Dr. Nikolaus Vertovec

JUNIOR RESEARCH FELLOW · ST HUGH'S COLLEGE

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Education

University of Oxford   *Oxford, United Kingdom*
DPHIL ENGINEERING SCIENCE   *2020 - 2024*
- Supervisors: Prof. Kostas Margellos & Prof. Sina Ober-Blöbaum

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

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

Professional Experience

2024 - present	**Career Development Fellow in Artificial Intelligence**	St Hugh's College, Oxford
2020 – 2021	**Environmental Justice Campaign Organizer**	NooWorld, Los Angeles
2019 – 2020	**Intern (Surface Simulator, Mars Perseverance Rover)**	NASA Jet Propulsion Laboratory, Pasadena
2018 – 2019	**Control Engineer**	Swiss Academic Spaceflight Initiative, Zurich
2016 - 2016	**Intern (computer vision/indoor drone navigation)**	Debuggable Limited, Berlin
2015 - 2016	**Research Assistant**	Institute for Computer Science, University of Göttingen

Teaching Experience

2022-present	**Introduction to Control Theory**,	*Department of Engineering Science, University of Oxford*
2024-present	**Continuous Maths**,	*Department of Computer Science, University of Oxford*
2024-present	**Engineering in Society**,	*Department of Engineering Science, University of Oxford*
2024	**Modern Control Systems**,	*Department of Computer Science, University of Oxford*
2022-2024	**Introduction to Computing**,	*Department of Engineering Science, University of Oxford*
2022-2023	**Control Lab**,	*Department of Engineering Science, University of Oxford*
2022-2023	**Linear and Optimal Control**,	*Department of Engineering Science, University of Oxford*
2019	**Numerical Methods**,	*Department of Mathematics, ETH Zurich*
2018	**Digital Circuits Lab**,	*Institute for Electrical Engineering, ETH Zurich*

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

Publications

Jacques Cloete, Nikolaus Vertovec, Alessandro Abate (2025). SPoRt - Safe Policy Ratio: Certified Training and Deployment of Task Policies in Model-Free RL. IJCAI 2025 (under review)

Nikolaus Vertovec, Kostas Margellos, Maria Prandini (2024). Finite sample learning of moving targets. In Automatica (under review)

Nikolaus Vertovec (2024). Optimal control for safety-critical systems. PhD Thesis

Nikolaus Vertovec, Sina Ober-Blöbaum, Kostas Margellos (2024). Safety-Aware Hybrid Control of Airborne Wind Energy Systems. In Journal of Guidance, Control, and Dynamics, vol. 47, no. 2, pp. 326–338.

Nikolaus Vertovec, Kostas Margellos (2023). State Aggregation for Distributed Value Iteration in Dynamic Programming. In IEEE Control Systems Letters, vol. 7, pp. 2269–2274.

Nikolaus Vertovec, Kostas Margellos (2022). Multi-objective low-thrust spacecraft trajectory design using reachability analysis. In European Journal of Control, vol. 69, p. 100758.

Nikolaus Vertovec, Sina Ober-Blöbaum, Kostas Margellos (2022). Verification of safety critical control policies using kernel methods. In 2022 European Control Conference (ECC), London, United Kingdom, pp. 1870-1875.

Nikolaus Vertovec, Sina Ober-Blöbaum, Kostas Margellos (2021). Multi-objective minimum time optimal control for low-thrust trajectory design. In 2021 European Control Conference (ECC), Delft, Netherlands, pp. 1975-1980.

Peer Review

Automatica
International Symposium on AI Verification (SAIV)
IEEE Transactions on Control Systems Technology (TCST)
IEEE Transactions on Cybernetics
IEEE Control Systems Letters (L-CSS)
European Journal of Operational Research
American Control Conference (ACC)
Learning for Dynamics & Control Conference (L4DC)
International Symposium on Mathematical Theory of Networks and Systems (MTNS)
European Control Conference (ECC)
Conference on Decision and Control (CDC)

Conference Committees and Session Organizer

Conference on Hybrid Systems: Computation and Control (HSCC), poster committee
Conference on Decision and Control (CDC), Invited Session organizer on "Safe planning and control with uncertainty quantification"