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

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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