Simon K. Niederländer

Autonomous Systems and Control
Siemens Technology Center Garching
Friedrich-Ludwig-Bauer-Str. 3
85748 Garching

Phone: +49 (0) 173 358-6822
Skype-ID: simonniederlaender
Email: simon.niederlaender@siemens.com
URL: https://niederlaender.github.io

Research Interests

Convex Optimization; Dynamical Systems; Monotone Operators; Systems and Control

Professional Experience

Industrial Experience

since 08/2023 **Research Scientist**
Foundational Technologies (Autonomous Systems and Control)
Siemens AG, Munich Area, Germany

11/2021–07/2023 **Systems and Control Engineer**
Research and Development (System Design)
MTU Aero Engines AG, Munich, Germany

04/2014–07/2014 **Graduate Research Intern**
Corporate Research (Control Theory)
Robert Bosch GmbH, Stuttgart Area, Germany

Research Experience

09/2015–10/2021 **Research and Teaching Assistant**
Institute for Systems Theory and Automatic Control
University of Stuttgart, Germany

10/2014–07/2015 **Graduate Research Assistant**
Department of Mechanical and Aerospace Engineering
University of California, San Diego, CA, USA

06/2012–09/2012 **Undergraduate Research Assistant**
Department of Electrical and Computer Engineering
National University of Singapore, Singapore

Education

09/2015–12/2022 **Dr.-Ing., Systems Theory and Automatic Control**
University of Stuttgart, Germany

10/2012–08/2015 **M.Sc., Engineering Cybernetics**
University of Stuttgart, Germany

10/2008–09/2012 **B.Eng., Mechanical Engineering**
Deggendorf Institute of Technology, Germany

Honors and Awards

2014–2015 **Dr. Jürgen und Irmgard Ulderup Fellowship**

2011–2015 **Fellow of German Academic Scholarship Foundation**
(Studienstiftung des deutschen Volkes)

2010–2012 **Fellow of German Academic Exchange Service**
(Deutscher Akademischer Austauschdienst)

Teaching Assistance

2020–2021	**Systems and Control** (Undergraduate Course), University of Stuttgart
2016–2020	**Nonlinear Control** (Graduate Course), University of Stuttgart
Summer 2019	**Convex Optimization** (Graduate Course), University of Stuttgart
Winter 2017	**Introduction to Automatic Control** (Undergraduate Course), University of Stuttgart
Winter 2015	**Introduction to Adaptive Control** (Graduate Course), University of Stuttgart

Invited Talks

01/2023	**Learning and Dynamical Systems Group**, Max Planck Institute for Intelligent Systems, Tübingen, Germany
11/2022	**Research Seminar Dynamical Systems**, Chair of Dynamical Systems, University of Passau, Germany
07/2020	**25th Systems Theory Colloquium**, Institute for Systems Theory and Automatic Control, University of Stuttgart, Germany

Professional Service

Membership in Professional Societies

since 2015	**Society of Industrial and Applied Mathematics** (SIAM)
since 2014	**Institute of Electrical and Electronics Engineers** (IEEE)
since 2014	**Control Systems Society** (CSS)

Reviewer (Journal Articles)

Automatica; IEEE Control Systems Letters; IEEE Transactions on Automatic Control; Operations Research Letters; Optimization; SIAM Journal on Control and Optimization

Publications

Preprints

[P-01] F. Battahi, Z. Chbani, **S. K. Niederländer** and H. Riahi, *Asymptotic behavior of the Arrow–Hurwicz differential system with Tikhonov regularization*, submitted.

Journal Articles

[J-03] **S. K. Niederländer**, *On the Arrow–Hurwicz differential system for linearly constrained convex minimization*, Optimization, 73 (2023), pp. 2313-2345.

[J-02] **S. K. Niederländer**, *Second-order dynamics with Hessian-driven damping for linearly constrained convex minimization*, SIAM J. Control Optim., 59 (2021), pp. 3708-3736.

[J-01] J. Cortés and **S. K. Niederländer**, *Distributed coordination for nonsmooth convex optimization via saddle-point dynamics*, J. Nonlinear Sci., 29 (2019), pp. 1247-1272.

Conference Proceedings

[C-04] **S. K. Niederländer**, *Asymptotic behavior of the nonautonomous Arrow–Hurwicz differential system*, in Proc. IEEE Conf. Decis. Control, Milan, Italy, 2024, pp. 4752-4757.

[C-03] **S. K. Niederländer**, *Ergodic convergence results for the Arrow–Hurwicz differential system*, in Proc. IEEE Conf. Decis. Control, Singapore, 2023, pp. 7293-7298.

[C-02] **S. K. Niederländer**, F. Allgöwer and J. Cortés, *Exponentially fast distributed coordination for nonsmooth convex optimization*, in Proc. IEEE Conf. Decis. Control, Las Vegas, NV, USA, 2016, pp. 1036-1041.

[C-01] **S. K. Niederländer** and J. Cortés, *Distributed coordination for separable convex optimization with coupling constraints*, in Proc. IEEE Conf. Decis. Control, Osaka, Japan, 2015, pp. 694-699.

Other Works

[O-02] **S. K. Niederländer**, *Dynamical approaches to linearly constrained convex minimization*, Ph.D. Thesis, University of Stuttgart, 2022.

[O-01] **S. K. Niederländer**, *Distributed continuous-time coordination for nonsmooth convex and robust optimization*, Master Thesis, University of Stuttgart, 2015.

REFERENCES

Prof. Dr.-Ing. Frank Allgöwer
Institute for Systems Theory and Automatic Control
University of Stuttgart, Germany
Email: frank.allgower@ist.uni-stuttgart.de
URL: http://www.ist.uni-stuttgart.de

Prof. Dr.-Ing. Christian Ebenbauer
Chair of Intelligent Control Systems
RWTH Aachen University, Germany
Email: christian.ebenbauer@ic.rwth-aachen.de
URL: https://www.ic.rwth-aachen.de/

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