

Alexandre Didier

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EXPERIENCE

Doctoral Student at IDSC, ETH Zurich Nov '20 - Present

Control Theory/Applied Mathematics/Robotics with Prof. Dr. Melanie Zeilinger

- Developed optimization-based controllers (e.g., model predictive control)
- Integrated machine learning methods
- Focused on safety-critical systems

Research Assistant at IDSC, ETH Zurich Oct '19 - Apr '20

Hardware experiment

- Applied an optimization-based safety filter to a cart-pole system

Internship at ABB Corporate Research, Baden-Dättwil Oct '18 - Jan '19

Robotic Hardware Integration

- Integrated the Intel Realsense Camera with the NVIDIA Jetson and ABB YuMi Robot to create a cohesive demonstration system

EDUCATION

MSc in Robotics, Systems and Control at ETH Zurich 2018-2020

- **Average Grade:** 5.80/6.00 with distinction

BSc in Mechanical Engineering at ETH Zurich 2015-2018

- **Average Grade:** 5.18/6.00

High School at Athénée de Luxembourg 2008-2015

Graduation: Latin-Mathematics-Informatics

- **Average Grade:** 53/60 with distinction: "Excellent"

TEACHING

Teaching Assistant at ETH Zurich 2020-2024

Subject: Advanced Model Predictive Control (151-0371-00L)

- Produced recitation content such as slides, problem sets and 8 programming exercises and taught weekly exercise classes
- Scored an average of 4.5/5.0 on student feedback regarding the recitation

Summer School Teaching Assistant at ETH Zurich 2021-2023

- Created recitation content for 3 separate summer schools including the "Learning-Based Predictive Control" Session at the EECI IGSC PhD School 2021-2023

ACADEMIC ACTIVITIES

Invited Session Co-Organizer at IFAC World Congress, Yokohama, Japan 2023

"Regret in Control of Dynamical Systems" Session

Invited Session Co-Organizer and Co-Chair 2023

at IEEE Conference on Decision and Control, Singapore

"Online Learning for Optimization and Control" Session

Publications

Available on scholar.google.com/citations?user=m_wFCFcAAAAJ

- Published articles in L-CSS, CDC, ECC, NMPC, IFAC World Congress
- Articles submitted to NeurIPS, TAC currently under review

Student Project Supervision

- Supervised 13 student projects, including 5 Master theses and 3 research assistants

Programming Skills

- MATLAB
- Python
- C++
- Unix Shell Script

Software

Numerical Optimization

- CasADi
- CVXPY
- YALMIP
- Acados
- MPT3

Machine Learning

- PyTorch
- SciKit Learn

Simulation Frameworks

- ROS
- Simulink

Numerical Computing

- NumPy
- SciPy
- Pandas
- Eigen

Parallel Programming

- CUDA
- Open MPI

DevOps Tools

- Git
- Docker

Data Visualization

- Matplotlib
- Seaborn

Document Preparation

- LaTeX
- Microsoft Office

Languages

- Luxembourgish (Native)
- English (Fluent)
- German (Fluent)
- French (Fluent)

Personal Interests

- Owner of two dogs
- Skiing
- Bouldering
- Chess