Aman Singh

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EDUCATION

Duke University, Durham, NC May 2023

Intended Majors: Computer Science **Intended Minors and Certificates:** Electric and Computer Engineering, Economics
Relevant Coursework: Introduction to Artificial Intelligence, Data Structures and Algorithms, Computer Architecture, Computational Methods in Engineering, Multivariable Calculus, Linear Algebra & Differential Equations, Probability, Information and the Internet Quantitative Physiology with Biostatistical Applications, Introductory Engineering Design

TECHNICAL SKILLS

Programming Languages: Python, Java, MATLAB, C. Experience with Pytorch, Keras, Tensorflow, Pandas, Matplotlib, SciKitLearn
Other Skills: Familiar with AWS and Docker, CAD/3D Printing (Experience with Fusion 360 Software), Circuits and Microcontrollers

PROJECT

Corneal Ulcer Segmentation with Computer Vision, Global Alliance for Medical Innovation (GAMI) June 2021 – Present

- Working with a team of Harvard and Duke undergraduates on a project that will detect corneal ulcers after fluorescein staining.
- Using computer vision and machine learning techniques to segment ulcers, plan on developing a smartphone app.

WORK EXPERIENCE

Gradient Health Inc., Machine Learning Engineer, Durham, NC June – August 2021

- Worked to prepare medical imaging dataset of DICOM files of CT scans into TensorFlow dataset.
- Worked to develop a machine learning model, implementing various neural networks, for detecting intracranial hemorrhages and classifying their subtypes.

RESEARCH EXPERIENCE

Undergraduate Researcher, Duke University Department of Biomedical Engineering, Durham, NC November 2021-Present
Project: Using 3-Dimensional Aligned Neural Network for Computational Ethology (DANNCE) to Track Animal Movement and Behavior in 3-Dimensions

- DANNCE uses projective geometry to build inputs into a CNN that takes advantage of learned 3D geometric reasoning.
- Work concerns using computer vision tools to create ground-truth labels for different mice in instance segmentation.

Principal Investigator – Timothy Dunn, Ph.D.

Research Volunteer, Johns Hopkins Department of Neurogastroenterology, Baltimore, MD June 2018 – August 2019
Project: Effect of Synbiotics Treatment on nNOS Neurons in Mice with Irritable Bowel Syndrome (IBS)

- Examined the pathogenesis of irritable bowel syndrome (IBS), a disorder in the colon, from the enzyme neuronal nitric oxide synthase (nNOS).
- Used ImageJ software to analyze images taken from the longitudinal muscle myenteric plexus of the distal colon, to find total neuron count and presence of nNOS.

Principal Investigator – Jay Pasricha, MBBS, MD

Undergraduate Researcher, Duke University Department of Biomedical Engineering, Durham, NC January – October 2021
Project: Examining the Pentose Phosphate Pathway in Ovarian Cancer Cells

- Research on how pentose phosphate pathway from glycolysis helps cancer cells survive and proliferate in ovarian cancer.
- Work included cell culture, animal injections, gel electrophoresis

Principle Investigator – Xiling Shen, Ph.D.

CAMPUS AND CIVIC INVOLVEMENT

Industry/Alumni Outreach Officer at Duke Biomedical Engineering Society, Student Organization, Durham, NC
Duke eNable, Student Organization, Durham, NC
Duke Applied Machine Learning (DAML), Student Organization, Durham, NC
Engineering World Health, Student Organization, Durham , NC
Student Founders Program, Student Organization, Durham, NC