

# Brian Pulfer



+41 76 425 21 95 | [brianpulfer95@gmail.com](mailto:brianpulfer95@gmail.com) | [github.com/BrianPulfer](https://github.com/BrianPulfer) | [linkedin.com/in/brianpulfer](https://linkedin.com/in/brianpulfer)

## TECHNICAL SKILLS

---

**Programming Languages:** Python, Java, C/C++ HTML/CSS/JavaScript, C#

**Frameworks:** Pytorch, Pytorch-Lightning, Tensorflow, Keras, React, Bootstrap, Unity

**Developer Tools:** Git, Linux, OpenSSH, Slurm, HPC clusters, PIP, Anaconda, Docker, VSCode, JetBrains IDEs

**Libraries:** Alumentations, Einops, Scikit-Learn, OpenCV2, NumPy, Matplotlib, Pandas, Seaborn, timm, transformers

## EXPERIENCE

---

### Ph.D. student in Machine Learning

November 2021 – November 2025

*University of Geneva*

*Geneva, GE, CH*

- Implemented ViTs, Normalizing Flows, DDPMs, and Masked Image Modelling models.
- Trained models with multi-node multi-gpus SLURM cluster.
- Assisted teaching for: Algorithms, Data structures, Image processing.

### Machine Learning Intern

July 2020 – August 2020

*University of Southern Switzerland*

*Lugano, TI, CH*

- Developed a tool for automatic collection and cleaning of a dataset through web crawling and heuristics such as feature extraction, clustering and outlier identification.
- Applied transfer learning of various image-classification models such as VGG, GoogLeNet and DenseNET.
- Applied transfer learning of image segmentation and object detection models such as SSD and YOLO.

### Hackathons & Competitions

Nov. 2019 – Present

*Switzerland, Germany*

- HackZürich 2022
- START Hack 2021
- USI Hackathon 2019

### Broadcast soldier

Mar. 2015 – January 2016

*Swiss Army (service completed)*

*Wangen an der Aare, BE, CH   Bremgarten, AG, CH   Lenzerheide, GR, CH*

## PUBLICATIONS

---

- Anomaly localization for copy detection patterns through print estimations[1]
- Authentication of copy detection patterns under machine learning attacks: A supervised approach[2]
- Mind the gap! a study on the transferability of virtual vs physical-world testing of autonomous driving systems[3]

## LEADERSHIP & AWARDS

---

### Formula USI organizer

Nov. 2020 – Today

Lugano, TI, CH

- Organizer of the first edition of the Formula USI competition by the University of Southern Switzerland.

### Winner of the SODESKA scholarship

April 2021

Lugano, TI, CH

- I won a scholarship awarded to the 5 swiss students which obtained the highest GPA at USI (University of Southern Switzerland) during their previous year of studies (minimum 54 ECTS).

## EDUCATION

---

### UNIGE - University of Geneva

Geneva, GE, CH

*Ph.D. in Machine Learning for anti-counterfeiting and anomaly detection*

Nov. 2021 – Nov. 2025

### USI - University of Southern Switzerland

Lugano, TI, CH

*Master Degree in Artificial Intelligence (GPA: 9.1/10)*

Aug. 2019 – Jun 2021

### SUPSI - University of Applied Sciences of Southern Switzerland

Manno, TI, CH

*Bachelor Degree in Computer Science (GPA: 4.9/6)*

Aug. 2016 – Jun 2019

## PROJECTS

---

### Master Thesis | *Python3, C#, Keras, pandas, Unity, Git, Conda, cv2*

September 2020 – June 2021

- Assembled a physical DonkeyCar using a JetsonNano computer and an RC car.
- Created a simulated scene of a real-world lab room in Unity. Improved the Unity simulator to log testing metrics.
- Collected data, trained and tested different DL models for self-driving in the simulated and real world tracks.
- Adapted CycleGAN to translate simulated images to real ones and train a real-world Cross-track-error predictor.

### Bachelor Thesis | *Python3, Git, Unittest, Gensim, PyJNius, Keras, SkLearn*

May 2019 – Sep 2019

- Developed a binary classifier machine learning model that can tell if two scientific articles from the PUBMED database were published by the same author. Work commissioned by La Roche AG.
- Implemented feature extraction code, also using a Java library inpython through the PyJNius library. Used the Gensim library to apply doc2vec techniques, a novelty in the literature of AND.
- Trained and tested different models: KNN, SVM, Random Forest and Feed-Forward Neural Networks.
- Studied ambiguity level in the PubMed dataset by counting the cardinality of the namespaces.

## REFERENCES

---

- [1] Brian Pulfer, Yury Belousov, Joakim Tutt, Roman Chaban, Olga Taran, Taras Holotyak, and Slava Voloshynovskiy. Anomaly localization for copy detection patterns through print estimations, 2022.
- [2] Brian Pulfer, Roman Chaban, Yury Belousov, Joakim Tutt, Olga Taran, Taras Holotyak, and Slava Voloshynovskiy. Authentication of copy detection patterns under machine learning attacks: A supervised approach, 2022.
- [3] Andrea Stocco, Brian Pulfer, and Paolo Tonella. Mind the gap! a study on the transferability of virtual vs physical-world testing of autonomous driving systems. *IEEE Transactions on Software Engineering*, pages 1–13, 2022.