

Edoardo Debenedetti

MSc STUDENT IN CS @ EPFL

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Education

EPFL - Federal Institute of Technology Lausanne

Lausanne, Switzerland

MSC IN COMPUTER SCIENCE

Sep. 2019 - Apr. 2022 (Expected)

- GPA 5.51/6, focus on **Machine Learning** ∩ **Security** ∩ **Privacy**.
- Working on my Master's Thesis about the **robustness of Vision Transformers** supervised by **Princeton University's Prof. Mittal**.

Politecnico di Torino

Turin, Italy

BSC IN COMPUTER ENGINEERING

Sep. 2016 - Jul. 2019

- GPA 28.4/30, graduation mark 110/110, **top 9%**.
- **Exchange year at 同济大学** (Tongji University), in Shanghai (China), supported by a **full scholarship** granted to the top 31% applicants.

Navy Military College "F. Morosini"

Venice, Italy

HUMANITIES HIGH SCHOOL DIPLOMA

Sep. 2013 - Jul. 2016

- Selected to lead sophomores as **prefect** during my final year, **military training** on Italian Navy's Ships and at Italian Navy's Marine Corps.

Publication

- Croce*, F., Andriushchenko*, M., Sehwag*, V. **Debenedetti***, E., Flammarion, N., Chiang, M., Mittal, P., Hein, M., "**RobustBench: a standardized adversarial robustness benchmark**", Thirty-fifth Conference on Neural Information Processing Systems Datasets and Benchmarks Track, 2021. **50+ citations**. (* *equal contribution*). A preliminary version appeared at the ICLR 2021 Workshop on Security and Safety in ML Systems.

Honors and Awards

- 2021 **Google TPU Research Cloud Program**, extensive **hardware support for at least 5 months**, to work on the Master's Thesis.
- 2021 **Best Paper Honorable Mention Prize**, ICLR Workshop on Security and Safety in ML Systems. **Top 2 out of 50** accepted papers.

Experience

Bloomberg LP

London, UK

SOFTWARE ENGINEERING INTERN

Jul. 2021 - Sep. 2021

- Worked in the **Multi Asset Risk System** team, on the re-design and implementation of the configuration of a distributed logging library.
- Move the configuration of a **distributed logging library** from an internal technology to a **centralized SQL DB**, using a **cache** and a **C++ service**.
- The configuration is checked **~1M times per minute**, and the usage of the cache gave a **~23x speed improvement** w.r.t. querying the DB.

armasuisse Cyber-Defence Campus

Lausanne, Switzerland

RESEARCH INTERN

Aug. 2020 - Feb. 2021

- Worked on **Machine Unlearning** and **Membership Inference Attacks** against Generative Models, supervised by **Prof. Mathias Humbert**.
- Adapt the **MIA** technique proposed by the **GAN-Leaks** work (by Chen et al.), to work after the removal some datapoints from the training set.
- The technique achieved **promising results** when attacking DCGAN trained on the CelebA dataset

Reply

Turin, Italy

SOFTWARE ENGINEERING INTERN

Nov. 2018 - Feb. 2019

- Developed a **chatbot** that answers questions about GDPR law, using **TypeScript**, **Redis**, **MongoDB**, **IBM Watson Assistant**, and **Docker**.
- Worked on **RPA**, using **Python**. One of the bots **decreased a task duration by 88%**, without requiring human intervention in it.

Projects

RobustBench: a standardized adversarial robustness benchmark

EPFL, Graded 6/6

- **Benchmark and leaderboard** to analyze the **robustness** of image classifiers, and **Model Zoo** containing 60+ **PyTorch** models trained robustly.
- **Analysis** on the progress in robustness: worked on the **Lipschitzness** of robust models, and on a new **ensemble black-box transfer attack**, capable of **improving the success rate by up to 70%** w.r.t. transfer attacks carried with one model only.

Counteracting DeepFakes

EPFL, Graded 5.75/6

- Term **Research Project** run at **Prof. Troncoso's SPRING Lab** at EPFL, worked on **poisoning** attacks via **Influence Functions** against DeepFakes.
- Tested the attack on MNIST-trained **autoencoder** which showed **major distortions** in its output after the poisoned training.

Leadership and Services

NeurIPS

Virtual

VOULUNTEER

Dec. 2021

- Volunteer at NeurIPS 2021 to help with monitoring the website and technical issues.

LeadTheFuture

MENTEE

Sept. 2019 - Current

- Selected to be part of the **leading mentorship organization for STEM students in Italy** - Acceptance rate < 20%.
- Held **mentoring sessions** about MSc admissions at EPFL.

JEToP (PoliTo's Junior Enterprise)

Turin, Italy

INTERNATIONAL MANAGER

Oct. 2018 - Jun. 2019

- **Executive board** member responsible for external relations of the Junior Enterprise. Signed **8 new partnerships**.