ALEXANDER APOSTOLOV

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SUMMARY

- Strong interest for research in **Data Science** and **Machine Learning**.
- **Strong academical background**, EPFL Bachelor in Communication Systems and Mater in Data Science.
- Work experience in diverse teams for various projects.

EDUCATION

Ecole Polytechnique Fédérale de Lausanne (EPFL)   **2020 – 2023**
MSc in Data Science   *Lausanne, Switzerland*

Ecole Polytechnique Fédérale de Lausanne (EPFL)   **2016 – 2019**
BSc in Communication Systems; Data Science track   *Lausanne, Switzerland*
- Average: 5.77/6.0; Top 1% of students
- Exchange student at the University of Toronto in 2018-2019

Collège Rousseau   **2011 – 2015**
Bilingual Matura; Physics and Applied Mathematics Orientation   *Geneva, Switzerland*
- Bilingual curriculum English/French, obtained with Honors

AWARDS AND HONORS

Master's Excellence Fellowship	2020, EPFL
Prize for 2nd best GPA from all graduating students from all faculties (out of 1000+ students)	2019, EPFL
Prize for best poster in Global Issues	2017, EPFL
Prize for best GPA in Geneva	2015, Collège Rousseau
Prize for best GPA in the Physics and Applied Mathematics orientation	2015, Collège Rousseau

PROFESSIONAL EXPERIENCE

International Committee of the Red Cross (ICRC)   **2020 (4 months)**
Research assistant   *Geneva, Switzerland*
- Worked with the Nutritionist team to create digital surveys with Device Magic that are used on the field in communities affected by malnutrition. These surveys, compared to the previous ones on paper, can be personalized instantly according to the situation and save a lot of time for centralizing answers and analyzing the data.
- Developed a database to monitor the COVID-19 related situation in prisons where the ICRC is present. This had to be done with limited resources, as a lot of staff was relocated due to COVID-19 and a lot of travel restrictions were being imposed and in a short time frame as the collected information was used to prioritize emergency operations.
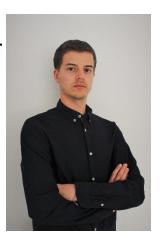
International Committee of the Red Cross (ICRC)   **2019 (4 months)**
Project assistant in the ICT team   *Geneva, Switzerland*
- Evaluated the technical capabilities of SD-WAN products of three companies in order to choose which one to use to upgrade the WAN infrastructure of the ICRC on over 300 sites over the globe and save money by using a more modern technology.
- Ran and developed a test protocol from scratch. The ICRC needed to test that the product works properly on all their sites which have constraints different from the average SD-WAN user (energy limits, slow, unreliable telecommunication, protecting the data from theft from local governments and other armed groups...).

GEloge Foundation, student housing in Geneva   **2017 (1 month)**
Administrative assistant   *Geneva, Switzerland*

- Managing the databases with actual and future tenants and updating website of the foundation.
- Creating Excel tools to save time by dynamically comparing our internal databases with the accounting database of another program to automatically check if all payments are up-to-date.

COMPETENCIES AND PROJECTS

Machine learning
Supervised learning: linear classification, regression, neural networks. Unsupervised learning: principal component analysis, k-means clustering, and Gaussian mixture models. Controlled overfitting: Regularization, validation.
Projects in Python, TensorFlow and Keras: road segmentation, caption generator, traffic sign classifier, hand-written digit classification

Computer Networks
Traffic control algorithms and performance analysis of computer networks. Network and routing protocols. MATLAB project to model real traffic in a network.

Algorithms
Algorithm analysis, dynamic programming, randomization, graph theory, data structures.
Student assistant for the course Advanced Information, Computation, Calculation II in 2018

Signal processing
Sampling and reconstruction, discrete-time signals and linear time-invariant systems, the z-Transform, discrete-time Fourier transform, fast Fourier transform, and discrete-time filters. Applications to audio, image, video and communications signal processing.

Statistics and Probability
Random vectors, random convergence, random processes, Poisson and Gaussian processes, stationarity, mean square derivatives and integrals, ergodicity, power spectrum, linear systems with stochastic input, mean square estimation, Markov chains, recurrence, absorption, limiting and steady-state distributions, time reversibility, and balance equations.

EXTRA PROFESSIONAL EXPERIENCE

National Conference, European Youth Parliament in Switzerland   **2016**
Head Organizer   *Geneva, Switzerland*

- Looking for partners and sponsors to cover a budget of 100'000 CHF and doing the accounting after the event.
- Organizing activities, catering and accommodation for 200 participants for 6 days in Geneva.
- Leading a team of 15 volunteer organizers.
- Inviting guest speakers such as the Under-Secretary-General of the United Nations, Mr. Michael Moller and the Director-General of the International Committee of the Red Cross, Mr. Yves Daccord.

Private tutor   **2013 – 2015**
                                                                   Geneva, Switzerland

- Prepared and ran exercise sessions and explained course material to help students from middle school to university in courses in German, English, French, Mathematics, Physics and Programming

LANGUAGES

French: Native
Bulgarian: Native
English: Fluent – C2, exchange student for 1 year in Toronto and language school 3 months in Oxford
German: Good skills – B2

PERSONAL SITUATION

24 years old | Swiss, Bulgarian and US citizenship | free of Swiss military obligations