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Jules Gottraux

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WORK EXPERIENCE

Machine Learning Researcher   **July 2022 — Present**
Magma Learning, Lausanne
I participate in the development of the application and more specifically the algorithm designs focused on AI. I also am continuing the work done during the internship by setting up the developed algorithm's deployment.
Keywords: Machine Learning, MLOps, NLP

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 start-up, ARI 9000. 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 (scripting, system administration), 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

Development of an Android Application
- Collaborated with 6 other students on the application development
- Used continuous tools (Travis CI, Code Climate) along with Github actions for automation
- Worked using an Agile methodology to create and assign task every week