Akash R. Karri

Interested Undergraduate Researcher

College sophomore who is passionate about emerging technologies in biology and medicine, specifically those related to space. Pursuing an undergraduate degree in Mechanical Engineering and completing pre-medical requisites. Eager to learn and gain new skills.

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EDUCATION

North Carolina State University
Mechanical Engineering and Pre-Medical

2019 - Present

Relevant Courses

- Statics & Dynamics
- Engineering Physics I & II
- Organic Chemistry I & II
- Graphic Communications
- Engineering Statistics
- Anatomy & Physiology

North Carolina School of Science and Mathematics
High School

2017 - 2019

Relevant Courses

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

RESEARCH EXPERIENCE

Summer Interdisciplinary Research Initiative Intern
NC State University: Cruse Lab

02/2020 - Present

Achievements/Tasks

- Project include testing effectiveness of nebulized RNA-i drug against asthma symptoms in a mouse model; assist in similar project against pulmonary fibrosis
- Led development of mouse-holding apparatus to ensure nebulized drug would reach peripheral areas of mouse lungs
- Proposed and lead new research initiative developing a Neural Network based tool to identify and locate specific white blood cells in various specialty stains to alleviate pathology-related research bottlenecks

Neuroscience Research Internship
Duke University: Gong Lab

06/2018 - 02/2019

Achievements/Tasks

- 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

SKILLS

Python | MATLAB | Java | R | SolidWorks | Arduino | Machine Learning | Computer Vision | Data Processing | Data Visualization | ImageJ | Wet Lab Procedures | Live Animal Handling | 3D Printing | Tableau | Microsoft Office | GSuite

PROJECTS

NASA Space Apps COVID-19 Challenge Project (2020)

- Creating machine learning algorithms to predict increases in COVID cases in major European cities based on Google Mobility data and pollutant concentration detected via satellite and ground stations
- Working with lead members of the Space Generation Advisory Council's Space Medicine and Life Sciences team and Team Novidien from the NASA Space Apps COVID-19 Challenge to collect and curate data, analyze data, and publish our findings

Type of Red Blood Cell Identifier (2020)

- 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 (2020)

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

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 NASA design
- Presented at NASA Langley and Kennedy Space Centers
- Conrad Challenge & NASA HUNCH International Finalist

Non-invasive in-vivo Glucose Concentration Monitoring System Proposal (2019)

- Designed 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

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