

Rishabh Jain

Seattle, Washington
☎ +1 (310) 614 9843
✉ jain.rish@gmail.com
🌐 <https://github.com/jain-rish>

Work Experience

- Nov. 2017– **Data Scientist**, *Veritone, Inc.*, Seattle, WA, USA.
July 2018 Enabled artificial intelligence efforts of the company.
- Implemented a MVP based on distributed optimization principles, for energy and health applications. The goal was to increase ROI by improving longevity of multi-million dollar assets by >50%.
 - Effectively communicated technical ideas to wider data science and product team, that helped create an economic model for the product, paving way for multiple business partnerships.
- Dec. 2016– **Research Engineer**, *University of Washington (UW) – Medicine*, Seattle, WA, USA.
Nov. 2017 Contributed to health data science efforts of UW-Medicine.
- Evaluated a genome interpretation pipeline to improve newborn screening for rare metabolic disorders (in collaboration with California Dept. of Public Health) obtaining accuracy>98%, with the aim of changing the standard newborn screening protocol across the US.
 - Built genomic query infrastructure using elastic search to enable large scale statistical analyses.
 - Collaborated on data science methods development for electronic health records and clinical notes.
- May 2007– **Research Assistant and Postdoc. Researcher**, *Laboratory for Neural Computation*,
Sept. 2016 *University of Southern California (USC)*, Los Angeles, CA, USA.
- Investigated the mechanisms underlying the development of visual cortex using computer models.
- Invented a self-organizing map algorithm that scales co-learning of multiple (thousands) feature maps, opening a new area of scientific investigation and leading to a major journal publication.
 - Proposed a biologically-plausible model for development of 1000+ highly diverse shape and texture features (a new approach to deep-learning models), which became a seed idea for a DARPA grant.
 - Developed novel synaptic learning rules interacting with natural image statistics; analyzing data from neural network simulations trained with 1 million+ natural image patches.
 - Designed experiments and performed time series analysis to understand contextual modulation effects with contour stimuli, in data from neurons in the visual cortex (in collaboration with researchers at University of Oxford, UK). The work led to a major NIH grant proposal.

Skills

- **Mathematical modeling**: large scale computer simulation of biological systems.
- **Machine learning**: linear, logistic regression; convolutional neural networks (CNNs) and deep learning applied to vision problems.
- **Programming**: Python –2+ years (with numpy, pandas, matplotlib, scikit-learn packages). Matlab –10+ years; comfortable with linux shell scripting; past experience with C/C++.
- **Visualization**: custom displays for novel quantitative metrics in intricate datasets.
- **Statistics**: Statistical inference concepts (effect size, confidence interval, p-value).

Education

- Dec. 2015 **Ph.D.**, *Computational Neuroscience*, University of Southern California, USA.
Dissertation: Modeling the Development of Mid-level Visual Cortex.
- May 2006 **B.Tech.**, *Computer Science & Engg.*, Jaypee Institute of Information Technology, India.
Undergraduate thesis at École Polytechnique Fédérale de Lausanne, Switzerland.

Selected Awards and Honors

- 2013, 2014 Research artwork chosen for USC Campaign Launch and Viterbi Awards.
2013 USC Annual Graduate Student Symposium Travel Award.
2006 USC Neuroscience Graduate Program Merit Fellowship.

Selected Conference Presentations and Invited Talks

B. Cai, **Rishabh Jain**, et. al., S. D. Mooney and B. Currier. Evaluation of genetic sequencing to improve newborn screening for VLCAD disease. *Poster at American Society of Human Genetics Annual Meeting, Orlando, FL*, 2017.

Rishabh Jain. Novel Methods for Modeling, Analysis, and Visualization of Multi-dimensional Data. *Talk at Data Science Affinity Group, Fred Hutch Cancer Research Center, Seattle, WA*, 2017.

Bartlett W. Mel and **Rishabh Jain**. V1 population activity can drive development of highly diverse receptive fields in extrastriate cortex. *Poster at Society for Neuroscience Annual Meeting, Chicago, IL*, 2015.

Journal Publications

Pejaver V., **Rishabh Jain**, et al, S. D. Mooney and B. Currier. Evaluation of genetic sequencing to improve newborn screening for VLCAD deficiency. (in preparation).

Rishabh Jain and Bartlett W. Mel. A new unsupervised learning rule develops a multitude of shape and texture receptive fields in visual cortex. (submitted).

Rishabh Jain, Rachel Millin and Bartlett W. Mel. Multimap formation in visual cortex. *Journal of Vision*, 2015. (research art featured on the journal cover).

Srinivas Kalyan V., **Rishabh Jain**, Saurav Subit and Sikdar Sujit K. Small-world network topology of hippocampal neuronal network is lost, in an in vitro glutamate injury model of epilepsy. *European Journal of Neuroscience*, 2007.

Professional Activities

Service

- 2011-2015 Teaching Assistant (and Lead) in the Biology and Biomedical Engineering Departments, USC.
- 2014 Lab organizer in the ViterbiEXPO (Open House for prospective Viterbi undergraduates).
- 2013 Mentored high school science project in the USC Young Researchers Program.
- 2012-2014 Mentored several graduate and undergraduate students on research projects.
- 2007 Mentored incoming graduate students in the Neuroscience Graduate Program, USC.
- 2005 Teacher at Blind Relief Association, New Delhi.

Training

- 2009-2014 Regular presenter and attendee, USC Vision Journal Club.
- 2012 Participant, UCLA IPAM Feature learning and Deep learning summer program.
- 2011 Participant, UCLA IPAM Probabilistic Models of Cognition summer program.

Interests

Contemporary fitness practices, hiking, reading non-fiction.