

Shashank Bansal

shbansal@ucsd.edu

La Jolla, CA
shashankbansal6.github.io

EDUCATION

University of California, San Diego

M.S. in Bioengineering

La Jolla, CA

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

B.S. in Computer Engineering (*with Honors*)

Undergraduate GPA: 3.53

Champaign, IL

Aug 2015 - May 2019

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

Fall 2018, Spring 2019

Spring 2018-2019

Spring 2018-2019

Spring 2016

Fall 2017 - Spring 2019

RESEARCH EXPERIENCE

University of California, San Diego

Graduate Student Researcher, Integrated Systems Neuroengineering Lab

PI: Prof. Gert Cauwenberghs

La Jolla, CA

Sept 2022 - Current

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

Stanford University

Research Assistant, Poldrack Lab

PI: Prof. Russell Poldrack

Stanford, CA

Sept 2019 - June 2022

- **Non-Defaced Detector**

- 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

Advisor: Dr. Oscar Esteban

- **NARPS Multiverse Analysis**

- Contributed to the novel BIDS StatsModels (BSM) specification
- Re-factored code for the open-source tool called FitLines to incorporate the new BSM specification allowing for more diverse pipelines and wrote new models for hierarchical fMRI analysis

Advisor: Dr. Christopher Markiewicz

University of Illinois Urbana-Champaign

Research Assistant, NCSA - Dept. of Atmospheric Sciences

PI: Prof. Larry Di Girolamo

Champaign, IL

May 2017 - May 2018

- 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 Atmospheric Sciences Visualization Studio

University of Illinois Urbana-Champaign

Research Assistant, Micro & NanoTechnology Lab

PI: Prof. Gang Logan Liu

Champaign, IL

Feb 2017 - April 2017

- 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

Systems Software Engineer II

Manager: Christian Macnevin

Santa Clara, CA

Aug 2019 - June 2022

- 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/nobrain: 0.1.0. Zenodo. [10.5281/zenodo.4995078](https://doi.org/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

Advanced: Python • C++ • Git

Intermediate: Go • C • Django • Salt

Familiar: Javascript • Java • Clojure

SOFTWARES

Industry: AWS, kubernetes, docker, grafana, tableau, osquery

Academia/Neuro: PyTorch, Cadence Tools, fMRIPrep, NiPy, Datalad, MRIQC, BIDS, Nilearn, Tensorflow

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