FANTINE HUOT

Amsterdam, Netherlands • +1 415-867-4801 • fantine.huot@gmail.com • web.stanford.edu/~fantine

Machine learning engineer and computational earth scientist, with a strong background in math and 5+ years of experience in implementing and scaling deep learning models on terabytes of messy data.

EDUCATION

Stanford University — **Stanford, CA**
Ph.D. in Geophysics — *May 2021*
GPA: 4.0/4.0
Relevant coursework: Machine learning, Convolutional neural networks for visual recognition, TensorFlow for deep learning research, Artificial Intelligence, Inverse problems, Computational earth sciences.

Ecole Nationale Supérieure des Mines de Paris — **Paris, France**
M.S. in Science and Executive Engineering — *2013*
Graduated with Highest honors.

RELEVANT SOFTWARE ENGINEERING EXPERIENCE

Stanford University — **Stanford, CA**
Research Assistant — *Sept 2015 – Today*
- Designed, conducted, and published research on using machine learning for a better understanding of the Earth.
- Demonstrated that it was possible to record seismic waves in urban areas using fiber-optic cables from the existing telecommunication network: [link].
- Designed algorithms for automated real-time processing of streaming data, leading to the detection of thousands of previously-uncatalogued small-amplitude earthquakes (Python/C++).

Google Research — **Mountain View, CA**
Software Engineer Intern — *Summer 2020*
- Designed and implemented fluid/solid boundaries for a large-scale 3D computational fluid dynamics solver on TPUs using TensorFlow. Used the results to assess the effect of topography on wildfire spreading.
- Developed data processing pipelines and machine learning models for wildfire risk assessment using Earth Engine and TensorFlow. Presented results at AI research conference NeurIPS 2020: [link].

Google Cloud — **Sunnyvale, CA**
Student High-Performance Computing Researcher — *Summer 2019*
- Designed and developed a 3D high-resolution imaging algorithm on TPUs using TensorFlow which runs at competitive speed compared to benchmark GPU methods. Submitted the results to an HPC conference: [link].
- Applications range from ultrasound medical imaging to Earth subsurface imaging.

Chevron — **Houston, TX**
Student Machine Learning Researcher — *Summer 2018*
- Designed and developed a 3D deep learning segmentation model in TensorFlow to estimate earth properties from seismic images. Presented the results at geophysics conference SEG 2019: [link].

Schlumberger — **Menlo Park, CA**
Student High-Performance Computing Researcher — *Summer 2017*
- Designed and developed an algorithm in Python and C++ to automatically filter unwanted coherent noise that could not be removed by existing methods, while preserving the signal of interest.
- Scaled the method to reprocess terabytes of recorded seismic time-series data.
- Submitted a patent application. Presented the results at geophysics conference SEG 2018: [link].

ADDITIONAL EXPERIENCE

Actimage — **Paris, France**
Software Engineering Project Manager — *Nov 2013 – Jun 2015*

- Managed a team of 5 software engineers.
- Coordinated with clients and engineers to define needs and constraints, and evaluate optimal solutions.
- Compiled technical specifications, and oversaw budgets and planning.
- Developed software for healthcare (PHP and SQL), human resources (PHP and SQL), social networks (Swift).
- Obtained an ITEA 2 EUREKA Cluster Award for a fall detection device research project (Java).

ARMINES — **Avignon, France**
Research Assistant — *Jan 2013 – Jun 2013*

- Evaluated the durability of underground adiabatic compressed air energy storage systems and designed hydro-thermo-mechanical simulation software.

Valeo — **Kumagaya, Japan**
Software Engineer — *Oct 2011 – Jun 2012*

- Addressed an unmet need by developing a web-based performance calculation tool to assist clients in defining their technical needs based on their vehicle specifications: [link].

CNRS, Laboratoire de Météorologie Dynamique — **Paris, France**
Research Assistant — *Sep 2010 – Jan 2011*

- Developed software to model ice formations on the surface of planet Mars based on satellite observations from the European Space Agency and interfaced the developed module with the laboratory's Global Circulation Model.

SKILLS & EXPERTISE

- **Preferred programming languages:** Python and C++.
- **Machine learning:** TensorFlow, Keras, Scikit-learn.
- **High-Performance Computing:** GPU / TPU development, Pybind11, Numba, TBB, ISPC, Apache Beam, openMP.
- **Cloud and containers**: Google Cloud, Docker, Singularity, Shell scripting.
- **Data visualization**.
- **Mathematics, physics, and numerical methods.**
- **Communication.**
- **Languages:** Fluent: English, French; Working proficiency: Dutch, Japanese, Spanish.

TEACHING & MENTORING

- Stanford University, **Course Assistant for Machine Learning** (CS229 – instructor: A. Ng). *2019*
- Stanford University, **Course Assistant for Computational Earth Sciences** (GP257 – instructor: R. Clapp). *2019*
- Organizer and mentor for Stanford University's annual **Big Earth Data Hackathon**. *2018 – 2021*
- Academic Reviewer for **IEEE and Geophysics**. *2018 – 2021*

AWARDS

- Award for **Top 25 Technical Program Presenters**, Society of Exploration Geophysics, 88th Annual Meeting, 2018: [link].
- **Best Student Paper**, Society of Exploration Geophysicists, 87th Annual Meeting, 2017.
- Award for **Top 39 Technical Program Presenters**, Society of Exploration Geophysicists, 87th Annual Meeting, 2017.