Vanessa Villamia Sochat

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EDUCATION

STANFORD UNIVERSITY | PhD Candidate, Biomedical Informatics
2011-present

- Stanford Graduate Student Fellowship (Albion Walter Fellow), Microsoft Graduate Women's Scholar (2012)
- Student Editorial Board of methods of Information in Medicine (2012-2013)

DUKE UNIVERSITY | B.A. in Psychology and Neuroscience
2005-2009

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

RESEARCH EXPERIENCE

POLDRACK LAB | PhD Candidate
Oct. 2014 – present | Stanford, CA

- Dissertation work developing methods and tools for meta-analysis of large scale, whole-brain neuroimaging data
- Developer for data visualization interfaces and reproducible analysis resources
- Expertise in setting up analysis infrastructure and job management in HPC environments

WALL AND RUBIN LABS | PhD Student
Jun. 2011 – Oct. 2014 | Stanford, CA

- Translational methods to integrate brain imaging, behavioral, and genomic data
- Published on classifying artifact in functional MRI using spatial and temporal features

LABORATORY OF NEUROGENETICS | Research Technician
Jun. 2009 – May 2011 | Durham, NC

- Developed brain image processing pipelines in HPC environment, custom tools, & responsible for analysis, website, & docs

WORK EXPERIENCE

GOGGLES OPTIONAL | Founder
Nov. 2013 – present | Stanford, CA

- Responsible for technical aspects of publication of a **weekly science podcast**: editorial work, databases and website

INFORMATICS CONCENTRATION FOR MD STUDENTS | Student Director
May. 2013 – present | Stanford, CA

- Organizes information sessions, database resources, social media, and advertising for MD student recruitment

BIOMEDICAL IMAGING ANALYSIS COURSE (BIOMEDIN 260) | Teaching Assistant
Jan. 2013 – May 2014 | Stanford, CA

- Developed and taught weekly interactive section meetings, two full lectures, and two new course projects

SKILLS AND INTERESTS

- **Interests:** Web Development, Visualization, HPC, Machine Learning, Databases, Image Processing
- **Language:** Python, R, Java, php, mySQL, Matlab, bash
- **Software:** FSL, SPM, SPSS, Microsoft Office, Adobe Premiere, Photoshop, Illustrator, Maya/Blender
- **Web:** D3, Django, Docker, Drupal, HTML5/CSS3, JavaScript, Jekyll, Node, Wordpress

PUBLICATIONS

2015 **Sochat V**, Gorgolewski KJ, Koyejo O, Durnez J, Poldrack RA. Effects of thresholding on correlation-based image similarity metrics. Frontiers in Neuroscience. 2015;9:418. doi:10.3389/fnins.2015.00418.

Sochat V. AuthorSynth: a collaboration network and behaviorally-based visualization tool of activation reports from the neuroscience literature. Front. Neuroinform. 9:6. doi: 10.3389/fninf.2015.00006

Kosmicki JA, **Sochat V**, Duda, M. Wall DP. Searching for a minimal set of behaviors for autism detection through feature selection-based machine learning. Translational Psychiatry (2015) 5, e514; doi:10.1038/tp.2015.7

Gorgolewski KJ, Varoquaux G, Rivera G, Schwartz Y, Ghosh SS, Maumet C, **Sochat V,** Nichols TE, Poldrack RA, Poline J, Yarkoni T and Margulies DS (2015). NeuroVault.org: A web-based repository for collecting and sharing unthresholded statistical maps of the human brain. Front. Neuroinform. 9:8. doi: 10.3389/fninf.2015.00008

Gorgolewski KJ, Varoquaux G, Rivera G, Schwartz Y, **Sochat V**, Ghosh SS, Maumet C, Nichols TE, Poline JB, Yarkoni T, Margulies D, Poldrack RA, NeuroVault.org: A repository for sharing unthresholded statistical maps, parcellations, and atlases of the human brain, NeuroImage, 124. doi: 10.1016/j.neuroimage.2015.04.016

Gorgolewski KJ, Poline JB, Keator DB, Nichols BN, Auer T, Craddock RC, Flandin G, Ghosh SS, **Sochat V**, Rokem A, et al. 2015. "Brain Imaging Data Structure-a New Standard for Describing and Organizing Human Neuroimaging Data." INCF Neuroinformatics. Front. Neuroinform. doi: 10.1007/s12021-011-9119-9

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 (in press).

Sochat, V, Gorgolewski, C, Shine, James M., Poldrack, Russell. MyBrain: a prototype interface to explore the challenges of visualizing complex functional connectivity data. Unpublished manuscript

2014 **Sochat V.**, Supekar K, Bustillo J, Calhoun V, Turner JA, et al. (2014) A Robust Classifier to Distinguish Noise from fMRI Independent Components. PLoS ONE9(4): e95493. doi: 10.1371/journal.pone.0095493

CONFERENCES

Sochat V, David M, Wall D. Translational Meta-analytical Methods to Localize the Regulatory Patterns of Neurological Disorders in the Human Brain. Talk presented at the AMIA 2015 Annual Symposium, San Francisco CA, USA.

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

Sochat, V (2013, March). Spatial and Temporal Features of fMRI Networks to Distinguish Real Networks from Noise. Poster presented at the AMIA 2013 Clinical Symposium San Francisco, CA, USA.

Sochat, V (2012, October). Spatial and Temporal Features of fMRI Networks to distinguish real networks from noise: Preliminary work to use patterns of functional networks to classify neuropsychiatric disorder. Poster presented at the annual Biological Computation at Stanford (BCATS) Annual Conference, Stanford University, CA, USA.

CONFERENCES

Bogdan R, Nikolova YS, Hyde LW, **Sochat V**, Brigidi BD, Hariri AR. (2011, September). Increased ventral striatal reactivity to reward protects against stress-related hedonic impairment: Implications for vulnerability and resilience to depression. Talk presented at the 25th annual meeting of the Society for Research in Psychopathology Boston, MA, USA.

Li CJ, Nikolova YS, **Sochat V**, Brigidi BD, Hariri AR. (2011, November). Interaction between mindfulness and reward-related ventral striatum reactivity predicts trait anger. Poster presented at the 41st Annual Meeting of the Society for Neuroscience, Washington, DC, USA.

Nikolova YS, Bogdan R, Hyde LW, **Sochat V**|, Brigidi BD, Hariri AR. (2011, November). Ventral striatal reactivity to reward protects against stress-related hedonic impairments: Implications for vulnerability and resilience to depression. Talk presented at the 41st Annual Meeting of the Society for Neuroscience, Washington, DC, USA.

Nikolova YS, **Sochat V**, Brigidi BD, Hariri AR. (2011, September). Protective effects of threat-related amygdala reactivity against increased alcohol consumption in the context of recent life stress. Poster presented at the 25th annual meeting of the Society for Research in Psychopathology, Boston, MA, USA.

Nikolova YS, Gorka A, Brigidi BD, McNealy K, **Sochat V**, Ferrell RE, Manuck SB, Hariri AR. "The Effect of Life Stress on Reward-Related Brain Function Is Moderated by 5-HTTLPR Genotype." Biological Psychiatry, 67:129S – 129S. Elsevier Science Inc. New York, NY 10010-1710 USA.

Li CJ, Nikolova YS, Brigidi BD, **Sochat V**, Hariri AR. (2010, November). Trait Mindfulness and Reward-Related Brain Function: Implications for Treatment of Addiction. Poster presented at the 111th Annual Meeting of the Sigma Xi Scientific Research Society, Raleigh, NC.

White MG, McNealy K, **Sochat V**, Gorka A, Brigidi BD, Ferrell RE, Manuck. SB. "Interaction between FKBP5 Genotype and Stressful Life Events Predicts Threat-Related Amygdala Reactivity in a Community Sample." Biological Psychiatry, 67:115S – 116S. Elsevier Science Inc. New York, NY 10010-1710 USA.

LECTURES AND 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, (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.