

Anastasios Vlachos

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EDUCATION

ETH Zürich Master of Science in Information Technology and Electrical Engineering – Specialization: Systems and Control – Current GPA: 5.3/6	Zürich, Switzerland Sep. 2022 - present
National Technical University of Athens (NTUA) Diploma in Electrical and Computer Engineering (5-year degree; 300 ECTS) – Major: <i>Signals, Automatic Control and Robotics & Electronics, Circuits and Materials</i> – Minor: <i>Computer Systems & Mathematics</i> – GPA: 8.94/10.00 (ranked 24 th among 342 graduates of 2021) – Thesis: “Mathematical Analysis of $\Sigma\Delta$ Modulators and Applications in Frequency Synthesis and Stochastic Filtering” Supervisor: Prof. Paul P. Sotiriadis, Grade: 10/10	Athens, Greece Sep. 2015 - May 2021

RESEARCH EXPERIENCE

Automatic Control Laboratory (IfA), ETH Zürich Semester Project – Worked on bridging offline and online prediction methods in the problem of Pedestrian Tracking. – Proposed a method to adapt online to the residual errors of offline-trained models. – Provided Regret guarantees for our method and conducted simulations to showcase its efficacy. – Supervised by Dr. Anastasios Tsiamis, Aren Karapetyan, Dr. Efe Balta and Prof. John Lygeros.	Zürich, Switzerland Oct. 2023 - Mar. 2024
Circuits and Systems Group (Prof. P.P. Sotiriadis), NTUA Diploma Thesis - Undergraduate Research Assistant – Completed my diploma thesis by examining $\Sigma\Delta$ modulators from a dynamical-systems viewpoint and presenting their usefulness in Frequency Synthesis and Stochastic Filtering applications. – Resulted in publication at MOCAST 2021 (nominated for Best Paper Award) and an invited journal paper.	Athens, Greece Mar. 2020 - Dec. 2021

PUBLICATIONS

- [1] **A. Vlachos**, A. Tsiamis, A. Karapetyan, E. C. Balta, and J. Lygeros, “Online residual learning from offline experts for pedestrian tracking,” *arXiv preprint arXiv:2409.04069*, 2024.
- [2] N. Temenos, **A. Vlachos**, and P. P. Sotiriadis, “Efficient stochastic computing fir filtering using sigma-delta modulated signals,” *Technologies*, vol. 10, no. 1, p. 14, 2022.
- [3] **A. Vlachos**, N. Temenos, and P. P. Sotiriadis, “Exploring the effectiveness of sigma-delta modulators in stochastic computing-based fir filtering,” in *2021 10th International Conference on Modern Circuits and Systems Technologies (MOCAST)*, IEEE, 2021, pp. 1–4.

NOTABLE PROJECTS

Off-Policy Doubly Robust Policy Gradient Project of the course “Foundations of Reinforcement Learning” – Project on deriving an off-policy Doubly-Robust Policy Gradient estimator and perform bias and variance analysis on it, showcasing its performance. – Conducted experiments on <i>CartPole</i> environment that corroborate our theoretical analysis.	Mar. 2024 - Jun. 2024
Comparing averaging methods in Constrained Consensus Project of the course “Advanced Topics in Control - Distributed Control” – Project on constrained consensus protocols and attitude synchronization of a swarm of satellites using averaging quaternions algorithms.	Apr. 2023 - Jul. 2023
Wall-Following and Localization tasks for Sonar Robot Summer project at the Intelligent Robotics and Automation Lab, NTUA – Initialized from semester project in Intelligent Robotic Systems course, where we implemented Wall Following and Localisation tasks for a sonar robot, through simulations using ROS-Gazebo. – Extended the project by testing our algorithms under real conditions on a Raspberry-Pi, three-wheel, DC-motor, sonar robot.	May 2019 - Sep. 2019

HONORS AND AWARDS

Papakyriakopoulos Award for excellence in Mathematics among the 2nd year ECE NTUA students.

TEACHING EXPERIENCE

Linear Systems Theory

Autumn 2023, 2024

Teaching Assistant

- Consult on the clarity, correctness and difficulty of the proposed homework and grade the homework submissions of students, on a biweekly basis.

Advanced Topics in Control - Distributed Systems and Control

Spring 2024

Teaching Assistant

- Grade the homework submissions of students, on a monthly basis, and provide grades statistics.

TECHNICAL SKILLS

Programming Languages: Python, Matlab, C/C++

Software Frameworks: PyTorch, Scikit-Learn, NumPy,

Simulation Tools: ROS-Gazebo

Other Tools: Latex

LANGUAGES

English(fluent, C2), **German**(intermediate, B1), **Greek**(native)