

# NHI VO

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## EDUCATION

**Purdue University**, West Lafayette, IN

Bachelor of Science in Genetics

Minors: *Bioinformatics* and *Chemistry*

Dean's List for 4 semesters

Dec 2022

GPA: 3.87/4.0

**Relevant Coursework:** Comparative Genomics, Practical Biocomputing, Statistical Methods for Biology, R for Molecular Bioscience, Protein Bioinformatics, Molecular Biotechnology

## PROJECTS

### **Pathogenic Mutation Simulation**

Apr 2022 - Present

- Preprocess sequence data obtained from bioinformatics databases, such as NCBI, using basic linux commands for further mutational analyses
- Identify SNPs among nucleic acid and protein sequences using bioinformatics tools, such as bwa, mafft, samtools, bcftools, and IGV
- Submit Slurm jobs of python and bash scripts to high-performance computing (HPC) clusters for processing the analyses of large datasets
- Develop an object-oriented Python script for an interactive simulation of the evolution of different pathogens using the results from mutational analyses performed

### **RNA-seq Gene Expression Analysis**, Purdue University, West Lafayette, IN

Sep 2021 - Dec 2021

- Processed and analyzed data from WDR77/PRMT5 RNA-seq silencing experiments to identify and visualize differentially expressed genes
- Constructed heatmaps with clustering for visualization of expression pattern of GO terms obtained from GO enrichment analysis using the web-based tool GOrilla
- Utilized the Shiny package in R to construct an interactive document that allows user input for heatmap parameters via a graphical interface

### **Genomic Ranges Assembly Tool**, Purdue University, West Lafayette, IN

Jan 2022 - Feb 2022

- Devised a method to parse and sort data from GFF and BlastX file for ranges assembly
- Developed a Python script with OOP that identifies overlapping linear sequence ranges

### **Community Plarn (plastic-yarn) Crochet Project**

Aug 2021 - Present

- Gather plastic bags from the community, such as from student organizations, cultural centers, peers, etc. to use as materials for the project
- Repurpose used plastic bags into plarn to crochet mats and tote bags

## WORK EXPERIENCE

### **Kihara Bioinformatics Laboratory**, Purdue University, West Lafayette, IN

Aug 2021 - Present

#### **Undergraduate Researcher**

- Test a reinforcement learning (RL) algorithm for drug generation with molecules collected from databases such as ChEMBL, ZINC, QM9 and processed using R
- Assess molecules generated by the RL algorithm by utilizing the cheminformatics software RDKit to visualize and calculate Tanimoto similarity for each pair of compounds
- Utilize OpenBabel, Autodock, and Pymol to investigate interactions among a large set of generated molecules against a target protein
- Program Python and Bash scripts to manipulate large datasets for use as proper input in molecular analysis and conversion tools

### **Information Technology at Purdue**, Purdue University, West Lafayette, IN

Aug 2021 - May 2022

#### **Technology Supervisor**

- Supervise student staff to ensure proper operation and provide performance feedback
- Ensure student staff are working as scheduled and communicate effectively to resolve issues in a timely manner
- Train new staff members and provide support by regularly visiting offices across campus