Joshua Ye

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Education

Vanderbilt University Nashville, TN

Bachelor of Science in Computer Science, ***GPA****: 3.906* *Expected graduation - May 2027*

- **Relevant Coursework**: Programming & Problem Solving, Program Design Data Structure, Discrete Structures, Intermediate Software Design, Algorithms, Computer Architecture

Technical Skills

Languages: Python, Java, C/C++, JavaScript, typescript, HTML/CSS, R
Frameworks: React, Node.js
Others: Linux, Git, VS Code, PyCharm, IntelliJ, Postman, Pandas, NumPy, Matplotlib

Experience

Undergraduate Research Assistant - VUMC division of Epidemiology August 2024 – Present

Vanderbilt University *Nashville, TN*

- Created an interactive genome browser to support the analysis and visualization of colorectal cancer (CRC) genetic data and expression quantitative trait loci (eQTL) data.
- Conducted Genome-Wide Association Studies (GWAS) to identify genetic variants associated with complex traits and diseases, utilizing large-scale genomic datasets.

Vanderbilt Teacher's Assistant - Computer Science 2201 August 2024 – Present

Vanderbilt University *Nashville, TN*

- Data Structure and Algorithm course of over 200 students by assisting professors with grading assignments, facilitating lab sessions, and providing one-on-one support to students.
- Held weekly office hours, enhancing comprehension of programming concepts and algorithms for students.

FPV Drone Enthusiast June 2023 – Present

Self-Enthusiast *Nashville, TN*

- Designed, built, and customized FPV (First-Person View) drones from scratch, selecting and assembling components such as flight controllers, motors, and cameras.
- Troubleshoot and repair technical issues, gaining hands-on experience in electronics, soldering, and drone maintenance.

Projects

ColonSeq | *Genome Browser, Cloud SQL, JavaScript, MongoDB, NCBI E-utilities API, React*

- Developed a seamless interface to query, visualize, and interpret large-scale genomic datasets.
- Integrated a RESTful API to facilitate efficient data retrieval, allowing users to easily access relevant information.
- Incorporated dynamic visualization tools to present complex genetic data intuitively, enhancing user experience for researchers.
- Enabled the identification of genetic markers associated with CRC, contributing to advancements in early detection and precision medicine.

Epigenomic DTL | *Python, Tensorflow, PLINK, Enformer*

- Developed a deep transfer learning (DTL) framework using Google's Enformer model to enhance CRC risk gene prediction by integrating large-scale epigenetic datasets, including TF ChIP-seq and histone modification data.
- Implemented data preprocessing pipelines for normalization, feature extraction, and quality control to optimize model performance.

Arch Linux Enthusiast | *C, C++*

- Proficient in Linux installation, package management, and filesystem administration.
- Wrote local Hyprland configuration file, expertise in Linux filesystems and system customization.

Geoquest | *React and TypeScript*

- Integrated a geography API for dynamic question generation with different difficulty levels.
- Implemented real-time feedback & scoring system.