Nikolaus Vertovec

DOCOTRAL CANDIDATE · ENGINEERING SCIENCE

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Education

University of Oxford   *Oxford, United Kingdom*
DPHIL ENGINEERING SCIENCE   *2020 - present*
- Supervisor: Prof. Kostas Margellos
- Supervisor: Prof. Sina Ober-Blöbaum

ETH Zurich   *Zurich, Switzerland*
BACHELOR OF SCIENCE ETH IN ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGY   *2016 - 2019*

Georg Christoph Lichtenberg Gesamtschule   *Göttingen, Germany*
ABITUR 1.0 (HIGHEST GRADE IN COHORT)   *2007 - 2016*

Professional Experience

Mar 2020 – Dec 2021	**Environmental Justice Campaign Organizer**	NooWorld, Los Angeles
Oct 2019 – Apr 2020	**Intern (project on the Surface Simulator for Mars 2020 Perseverance Rover)**	NASA Jet Propulsion Laboratory, California Institute of Technology, Pasadena
Sep 2018 – Jun 2019	**Control Engineer**	Swiss Academic Spaceflight Initiative, Zurich
Jun 2016 - Aug 2016	**Intern (project on a local positioning system for UAVs)**	Debuggable Limited, Berlin
Sep 2015 - Jun 2016	**Research Assistant**	Institute for Computer Science, University of Göttingen

Teaching Experience

Academic Year 2022/23	**P5 Introduction to Computing**, Teaching Assistant	*Department of Engineering Science, University of Oxford*
Academic Year 2022/2023	**B15 Control Systems**, Teaching Assistant	*Department of Engineering Science, University of Oxford*
Academic Year 2022/2023	**A2 Introduction to Control Theory**, Teaching Assistant	*Somerville College, University of Oxford*
Spring 2022	**LEGO Football Control Lab**, Teaching Assistant	*Department of Engineering Science, University of Oxford*
Spring 2019	**Numerical Methods**, Teaching Assistant	*Department of Mathematics, ETH Zurich*
Fall 2018	**Digital Circuits Lab**, Teaching Assistant	*Institute for Electrical Engineering, ETH Zurich*

Publications

PUBLISHED

Nikolaus Vertovec, Kostas Margellos. "State Aggregation for Distributed Value Iteration in Dynamic Programming". In: IEEE Control Systems Letters, vol. 7, pp. 2269-2274, 2023, doi: 10.1109/LCSYS.2023.3285655.

Nikolaus Vertovec, Sina Ober-Blöbaum, Kostas Margellos. "Multi-objective low-thrust spacecraft trajectory design using reachability analysis". In: European Journal of Control (2022). issn: 09473580. doi: 10.1016/j.ejcon.2022.100758.

Nikolaus Vertovec, Sina Ober-Blöbaum, and Kostas Margellos. "Verification of safety critical control policies using kernel methods". In: 2022 European Control Conference (ECC). 2022, pp. 1870–1875. doi: 10.23919/ECC55457.2022.9838224.5.

Nikolaus Vertovec, Sina Ober-Blöbaum, Kostas Margellos. "Multi-objective minimum time optimal control for low-thrust trajectory design". In: 2021 European Control Conference (ECC). 2021, pp. 1975–1980. doi: 10.23919/ECC54610.2021.9654919.

Nikolaus Vertovec, Sina Ober-Blöbaum, Kostas Margellos. "Safety-Aware Hybrid Control of Airborne Wind Energy Systems". In: Journal of Guidance, Control, and Dynamics (in press)

Awards, & Grants

AWARDS
2019	**2nd place in the 10k ft Category (ETH University team), 4th overall winner in a field of 120 international teams**, Spaceport America Cup
2016	**"Jugend Forscht" (youth science), 2nd place**, German Engineering Association
2014	**"Jugendmusiziert" (youth music), regional 1st prize, state 2nd prize (Saxophone)**,

GRANTS
2022	**Graduate Study Support Fund**, Keble College, Oxford
2021	**Graduate Study Support Fund**, Keble College, Oxford

Presentations

Finite sample learning of moving targets, 2023 TES Conference on Mathematical Optimization for Machine Learning. Berlin, Germany

Enforcing safety in airborne wind energy systems, Wind Energy Science Conference (WESC 2023), Glasgow, Scotland

State Aggregation for Distributed Value Iteration in Dynamic Programming, Numerical Mathematics and Control Seminar, University of Paderborn, Paderborn, Germany

Verification of safety critical control policies using kernel methods, 2022 European Control Conference (ECC 22), London, United Kingdom

Safety-Critical Hybrid Control of Airborne Wind Energy Systems, Airborne Wind Energy Conference (AWEC 2021), Milan, Italy

Multi-objective minimum time optimal control for low-thrust trajectory design, 2021 European Control Conference (ECC 21), Rotterdam, Netherlands

Mentoring

Undergraduate Student, University of Oxford

KEISUKE SANO   *2021-2022*

Outreach & Professional Development

PEER REVIEW

Automatica
IEEE Transactions on Control Systems Technology (TCST)
IEEE Transactions on Cybernetics
IEEE Control Systems Letters (L-CSS)
Wind Energy Science
American Control Conference (ACC)
Learning for Dynamics & Control Conference (L4DC)
International Symposium on Mathematical Theory of Networks and Systems (MTNS)
Airborne Wind Energy Conference (AWEC)

European Control Conference (ECC)