Alex Bujan

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Summary

- 8+ years of international research experience and interdisciplinary training in Biophysics, Computer Science, and Data Analysis
- Solid background in large-scale data analysis and machine learning
- Strong team player with excellent communication skills
- Currently seeking a job as data scientist with special interest in health data and genomics

Skills

Python, Java, Matlab/Octave, C/C++, R**	Programming Languages
SciPy, NumPy, Matplotlib, H5Py, Pandas, OpenCV**	Scientific Programming
Scikit-learn, Theano, Keras, TensorFlow**	Machine/Deep Learning
MPI4Py, PySpark**	Parallel Computing
HDF5, MySQL, Postgres****	Databases
LaTeX, Jupyter Notebooks, GitHub, Flask**	Communication and Web

** some experience

Experience

Health Data Science Fellow
Sep 2016 - Present

Insight Data Science — *San Francisco, CA*

- Created iSonogram, a tool to identify cancer lesions in ultrasound images
- Built an image segmentation tool using deep learning (convolutional networks) and image processing that achieved 0.61 pixel F1 score on test images
- Implemented deep learning models using Keras-Theano and preformed training/optimization on Amazon AWS GPU nodes
- Developed an interactive web app using Flask, Bootstrap, jQuery, and AWS
- Created a mental health monitoring tool using NLP, SVMs and deep learning (word2vec and recurrent networks) to evaluate mental health from free unstructured text. Validated the models using comments scraped from mental health forums using Python

Postdoctoral Researcher
Feb 2015 - Sep 2016

UC Berkeley — *Berkeley, CA*

- Developed novel ICA methods to reduce biases in the feature extraction of biomedical time series and image data
- Applied machine learning methods (ICA, sparse coding, SVMs) and signal processing tools to predict uttered speech from brain electrical signals
- Implemented Python-MPI tools to perform efficient Bayesian hyper-parameter optimization in HPC environments
- Optimized novel framework for efficient regularized regression/classification using ensemble methods to be deployed on 1,000+ compute nodes and applied to 100+ GB datasets using Python and MPI/Spark frameworks

Doctoral Researcher
Apr 2010 - Jan 2015

University of Freiburg — *Freiburg, Germany*

- Performed large-scale numerical simulations of biological neural network models using Python/C++ to evaluate the effect of topology on network dynamics
- Implemented software using signal processing, graph theory, and dynamical systems to evaluate the dynamics of neural networks and the communication between different brain regions
- Supervised undergraduate level students in building biophysical models of neural networks

Education

Ph.D. Computational Neuroscience *2015*

University of Freiburg *Freiburg, Germany*

M.Sc. Computer Science *2009*

University of Birmingham *Birmingham, UK*

B.Sc. Biology *2007*

University of Madrid *Madrid, Spain*

Relevant Publications

On degeneracy control in overcomplete ICA *arXiv*

Alejandro F. Bujan, Livezey, Jesse A., and Friedrich T. Sommer *2016*

Sparse components of sensorimotor ECoG signals are relevant for speech control *CoSyNe*

Alejandro F. Bujan, Kristofer E. Bouchard, and Friedrich T. Sommer *2016*

Role of input correlations in shaping the variability and noise correlations of evoked activity in the neocortex *J Neurosci*

Alejandro F. Bujan, Ad Aertsen, and Arvind Kumar *2015*

Communication through resonance in spiking neuronal networks *PLoS Comput Biol*

Alejandro F. Bujan, Gerald Hahn, Yves Fregnac, Ad Aertsen, and Arvind Kumar *2014*