(+41) 078 647 40 91
CH-1018 Lausanne
Vaud, Switzerland

Jules Gottraux

github.com/jjjules
linkedin.com/in/julesgottraux
jules.gottraux@gmail.com

Work Experience

Assistant Nature Manager **April 2024 — Present**
Lausanne Employment Service, Lausanne
Affiliation in the context of the civil service, I help with participants that need social integration. With them, we fight against invasive plants, construct birdhouses, beehotels, etc.

Machine Learning Engineer **April 2022 — February 2024**
Magma Learning, Lausanne
I handled a variety of tasks, with a focus on designing, deploying, and monitoring a spaced repetition algorithm. This algorithm, based on company data, significantly improved the personalization capabilities of our application by suggesting content at optimal times to enhance user learning. Additionally, I played a key role in backend development and the seamless integration of our application into AWS, ensuring efficient database design and smooth migration of application components to the cloud.
Keywords: Machine Learning, MLOps, NLP, TensorFlow, Keras, Software and Database Design, AWS

Data Science Intern **Sept. 2021 — March 2022**
Magma Learning, Lausanne
I developed a production-ready personalized spaced repetition algorithm for the AI tutor of the company. I designed a novel algorithm approach based on a Neural Network architecture that predicts the probability of correctness of users on problems at any given time. Predictions can then be used to choose which problems to reactivate to help users learn as efficiently as possible.
Keywords: Recommender System, Spaced Repetition, Neural Collaborative Filtering, TensorFlow, Keras

Student Assistant **2020 — 2021**
École polytechnique fédérale de Lausanne (EPFL)
Technical assistant, supervisor and Scrum Master for Bachelor students. This was in the context of programing courses, one in C++ and one in Python focusing on Data Mining and Machine Learning.

Education

Master's Degree in Data Science **2019 - 2022**
École Polytechnique Fédérale de Lausanne (EPFL)
Coursework: Traditional Machine Learning, Deep Learning, Mathematical foundation of Data Science, Computer vision, Optimization for Machine Learning, Reinforcement Learning fundamentals, NLP
GPA: 5.36

Bachelor's Degree in Computer Science **2015 - 2019**
École Polytechnique Fédérale de Lausanne (EPFL)
Coursework: Computer Architecture, Software Engineering, Compiler Construction, Database Systems, Stochastic Modeling, Fundamentals of Statistics, Machine Learning fundamentals, Distributed Processing, Graph Theory
GPA: 5.12

Skills

Communication	French (native speaker), English (C1)
Programming	Python (Numpy, Sklearn, Pandas, PyTorch, TensorFlow, OpenCV, etc.), SQL, Scala, C(++), Bash, LaTeX
Tools	Strong Linux knowledge, AWS, Git, Scrum, Spark, Hadoop, Docker

Projects

System Integration in Renku for Big Data
- Engineered an automatic setup for projects using Big Data frameworks (Hadoop, Hive, Spark) on the platform
- Contributed to Renku, open-source platform for collaborative Data Science with the Swiss Data Science Center

Keywords: Open Source, Linux, System Administration, Hadoop, Spark, Docker, Kubernetes

Dynamical System's Modelling for Tic Disorder
- Leveraged activity recognition techniques based on dynamical systems for direct tic detection on videos
- Used PCA and auto-encoders for the latent space mapping of the video frames
- Collaborated with researchers in Data Science and psychology at the John Hopkins university and the Swiss Data Science Center
- Formed rules for the data collection from patient at Hopkins university with the other researchers

Keywords: Dynamical Systems, Neural Network, Computer Vision, Latent Space Representation, PyTorch, OpenCV

Data Visualization on Coronavirus Evolution
- Created an interactive map of the world to visualize the evolution of COVID cases around the world
- Coded everything in JavaScript using the D3 library, except for the data wrangling done in Python