

Ruben ORSOLLE

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SUMMARY

University of Michigan grad student seeking for a **Control Engineer** position starting **early 2024**

EDUCATION

University of Michigan

M.S.E. Mechanical Engineering, GPA: 4.0/4.0

Ann Arbor, MI

December 2023

Coursework: Linear System Theory, Adaptive Control, Data-Driven Methods, Guidance, Navigation and Control, Self-Driving Cars, Connected Vehicles, Robot Kinematics, Robotic Lab, Computer Vision

CentraleSupélec, Paris-Saclay University

B.S. Engineering, GPA: 4.19 / 4.33 (Top 5%)

Gif-sur-Yvette, FRANCE

September 2021

WORK EXPERIENCE

Schneider Electric / CAS, Mines Paris

Control Motor Intern

Pacy-sur-Eure, FRANCE

April 2022 – August 2022

- Collaborated with the R&D team to develop sensorless position observers for the Synchronous Reluctance Motor (SynRM)
- Created a comprehensive Simulink model of the SynRM, incorporating its control law, to facilitate the generation of simulated data for testing the observers.
- Conducted rigorous performance evaluations by comparing the observer results on simulated and real-world data (HIL), demonstrating a remarkable 5-degree accuracy in rotor angle estimation.

SYSNAV

Algorithm Development Intern

Vernon, FRANCE

September 2021 – February 2022

- Modeled and analyzed an Electromagnetic Tracking System, accounted for magnetic disturbances and integrated these insights into the algorithms (Python/C++).
- Organized and executed data acquisition sessions to rigorously test and calibrate system parameters, leading to substantial performance enhancements.
- Successfully managed an applicative technology project for a client, including the preparation of a detailed technical report and on-site testing.

RESEARCH EXPERIENCE

University of Michigan, Aerospace Department

Research Assistant

Ann Arbor, MI

May 2023 – August 2023

- Conducted a comprehensive comparative study between the Predictive Cost Adaptive Control (PCAC) method and Data-Enabled Predictive Control (DeePC) to address the deep-stall problem recovery in aerospace applications.
- Analyzed the effectiveness, advantages, and limitations of both data-driven control methods.

University of Michigan, ROAHM Lab

Research Intern

Ann Arbor, MI

September 2022 – April 2023

- Spearheaded the development of an innovative Trajectory Optimization Method tailored for Legged Robots using the Koopman Operator theory.

LEADERSHIP EXPERIENCE

University of Michigan

Graduate Student Instructor, Physics Department

Ann Arbor, MI

September 2023 – December 2023

- Managed and led two weekly 2-hour sessions for the course "Physics 141: General Physics I," demonstrating strong leadership and instructional skills, while also providing dedicated supervision, effective grading, and valuable office hours to support students' academic progress.

PUBLICATIONS AND PAPERS

Orsolle, Ruben; Bernard, Pauline; Combes, Pascal (2023). *Robust sensorless flux and position estimation for SynRMs*. IECON 2023

SKILLS

Tools : Python, ROS, C, C++, Matlab, Simulink, Simscape, dSpace, Git, Jupyter, Latex, MS Office

Areas of expertise : Control Theory (linear/non-linear), Signal Processing, Aircraft Dynamics, Estimation, Sensor Fusion, Robust Control, Adaptive Control, MPC, Data-driven method, Optimization