Akash Karri

Rising college sophomore who has a high priority for research and is passionate about emerging technologies in medicine, specifically space and emergency medicine. Pursuing an undergraduate degree in Mechanical Engineering and completing pre-medical requisites. Eager to learn and gain new skills.

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RESEARCH EXPERIENCE

Summer Interdisciplinary Research Initiative Intern
NC State University: Cruse Lab

02/2020 – 12/2020

- Brought to work on testing effectiveness of nebulized RNA-i drug against asthma symptoms in a mouse model; assist in similar project against pulmonary fibrosis
- Led design, optimization, and development of mouse-holding apparatus to ensure nebulized drug would reach peripheral areas of mouse lungs
- Proposed and lead new research initiative with 2 Board-Certified Pathologists at NCSU and Carver College of Medicine. Currently developing a Neural-Network-based tool to identify and locate specific white blood cells in various specialty stains to alleviate pathology-related research bottlenecks
- Potentially 3 publications and multiple presentations at conclusion of projects (post COVID)

Neuroscience Research Internship
Duke University: Gong Lab

06/2018 – 02/2019

- Collaborated with other researchers to train/test a 3D Convolutional Neural Network to segment active neurons from 1-photon calcium-imaging videos of in-vivo mice brains
- Gave 10 minute oral presentation and poster presentation at multiple research symposiums

Biomed Engineering Research Project Leader
Non-invasive in-vivo glucose concentration monitoring system

04/2019 – 06/2019

- Proposed pulse-oximeter-like technology using mid-infrared light to find the absorption of glucose at specific absorption peaks and then relate raw data to glucose concentrations

SUMMER 2020 PERSONAL PROJECTS

Type of Red Blood Cell Identifier
- Proposed and am currently developing a faster and more accurate neural-network-based Red Blood Cell identification and localization system for bright-field microscopy images. Collaborating with the researchers/creators of the "IdentiCyte" software from Monash University in Melbourne, Australia

Licence Plate Reader
- Developed machine-learning-based license plate detection/reader system that connects to personal security cameras and mimics accuracy of modern Law Enforcement license plate recognition systems

EDUCATION

North Carolina State University
2019 – Present — *Raleigh, NC*

- Relevant Courses: Statics, Graphic Communications, Engineering Physics I & II, Engineering Statistics, Organic Chemistry I & II

North Carolina School of Science and Mathematics Ardrey Kell HS
2015 – 2019 — *Durham/Charlotte, NC*

- Relevant Courses: AP (Chemistry, Biology, Computer Science), Multivariable Calculus, Biochemistry, Senior Research

TECHNICAL SKILLS

Python
- Experience with development of machine-learning approaches to computer vision, natural language processing, and collaborative filtering.
- Experience with using pandas and numpy libraries for large-scale data processing and data modeling/fitting
- Experience with matplotlib, seaborn, and bokeh libraries for creating professional and interactive graphs/charts

Matlab
- Experience with data processing, matrix manipulation, and statistical analysis
- Experience with image processing methods, histogram redistribution for enhancement, and MATLAB Image Processing Toolbox

Other Skills
- Proficient in R, Java, ImageJ, SolidWorks, and programming Arduinos
- Familiar with C, C++, TeX, and JavaScript
- Trained in general laboratory skills (pipetting, bacteria culture transfers, etc), proper handling of lab mice, workshop equipment, and use of 3D printers

OTHER RELEVANT PROJECTS

Improved Cosmic Radiation Protection Suit (2019)
- Lead team to design novel design of radiation suits for deep-space missions that were more flexible, more protective, and more comfortable than current design
- Presented at NASA Langley and Kennedy Space Centers
- Conrad Challenge & NASA HUNCH International Finalist

Exercise Harness for Orion Space Capsule (2018)
- Lead team to design exercise harness with single-point attachment compatible with NASA's HULK exercise system
- Presented at NASA Langley, Johnson, and Kennedy Space Centers
- Conrad Challenge & NASA HUNCH International Finalist

INTERESTS

AI/Machine Learning | Guitar | Rugby | Mental Health | Entrepreneurship | Global Health | Aerospace & Aviation | Dance | Backpacking | Accessible Education