Digvijay Jani

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Education

University of California, San Diego
La Jolla, CA

Bachelor of Science in Chemical Engineering
September 2018 - June 2022

- Minors in Biology, Chemistry, and Data Science

Work Experience

UC San Diego: School of Medicine - Center for ALS Research & Therapy
La Jolla, CA

Research Assistant
September 2020 - Present

- Worked with Dr. John Ravits to identify mechanisms & therapeutic targets of neuronal degeneration in ALS, due to repeat expansions in C9orf72.
- Identify proteins binding to G_4C_2 & G_2C_4 repeat expansions in C9orf72 RNA transcripts of cells afflicted by ALS & determine full sequence and structure of repeat expansions.
- Analyzed ribosomal protein expression levels in C9-ALS and sALS patient samples.
- Implement various techniques to investigate appropriate targets for antisense oligonucleotide therapies.
- Assisted with cryostorage organization, confocal microscopy, immunostaining, and cell culture.

UC San Diego: School of Medicine - Center for Neural Repair
La Jolla, CA

Research Assistant
February 2020 - Present

- Worked with Dr. Armin Blesch on identifying mechanisms influencing neuronal plasticity and regeneration in the mammalian nervous system.
- Implemented various techniques to investigate the potential role of neural stem cells and biomaterials in spinal cord regeneration.
- Assisted with projects addressing the structural changes associated with pain development after spinal cord injury.
- Performed mouse perfusions and analyzed two-photon excitation microscopy data.
- Validated findings in rodent models through gene therapy.

UC San Diego: National Center for Microscopy and Imaging Research
La Jolla, CA

Computational Neuroscience Intern
August 2019 - April 2021

- Computational neuroscience study in software development for large-scale biomedical image analysis.
- Implemented deep neural networks and image processing pipelines with regard to learning, memory, and inter-neuron communication.
- Developed a Python program to generate colored meshes from label volumes and isolate unique regions.

UC San Diego: Altman Clinical & Translational Research Institute
La Jolla, CA

Undergraduate Research Assistant
September 2019 - April 2020

- Worked with Dr. Derek Welsbie on developing a neuroprotective strategy for glaucoma.
- Implemented various techniques to identify drug targets in primary mouse and stem cell-derived human retinal ganglion cells.
- Assisted with projects addressing the signaling pathway in retinal ganglion cell death.
- Validated findings in rodent models using gene therapy.

Leadership

American Institute of Chemical Engineers
La Jolla, CA

Project Manager
November 2020 - Present

- Led a team of 7 undergraduate students to research optimization of ethanol production methods, specializing in lignocellulosic biomass.
- Analyzed the advantages and disadvantages of current industry practices regarding ethanol extraction.
- Taught students how to approach academic research papers and prepare research proposals.

Research Engineer
May 2020 - Present

- Design and build a portable vertical axis wind turbine for on-campus implementation and local STEM outreach.
- Analyze data to determine optimal conditions and parameters for turbine function.

CyberPatriot National Youth Cyber Defense Competition
Placentia, CA

Volunteer Mentor
November 2015 - June 2018

- Specialized in Linux (Ubuntu & Debian) and Cisco Networking.
- Created practice virtual images for the students to hone their skills.
- Contributed to curriculum for securing Windows/Linux workstations/servers, laying foundation for multi-year national semifinalist ranking.
- Taught 70+ middle & high school students how to secure Windows and Linux servers, workstations, and services like Apache and DNS.
- Ranked in top 20 teams nationally and reached national semifinals competition 3 years in a row.

Skills

Techniques	Cell Culture, Confocal Microscopy, Genotyping, IF Staining, Immunoprecipitation, qRT-PCR, RNA-Seq, Western blot
Languages	Bash, C, C++, Python, Java (including Android), MATLAB, PowerShell, R
Tools/Frameworks	Amazon Web Services, CellProfiler, Fiji, Git, ImageStudio, LaTeX, Linux, Microsoft Office, RStudio, Zeiss ZEN