Vanessa Sochat

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vsoch.github.io

EDUCATION

PhD Candidate, Biomedical Informatics: *Stanford University, Stanford CA*

Sept 2011 – present

- Stanford Graduate Student Fellowship (Albion Walter Fellow)
- Microsoft Graduate Women's Scholar (2012)
- National Science Foundation Graduate Fellowship

BA in Psychology and Neuroscience: *Duke University, Durham NC*

Aug 2005 – June 2009

- Magna Cum Laude, Dean's List, Member of Psi Chi, the National Honor Society in Psychology

EXPERIENCE

PhD Candidate, Poldrack Lab: *Stanford University, Stanford CA*

June 2011 – present

- Designed and developed a Dockerized infrastructure, expfactory.org, to deploy web-based experiments
- Conceptualized and implemented open source software, Wordfish, for generating custom NLP pipelines
- Created an interactive, reproducible workflow to for genomic, behavioral, and brain imaging analyses
- Identified optimal parameters for comparison of statistical brain maps using classification framework
- Imagined and created web viewers for brains using nodeJS, a neuroimaging data model, and FileReader
- Built clinical web application to explore anatomical and genomic features associated with brain tumors
- Built model and database to classify artifact in functional MRI using regularized logistic regression
- Created complicated analysis pipelines in a HPC environment to analyze thousands of brain images

Data Technician, Laboratory of Neurogenetics: *Duke University, Durham NC*

May 2009 – May 2011

- Coded and deployed image processing pipelines in HPC environment using python, bash, and Matlab
- Wrote custom tools to check the quality of brain images, organize data, and interact with participants
- Responsible for creating and administering a battery with over 30 cognitive paradigms using Qualtrics

Founder, Goggles Optional Podcast: *Stanford University, Stanford CA*

Nov 2013 – present

- Developed and currently maintain infrastructure for a weekly science podcast with over 50K downloads
- Weekly responsibility to generate episode content, update databases, and publish

Student Director, Informatics Concentration for MD Students: *Stanford CA*

May 2013 – May 2015

- Organized quarterly sessions for approximately 30 medical students interested in informatics
- Set up social media groups and advertising for MD student recruitment

Teaching Assistant, Biomedical Image Analysis and Interpretation: *Stanford CA*

Jan 2013 – May 2014

- Created new course content for 10 lectures, including interactive slides and class handouts
- Single handedly developed two new projects, including a database of "cookie tumor" images
- Taught weekly section meetings, and gave two full lectures on machine learning and neuroinformatics

SKILLS AND QUALIFICATIONS

Computer Experience

Languages:	Python, bash, JavaScript, Matlab, HTML/CSS, php, R
Databases:	MySQL, PostgreSQL, neo4j, couchdb, Big Query, sqlite3
Infrastructure:	Docker, VirtualBox, Vagrant
Visualization:	D3, canvas, Shiny (R), Photoshop, Illustrator, Maya, Blender

Data Analysis

High Performance Computing:	SLURM, SGE, Google Cloud, AWS (EC2, RDS, S3)
Data Structures	JSON, xml/RDF, yaml

Web Development

Frameworks:	Django, Jekyll, Flask, Wordpress, nginx, uWSGI
Continuous Integration	CircleCI, Travis
Version Control	Github

SELECTED PUBLICATIONS

Sochat V , Gorgolewski KJ, Koyejo O, Durnez J, Poldrack RA. Effects of thresholding on correlation-based image similarity metrics. Frontiers in Neuroscience. 2015.

Sochat V , AuthorSynth: a collaboration network and behaviorally-based visualization tool of activation reports from the neuroscience literature. Frontiers in Neuroinformatics. 2015.

Poldrack, R, Laumann T, Koyejo O, Gregory B, Hover A, Chen MY, Gorgolewski KJ, Luci J, Joo SJ, Boyd R, Hunicke-Smith S, Simpson Z, Caven T, **Sochat V**, Shine J, et al. "Long-Term Neural, Behavioral, and Physiological Phenotyping of a Single Human: The MyConnectome Project" Nature Communications. 2015.

Sochat V., Supekar K, Bustillo J, Calhoun V, Turner JA, et al. A Robust Classifier to Distinguish Noise from fMRI Independent Components. PLoS ONE. 2014.

S. Finlayson, **V. Sochat**, L. Szabo, L. Yancy Jr. A Rapid Learning System for Personalized Glioblastoma Treatment Planning. Abstract presentation at the AMIA Annual Symposium, Washington DC, USA. 2013.

SELECTED TALKS

Sochat V, (2015, October). “Building Tools for Neuroimaging: the intersection of high performance computing, web technology, and fun in graduate school.”, Talk for Research Computing Group, Stanford CA, USA.

Sochat V, (2015, March). “Brain Maps Like Mine content-aware image comparison and retrieval for interactive visualization and meta-analysis of brain statistical maps”, Research in Progress Talk, Stanford CA, USA.

Sochat V, (2014, June). “Introduction to Machine Learning,” SIMR Summer Research Program, Stanford CA, USA.

Sochat V, (2014, May). “Machine Learning for Images,” Biomedical Imaging Analysis & Interpretation Lecture, Stanford CA, USA.

Sochat V, (2013, May). “Neuroinformatics,” Biomedical Imaging Analysis and Interpretation Lecture, Stanford CA, USA.

A full list of publications and presentations is available upon request.