Raiden van Bronkhorst

Albany, California • rvanbronkhorst@gmail.com • 510-704-3322
www.rvanbronkhorst.com • github.com/RvanB • linkedin.com/in/rvanbronkhorst

Skills

General: Android Development, Web Development, Databases, Machine Learning, Computer Graphics, Computer Vision, Debugging, Technical Writing, Object Oriented Programming, Mathematics
Languages: Java, C, C++, Python, Julia, Kotlin, HTML5, CSS, JavaScript, MySQL, LaTeX, JSON, XML, Node.js, React, NumPy, PyTorch, Three.js
Tools: Vim, Git, GDB
Operating Systems: Unix/Linux, MacOS, Windows

Work Experience

Western Washington University, Associated Students Bellingham, WA
Lead Developer & Tech Support *November 2020–Present*
Developer *May 2019–November 2020*

- Redesigned the Great Puzzle Hunt website with a modern look and feel using HTML, CSS, and JavaScript with Node.js, React, and Meteor.
- Solved backend package compatibility issues upgrading Node.js and Meteor.
- Mentored new development team members in version control with Git and web development.

Projects

RomBox - *C, CSS* *September 2020–Present*

- Developing a simple and fast Windows game launcher to manage and launch classic game emulators and ROMs, with full configuration and GUI.
- Designed a GTK interface for the launcher that is both functional and in the style of classic Nintendo games, which displays playtime for each game.

GAN Detector - *Python* *March 2021*

- Developed a machine learning model in Python to detect faces generated by GANs as a part of my final project for the Deep Learning course.
- Achieved 96.65% accuracy on our given test set after only 20 minutes of training, and 99.01% accuracy after further training.
- Monitored training with Weights & Biases.

Microshell - *C, Make* *April 2020–June 2020*

- Wrote a bash-like shell in the C programming language for the Computer Systems II course.
- Implemented argument parsing, command expansion, builtin commands, and pipelines.

Rock Generator - *Java* *January 2017–October 2018*

- Generated and rendered 3D rocks from scratch in Java with multiple levels of detail, colored light sources, supersampling, and mouse interaction.
- Boosted performance by 300% using multithreaded triangle rasterization and other computer graphics optimization techniques like backface culling.

Research

Semantic Pixels - *Python* *September 2020–June 2021*

- Used semantic features from deep learning architectures to create a richer notion of pixel similarity than traditional RGB euclidean distance.
- Improved model performance by reducing feature vector dimensionality by a factor of 16, by training a dimensionality-reducing neural network.
- Significantly reduced neural network training time with a custom PyTorch dataloader, yielding triplets of pixels for use in our loss function.

MotifAnalyzer-PDZ (Published) - *Python* *September 2017–October 2019*

- Created a command-line program to quickly process and compare sequences of amino acids and enrichments for specific amino acids.
- Increased parsing performance eight-fold by processing FASTA files in parallel.

Education

Western Washington University - *Bachelor of Science, cum laude, in Computer Science* *September 2017–June 2021*

- Minor in Mathematics
- GPA: 3.81