dynamic environments*', DCSC, September 29th, 2017
 - Arnela Masic: '*Estimation of ship translations by fusing multiple IMUs*', DCSC, August 21st, 2017
 - Huib Keemink: '*Detecting central heating boiler malfunctions using smart-thermostat data*' DCSC, December 8th, 2016
 - Bram van den Berg: '*TSHD trail force estimation*', DCSC, September 27th, 2016
 - Mike van Dijk: '*A study on yaw-misalignment: combined optimization of wind farm, power production and structural loading*', DCSC, September 23rd, 2016
 - Maurice van Roosmalen: '*Seamless switching between optical ground stations in ground-to-GEO*', DCSC, August 1st, 2016
 - Jurriaan Kerckamp: '*Nonlinear control for a small-scale helicopter UAV in autorotation*', DCSC, August 1st, 2016
 - Anand Sundaresan: '*Docking of underwater vehicle*', DCSC, March 30th, 2016
 - Tim Schuit: '*Control of drilling fluid properties: density and viscosity*', DCSC, January 15th, 2016
 - Marvin Struijk: '*Central differential control of an active four wheel drive vehicle*', DCSC, December 17th, 2015
 - Joris Molenaar: '*Motion cueing algorithm for simulators using MPC strategy with workspace management*', DCSC, December 15th, 2015
 - Tarik Sezer: '*Electric power steering*', DCSC, November 25th, 2015
 - Shiquian Li: '*Load-sensing based integrated chassis control*', DCSC, November 19th, 2015
 - Nilay Saraf: '*Predictive control for residential capacity controlled heat pumps in a smart grid scenario*', DCSC, July 27th, 2015

Member of *Delft University of Technology*, Delft, The Netherlands.

- MSc committees
- Nilay Saraf: '*Predictive control for residential capacity controlled heat pumps in a smart grid scenario*', DCSC, July 27th, 2015
 - Valentin Pascu: '*Reliable wind turbine control design: achievable control performance under design uncertainty*', DCSC, June 24th, 2015
 - Stephan Krul: '*Modelling of three-phase power converters: a fundamental port-Hamiltonian approach*', DCSC, June 22nd, 2015 (cum laude)
 - Ewoud Pool: '*Optimizing the uncertainty bounds for a robust control problem using moving horizon estimation*', DCSC, May 27th, 2015 (cum laude)
 - Koen van der Mijle: '*Bound constrained optimization in adaptive optics*', DCSC, December 15th, 2014
 - Janice Langeslag: '*Mitigating stick-slip in oil-well drilling, the design of a smart top drive*', DCSC, December 12th, 2014 (cum laude)
 - Joep Kooijman: '*Stock market prediction using social media data and finding the covariance of the LASSO*', DCSC, December 12th, 2014
 - Thomas Burki: '*Social media aided stock market predictions by sparsity induced prediction*', DCSC, November 14th, 2014 (cum laude)
 - Jacco van der Spek: '*Imitation learning for a robotic precision placement task*', DCSC, September 11th, 2014
 - Paul Tricht: '*Constrained model predictive control for the Ampelmann system*', DCSC, June 6th, 2014

Publications: International journals *full list*

- [J112] Tao T., Roy S., De Schutter B., and **Baldi S.**(*), "Distributed adaptive synchronization in Euler Lagrange networks with uncertain interconnections", *IEEE Transactions on Automatic Control*, scheduled for publication, 2023.
- [J128] Hao Y., Vand B., Manrique Delgado B., and **Baldi S.**(*), "Market manipulation in stock and power markets: a study of indicator-based monitoring and regulatory challenges", *Energies*, scheduled for publication, 2023.
- [J127] Min X., **Baldi S.**(*), and Yu W.(*), "Funnel-based asymptotic control of leader-follower nonholonomic robots subject to formation constraints", *IEEE Transactions on Control of Network Systems*, scheduled for publication, 2023. DOI:10.1109/TCNS.2023.3240223
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- [J126] de Araujo Passos L. A., van den Engel P., **Baldi S.**(*), and De Schutter B., "Dynamic optimization for indoor heating and cooling with latent heat storage, heat recovery, natural ventilation and solar shadings", *Energy Conversion and Management*, Vol. 276, art. 116573, 2023. DOI:10.1016/J.ENCONMAN.2022.116573
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- [J117] Lv M., Chen Z., De Schutter B., and **Baldi S. (*)**, "Prescribed-performance tracking for high-power nonlinear dynamics with time-varying unknown control coefficients", *Automatica*, scheduled for publication, 2022.
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