Giuseppe Barbalinardo

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phone: 858-349-5983 - **location**: Berkeley, CA

Skills

Technologies	**Machine Learning and AI**
○ Python (Numpy, Tensorflow, Scikit Learn, Pandas, Matplotlib) ○ DB (PostgreSQL / MySQL) ○ Infrastructure (Docker / Kubernetes / Google Cloud) ○ Mobile (Objective C, Swift, Android) ○ Others (HPC / MPI / CUDA / Linux / JAVA SE) ○ Software Development (Design patterns / Algorithms) ○ Advanced Math Tools (Statistics / Probability / Linear Algebra / Stochastic Methods / Markov Chain Monte Carlo)	○ Dimensionality reduction ○ Optimization methods ○ Regularization ○ Neural Networks ○ Clusterization ○ NLP (Sentiment Analysis, Entity extraction, Transformer/BERT) ○ Time series analysis (ARMA, ARIMA, LSTM, Wavenet)

Experience

Ph. D. Researcher - University of California – Davis **Sept '16 - Dec '20**

- Lead developer of kALDo, a modern Tensorflow-based open-source software package for heat transport simulations, which can run on CPUs and GPUs. Development from zero to release, including unit-tests, documentation, continuous integration, and deployment using Docker and CircleCI. Implementation of Google Colab examples. Team of 5 developers. Paper published on the Journal of Applied Physics (2020). Advisor: Dr. D. Donadio.
- Development of a novel mathematical model for heat transport, which uses advanced statistical tool to reduce the computational cost of simulations, published on Nature Communication (2019).
- Application of Neural Networks to model interatomic potentials. Journal of Applied Physics (2019).
- Teaching Assistant for the graduate class of Mathematical Methods for Scientists. Numerical algorithms using Python, including: Optimization Methods (Descent and BFGS), Partial Differential Equations, and Regularization, Dimensionality Reduction, Penalized Regressions, LASSO, Fast Fourier Transform, and Linear Algebra.
- Awarded the Software Development Investment Fellowship from the National Science Foundation - Molecular Sciences Software Institute.
- Recipient of the 2020 Peter A. Rock Graduate Fellowship in Chemical Physics by UC Davis.

Engineering Manager - Grio - San Francisco **Jan '16 - Aug '16**

- Management of the iOS team of 6-8 software developers across several simultaneous projects.
- Design and implementation of the apprentice program and junior developers' mentor.
- Organizer of the company's first hackathon.

Software Engineer - Grio - San Francisco **May '14 – Dec '15**

- Development and prototyping of the Texture app (now Apple) with the design and business team.
- Development of the new Target iPad app in an Agile-driven team of 12 people.
- Collaboration with the marketing and business team at Twitter. Development of an AngularJS dashboard to convert proprietary meta-language to Ruby and later application to over 10 marketing campaigns.
- Presentation of 4 Tech Talks at the company all-hands meeting.

Projects

Co-founder of Ergo (June 2019), an AI-powered platform that pulls the latest news stories across media sources and highlights relevant content to combat the spread of misinformation.

- Implementation of the main machine learning algorithms, including Sentence Transformer (SBERT), Dimensionality reduction using PCA, Entity Extraction, and Clusterization, using Python, Numpy, Tensorflow and Pytorch.
- Development of the main stack, using Postgres and Cube, VueJS, Flask, Docker, Kubernetes, and Google App Cloud.

Education

Ph.D. Computational Chemical Physics - University of California, Davis **Sept '16 - Dec '20**
Relevant coursework: Artificial Intelligence, Natural Language Processing, Computational Methods, Econophysics

M.Sc. Theoretical Physics - University of California, San Diego **Apr '12 – Dec '13**
Relevant coursework: Stochastic Methods / Differential Equations / Markov Chain Monte Carlo / Numerical Methods