Shashank Bansal

La Jolla, CA
shbansal@ucsd.edu
shashankbansal6.github.io ⓞ ⓛ

EDUCATION

University of California, San Diego   **La Jolla, CA**
M.S. in Bioengineering   *Sept 2022 - June 2023*

- Advisor: Prof. Gert Cauwenberghs @ ISN Lab
- Working on dynamic interfaces between living and artificial nervous systems

University of Illinois Urbana-Champaign   **Champaign, IL**
B.S. in Computer Engineering (*with Honors*)   *Aug 2015 - May 2019*
Undergraduate GPA: 3.53

- Teaching Assistant for CS 461, CS 460, CS 498 DF 1 & DF 2	*Fall 2018, Spring 2019*
- Director of IEEE's Technical Events Committee	*Spring 2018-2019*
- Director of IEEE's Technical Advancement Group for AI	*Spring 2018-2019*
- Dean's List	*Spring 2016*
- James Scholar	*Fall 2017 - Spring 2019*

RESEARCH EXPERIENCE

University of California, San Diego   **La Jolla, CA**
Graduate Student Researcher, Integrated Systems Neuroengineering Lab   *Sept 2022 - Current*
PI: Prof. Gert Cauwenberghs

- **DARPA Massive Cross Correlation (MAX)**
- **HD-Few-Shot**

Stanford University   **Stanford, CA**
Research Assistant, Poldrack Lab   *Sept 2019 - June 2022*
PI: Prof. Russell Poldrack

- **Non-Defaced Detector**   **Advisor: Dr. Oscar Esteban**
  - Developed a tool using a modified U-Net architecture in tensorflow and a novel augmentation strategy to detect defaced 3D MRI T1w images
  - Demonstrated a state-of-the-art performance estimate on a held-out dataset with real-faces and obtained accuracy/sensitivity/specificity scores of 0.978/0.983/0.972 respectively

- **NARPS Multiverse Analysis**   **Advisor: Dr. Christopher Markiewicz**
  - Contributed to the novel BIDS StatsModels (BSM) specification
  - Re-factored code for the open-source tool called FitLins to incorporate the new BSM specification allowing for more diverse pipelines and wrote new models for hierarchical fMRI analysis

University of Illinois Urbana-Champaign   **Champaign, IL**
Research Assistant, NCSA - Dept. of Atmospheric Sciences   *May 2017 - May 2018*
PI: Prof. Larry Di Girolamo

- Data modeling on the NASA-funded Terra Data-Fusion project with **Prof. Larry Girolamo** and developed code for big-data analysis for Terra satellite
- Developed automation tools for file-verification, secure error handling, corrupt file identification on the Blue Waters supercomputer and set up visualization software for hdf files in the Atmospherics Sciences Visualization Studio

University of Illinois Urbana-Champaign   **Champaign, IL**
Research Assistant, Micro & NanoTechnology Lab   *Feb 2017 - April 2017*
PI: Prof. Gang Logan Liu

- Worked with Dr. Lisa Plucinski to model and fabricate a portable setup for smartphone-based nanoplasmonic imaging platform for colorimetric biochemical sensing for early cancer biomarker detection

Industry Experience

NVIDIA Corporation **Santa Clara, CA**
Systems Software Engineer II *Aug 2019 - June 2022*
Manager: Christian Macnevin

- Lead architect on an infrastructure resource modeling Django web-application for autonomous network management and designed a highly available and scalable fault tolerant infrastructure in AWS to support the application
- Built a large-scale fully automated telemetry platform using osquery to collect data and perform customized tests to provide insights into the user experience on any OS in different modalities (vpn, wifi, lan)
- Developed network and infrastructure tools for continuous and automated delivery and deployments using terraform and saltstack

Publications & Posters

- **Bansal, S.**, Kori A., ... Poldrack R. A., Oscar Esteban. High-sensitivity detection of facial features on MRI brain scans with a convolutional network. https://doi.org/10.1101/2021.04.25.441373 [Code]
- Jeanette A. Mumford, Christopher J. Markiewicz, **Shashank Bansal**, Russell A Poldrack. Connecting BIDS Statistical Model specifications to FSL-based fMRI analyses. OHBM 2022. [Link]
- Christopher J. Markiewicz, **Shashank Bansal**., ... Tal Yarkoni. BIDS Statistical Models: Implementation-independent representation of the general linear model. OHBM 2021. [Link]
- Markiewicz, Christopher J., ... **Bansal, Shashank**., ... Fitlins: Fitting Linear Models to BIDS Datasets. Zenodo. [Code]
- Yarkoni, Tal, Markiewicz, Christopher J., ... **Bansal, Shashank**., ... (2021, April 16). PyBIDS: Python tools for BIDS datasets (Version 0.13). Zenodo. http://doi.org/10.5281/zenodo.4695415 [Code]
- Kaczmarzyk, Jakub, McClure, Patrick, ... **Bansal, Shashank**., ... neuronets/nobrainer: 0.1.0. Zenodo. 10.5281/zenodo.4995078
- **Shashank Bansal**, Marcos Garcia, Lisa Plucinski. Portable Platform for Plasmonic Nanocavity Sensor. [link]

Academic Research Project

Is it possible to improve memory retrieval in humans?
Advisor: Dr. Nnamdi Nelson *Jan 2019 - May 2019*

- Proposed specific mnemonic techniques to demonstrate a process that would encode an array of diverse information (characters, words and colors) more efficiently into the human brain
- Presented methods that would achieve results by comparing the functional connectivity of memory athletes and naive participants before, during and after the mnemonic training

Programming Skills & Softwares

Advanced: Python ● C++ ● Git	**Intermediate:** Go ● C ● Django Salt ● Assembly ● Shell	**Familiar:** Javascript ● Java ● Clojure ● R

Softwares: fMRIPrep, Cadence Tools, Pytorch, Tensorflow, Nipype, Datalad, MRIQC, BIDS, SPM, FSL, Nilearn, AFNI, AWS, Kubernetes, docker, grafana, osquery

Volunteer Work

CodePath Mentor May 2021 - Aug 2021

- Volunteered as a codepath tech mentor to help 6-7 students from under-represented communities develop critical thinking/programming skills for careers in the tech industry and support the next generation of tech professionals