PRANAY VURE

+1(734)6393119 | pranay.vure@outlook.com | 43101 Finders Lane, South Riding VA

EDUCATION

Duke University **Aug 2021 - May 2025**
BSE in Biomedical Engineering, BS in Computational Biology Durham, NC
• **GPA:** 3.84/4.00
• **Honors/Programs:** Booz Allen Hamilton Vision Scholarship Recipient, Theta Tau Fraternity VP of Service, RespiraCon II Hackathon Winner(2022), Pratt School of Engineering Student Design Fair Award Winners (2022), CS 240 Teaching Assistant (Fall 2022), HackDuke Hackathon 1st Place (2022), Cube Entrepreneurship LLC President
• **Relevant Coursework:** Data Structures and Algorithms, Deep Learning, Molecular Biology, Quantitative Physiology, Protein Engineering, Cellular Engineering

Freedom High School/Academy of Science **Aug 2017 - May 2021**
High School Diploma South Riding, VA/ Leesburg, VA
• **GPA:** 4.65 (W) | **Rank:** 20/547 | **SAT:** 1530/1600

WORK EXPERIENCE

Programmable Biology Group **August 2023 - present**
Undergraduate Research Assistant Durham, NC
• Designed and implemented generative AI models for genome, proteome, and cell engineering
• Developed machine learning and deep learning algorithms to generate de novo DNA and protein-binding peptides

Medtronic **June 2023 - present**
Engineering Intern Minneapolis, MN
• Designed & implemented machine learning models to identify production inefficiencies for NT oxygenation systems
• Utilized Lean Sigma/DMAIC to design and implement efficiency-boosting solutions for NT-oxygenation system manufacturing
• Outlined/optimized manufacturing process via pareto charting and value stream mapping to reduce production lead time

PROJECTS

NACLIP | Python, PyTorch, HuggingFace, Git

• Developed end-to-end pipeline for de novo generation of proteins using CLIP model on DNA-Protein interactions
•Trained model achieving discriminatory accuracy of 85% for correctly identifying protein-DNA pairs and 60% for identifying top 10% of protein binders to sequence

PEPMLM | Python, PyTorch, HuggingFace, Git

• Developed masked language modeling algorithm for target sequence-conditioned generation of peptide binders

AMP-Diffusion | Python, PyTorch, HuggingFace, Git

• Created latent space diffusion model tailored for antimicrobial peptide (AMP) design, using ESM-2 to generate de novo functional AMPS for downstream experimental application

Engineered Immunogens to Elicit Antibodies Against Conserved Coronavirus Epitopes

• Designed immunogens that target conserved coronavirus epitopes, potentially advancing pan-coronavirus vaccine development by eliciting broad and protective antibody responses

SKILLS

Skills: Microvolume Spectrophotometers, Operating Centrifuges, Preparing/running protein gels, Bacterial transformation, Protein purification, Endotoxin assays, Elisa assays**,** Rosetta Protein Modeling, SolidWorks, Python, Java**,** Wolfram Mathematica, HTML/CSS, R, ML, Lean/Six Sigma, DMAIC, Pugh Matrices, Root cause analysis, Value stream mapping
Interests: Electronic fabrication, binary options trading, weightlifting, machine learning, basketball