Brian Horner

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Available: Summer 2024, Fall 2024

TECHNICAL SKILLS

Programming Languages: Python, C, C++, Java, Racket, Bash, Go, SQL
Tools and Platforms: Git, Linux, Conda, CMake, GDB, Singularity Containers, AWS, Jupyter Notebooks
Libraries and Frameworks: Pandas, Java Swing, JUnit, Berserk, PyQt5, Pygame, OpenGL, SKLearn

EDUCATION

Northeastern University, Boston, MA — Expected December 2024
Masters of Science in Computer Science — GPA 3.56
Relevant Coursework: Robotics Science and Systems, Intensive Computer Systems, Cloud Computing, Data Structures and Algorithms

BU-Metropolitan, Boston, MA — June 2022
Undergraduate Certificate in Computer Science — GPA 3.85
Relevant Coursework: Computer Architecture, Data Science with Python, Data Structures and Algorithms

Suffolk University, Boston, MA — January 2019
Bachelor of Science in Government & History — GPA 3.2
Relevant Coursework: Government Statistics, Physics, Programming for Engineers

PROJECTS

En Passant Magic Chess Set, (Python, Multithreading, APIs, PyQt5, Berserk) — January 2024 - May 2024
A simulation chess board designed for real-time synchronized gameplay with online chess platform Lichess.
- Created API connection interfaces with Lichess for enabling seamless integration with the simulated chess board, synchronizing board with current game state, making moves, and continually retrieving opponent moves for display in the simulation.
- Developed custom PyQt5 QRunnable threads classes featuring specialized slot functions for signal handling, facilitating both single-action and continuous interactions with the Lichess API, effectively circumventing PyQt5 limitations.

Image Manipulation Application, (Java, Java Swing, JUnit, UML Diagrams) — Jan 2023 - May 2023
https://github.com/CS5010-Partner/CS5010-Assignment4
An image processing application with an interactive GUI interface that allows users to apply various manipulations to images.
- Developed an image manipulation application in Java Swing, enabling users to interactively load, save and manipulate images.
- Implemented image manipulation operations including image blurring, image sharpening, image histograms, and image flipping.
- Conducted extensive unit testing with JUnit to ensure the reliability and robustness of the applications features and functionalities.
- Implemented diverse image color transformations such as greyscale, sepia tone, dithering, mosaic, luma images, and brightening.

Semantic Segmentation of 3D Point Clouds, (Singularity, Python, CUDA, Bash, Point-Clouds) — January 2023 - May 2023
https://github.com/NUPapers-Spring23/ColmapPipeline
A pipeline for the reconstruction of 3D Point Clouds using Colmap and CUDA on Compute Canada.
- Developed pipeline for the segmentation of 3D Point Clouds on Compute Canada's high-performance compute (HPC) system.
- Collaborated with a group of 10+ researchers and faculty from University of Victoria and Northeastern toward the presentation and publication of novel ideas in the research space for Canada AI Conference 2023.

Formula 1 Mean Tire Predictor, (Python, Pandas, Machine Learning Algorithms) — February 2022 - March 2022
https://github.com/BrianHorner-School-Work/CS677_Project
A project for predicting the mean tire usage of a Formula 1 race given weather conditions, tire allocation, safety car laps, race track, etc.
- Experimented with Random Forest, SVM, KNeighbors and Decision trees in order to find the best model for predictions.
- Utilized pandas in order to match indexes, cut slices of data, label encoding, etc in order to work with three datasets.

Direct-Mapped Write-Back Cache Simulation, (C++, Bitwise Masks & Shifts) — March 2022
https://github.com/BrianHorner-School-Work/CS472-Project_2
A direct-mapped, write back cache simulation that follows LRU and FIFO replacement strategies.
- Implemented a cache simulation with mechanisms for cache operations such as reading, writing and displaying the cache.
- Utilized bitwise masks and shifts as well as valid bits, tags, dirty bits in order to implement a direct-mapped write-back cache.

WORK EXPERIENCE

Dunning, Kirrane, McNichols & Garner, LLP — Mashpee, MA
Paralegal — September 2020 - October 2022
- Overhauled the firm's commercial real estate transaction operations alongside the head partner, increasing the processes efficiency, loan document drafting accuracy, and lender satisfaction, which significantly increased the firm's loan acquisitions.
- Managed key transactions, ensuring all parties met critical milestones for timely, successful loan completions under strict deadlines.

Law Office of Iannella & Mummolo — Boston, MA
Paralegal — February 2019 - February 2020
- Successfully led a small team of paralegals ensuring the timely acquisition of essential documents for 60 client cases a month.
- Worked closely with the head attorney to strategize and problem solve challenging cases in order to achieve successful results.