Nasib Adriano Naimi

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Education

09.2021 - Present **MSc. in Electrical Engineering & Information Technology** Zurich, CH
GPA: 5.63/6 | Eidgenösische Technische Hochschule Zürich (ETH Zürich)
Specialising in Signal Processing and Machine Learning.

09.2017 - 09.2021 **BSc. in Electrical Engineering & Information Technology** Zurich, CH
GPA: 5.33/6 | Eidgenösische Technische Hochschule Zürich (ETH Zürich)

Experience

10.2021 - Present **Research Assistant** - Autonomous Systems Lab ETH Zurich Zurich, CH
- 30% employment to improve the DroGone prototype for a Demo for NATO SPS

02.2022 - 06.2022 **Teaching Assistant** - Networked Systems Group ETH Zurich Zurich, CH
- For the course *Communication Networks* taught by Prof. Laurent Vanbever

03.2021 - 09.2021 **Co-Founder** - DroGone Zurich, CH
- Integrated and developed algorithm for fusion of mmWave sensor and RGB camera.
- Integration of mobile hardware accelerator.
- Co-developed multicopter detection algorithm based on YoloV4 architecture.
- Secured financing of CHF 200'000+ for R&D of drone-catching drone.

Publications

11.2022 **Multi-robot System for Autonomous Cooperative Counter-UAS Missions: Design, Integration and Field Testing** SSRR 2022
- Propose the use of a multi-robot system for autonomous and cooperative counter-UAS missions with acompanying field experiments.
- Published in Main Conference as Oral Presentation, SSRR 2022.

07.2022 **Adversarial Defense in Self-Supervised Vision Transformers** ICML 2022
- Research (30%) for course *Deep Learning Fall 2021* offered at ETH Zurich. Grade: 6/6.
- Explored the emerging properties of adversarial attacks on vision transformers trained using DINO and defense strategies.
- Published in the workshop *New Frontiers in Adversarial Machine Learning*, ICML 2022.

Projects

12.2022 - 03.2023 **Learning to Reset in Simulation for Safe Exploration in Real** | Python, JAX, Gym ETHZ LAS
- Semester project on safe model based reinforcement learning with Prof. Andreas Krause at the Learning and Adaptive Systems Lab of ETH Zurich
- Implemented MBRL algorithm PETS and Safety Filter. Learned safe policy in simulation which parametrised a safety filter for deployment and exploration in real environments. Grade: 5.5/6.0

03.2022 - 06.2022 **Detecting Holes Due to Undersampling in 3D Point Clouds** | C++, PCL, Eigen Microsoft
- Project for course *3D Vision* taught by Prof. Marc Pollefeys.
- Co-developed an algorithm for detecting undersampled regions in unstructured 3D point clouds collected with structure from motion techniques. Worked in collaboration with Microsoft Mixed Reality and AI Lab in Zurich. Grade: 6.0/6.0

10.2020 - 03.2021 **Reinforcement Learning for Landing Site Detection** | Python, PyTorch, Unreal Engine ETHZ ASL
- Semester project with Prof. Roland Siegwart at the Autonomous Systems Lab of ETH Zurich titled *Reinforcement learning for implicit Landing Site Detection and Autonomous Landing of MAVs*.

- Trained a reinforcement learning agent in an Unreal Engine environment. Studied the feasibility of reinforcement learning for landing an autonomous aerial robot in unknown settings using RGB image information. Grade: 5.75/6.

09.2019 - 09.2020 **Focus Project DroGone** | C++, Python, ROS ETHZ ASL

- A one year long student project offered by ETH Zurich and industry partners.
- Worked with Prof. Roland Siegwart to build an autonomous drone-catching drone.
- Co-lead of the software team. Developed tracker based on Extended Kalman Filters.
- Acquired 5 sponsors (cantonal police department of Zurich, Aurora Aerospace).
- Achieved a grade of 5.75/6.

Activities

09.2018 - 12.2020 **Vice President of External Relations** - Unicorn Labs Zurich, CH

- A non-profit helping entrepreneurs build MVPs in a hackathon-like setting.
- Initiated the Rainbow Road challenge: Challenge for students to pitch their idea for the chance to win a MVP building session. Acquired 4 partners and sponsors.
- Facilitated or participated in 5 hackathons, generating CHF 10'000+ in revenue.

09.2018 - 06.2019 **Committee Member Finance Team** - ETH Entrepreneur Club Zurich, CH

- Maintained relationships with corporate sponsors. Assisted in operations for events.

Competitions

11.2022 **Junction 2022** | 2nd Place - Crypto Trading Helper Espoo, FI

- Competed in the largest hackathon in Europe with 1300 participants.
- Implemented AI powered indicators to enhance algorithmic trading of cryptocurrencies by classified sentiment on Twitter and Kline information to predict the whether volatility, volume, or price will rise or fall.
- Runner up in the *Crypto Trading Helper* Challenge

02.2020 **Mohammed Bin Zayed International Robotics Competition** | Grand Challenge UAE

- The MBZIRC is an international robotics competition between leading universities of the world. Three challenges are presented, each meant to be completed by autonomous robots.
- Worked on challenge 1: Intercept a ball attached to a drone flying in the arena with an autonomous drone.
- Participated as a part of the ETH Zurich team.

04.2016 **Swiss Young Physicists Tournament (SYPT)** | 2nd Place Zurich, CH

- The SYPT is an annual competition where students investigate one of 16 pre-selected problems, present their findings, and defend their hypothesis in front of a jury.
- Investigated Magnetic Train: battery with magnets propels through solenoid.
- Devised experiments to determine which parameters affected the terminal velocity and acceleration and consolidated findings with theory.

Skills

Programming Languages Python(strong), C/C++(strong), Bash, Java, HTML/CSS, LaTex
Frameworks & Libraries Eigen, ROS, PCL, libigl, Pandas, NumPy, PyTorch, JAX, Open MPI, Open MP
Languages English(Native), German(Native), French(Fluent), Italian(Fluent), Mandarin(Basic)