

JONATHAN DICKINSON

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TECHNICAL SKILLS

Languages: Python, Javascript/HTML/CSS, SQL, C++

Frameworks: Git, Linux/Unix, Flask, Node.js

Tools: GitHub, PostgreSQL, MongoDB

PROJECTS

Whole-Transcriptome RNA Sequencing Analysis

- **Built data pipelines** to filter and preprocess next-generation sequencing data to evaluate differential gene expression using Python libraries Pandas and Numpy saving 5 hours per week cross-referencing outputs between databases.
- **Performed differential expression analysis using a negative binomial model** on processed data using Pandas and NumPy to identify the 30 genes most significantly associated with aging.
- **Analyzed protein network using Markov Cluster Algorithm** that led to the discovery of 65 target genes for possible therapeutic intervention.

Tic Tac Toe

- **Developed command line software** for popular game tic tac toe using C++. Takes input (O/X) and allows two users to play against each other.
- **Developed algorithm which uses the ASCII code** numerical representation of all possible upper and lowercase O/X combinations to determine winner.

Classification Model to Assess Heart Disease

- **Performed exploratory data analysis** to assess physiological risk factors for heart disease using Cleveland database dataset. Resulted in preliminary data suggesting that males and those with elevated fasting glucose levels were at increased risk of heart disease.
- **Trained binary classification model using Naive Bayes** algorithm with an AUC of 0.88 to classify patients' risk of heart disease.

EXPERIENCE

Graduate Research Assistant

September 2020 - June 2022

Central Washington University | Ellensburg, WA

- Generated publication-ready visualizations using Python libraries Seaborn and Matplotlib for multiple research projects, resulting in 5 publications and 5 regional conference presentations.
- Collaborated with professors to develop a novel bioinformatic workflow to analyze highly dimensional next-generation RNA sequencing data and ensure robust measurements.

EDUCATION

Master of Science: Human Physiology

June 2022

Central Washington University | Ellensburg, WA

Bachelor of Science: Biology

March 2019

University of California, Irvine | Irvine, CA

PURPOSE

- Build the future with a dark-themed text editor and clean code.