Marios Kalpakis

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Curious and ambitious Computer Science and Math student seeking positions in distributed systems, machine learning, software engineering, computer vision, optimization, algorithms, and interdisciplinary research.

SKILLS

Languages: Python, Java, Haskell, x86 Assembly, JavaScript, C

Technologies: Git, Redis, Excel, Pandas, Linux, OpenCV, Java Swing, JavaFX, HTML, CSS, SQL

WORK EXPERIENCE

UMB School of Medicine, Center for Shock, Trauma, Anesthesiology, Baltimore, MD

Research Intern **June 2022 - August 2022**

- Individually developed parallelized Python programs for high performance statistical analysis of vital signs and other associated medical patient data
- Individually designed multiprocessing framework to distribute computationally heavy tasks across multiple machines, with failure management.
- Resulted in 13x speedup enabling the team of 40 researchers to reduce calculation time from weeks to days/hours, using NumPy, Pandas, Redis, Python Multiprocessing and Multithreading

L.L. Bean, Rockville MD - Sales Representative **July 2021 - January 2022**

Projects

Efficient, Cheap 3-D Motion Tracking System **2022-23**

- Built stereo camera using webcams and Raspberry Pi 4, designed software to concurrently record video, recognize faces, and calculate distance from the camera,
- Used OpenCV, Mediapipe, Python Multiprocessing, Redis, local and remote computations
- Analyzed tradeoffs between accuracy, latency, and hardware usage for different subject movement speeds, camera resolutions, and frame rates

Networked Memory Game **Spring 2022**

- Created Multithreaded Socket Server and Client in Java, server can handle multiple clients at once, allows for disconnect and reconnect at any point
- Building on the server/client system, created multiplayer card-based Memory Game in Java Swing, allows for users to play from different devices on the same network
- Built GUI in Java Swing, with animated cards, and multiple different views, with highlighting for selected cards, and interactable stacks. Also implemented a play/restart menu, and win screen

Selection Sort in Assembly **Spring 2022**

- Used x86 Assembly to take in an array of numbers, and swap numbers in place to create a selection sort algorithm, that then prints the sorted array

AVL Tree **Fall 2021**

- Implemented height, left/right rotations, add node, and remove node functions that maintained binary search tree balance in Java, with O(log n) time complexity for basic operations

EDUCATION

University of Maryland - **B.S. Computer Science, Math** **August 2023 - May 2027**

- Honors College - Global Communities

Walter Johnson HS - **Highschool Diploma** **September 2019 - June 2023**

- 4.0 unweighted GPA, 1510 SAT, Waksman Student Scholar, Robotics Club President
- Relevant coursework: AP Computer Science Java, Computer Programming 3 - Advanced Topics, AP Calculus BC, AP Physics C: Mechanics, AP Physics C: Electricity & Magnetism, Molecular Biology. 5s on all AP exams.