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Tyler Martin

Education

University of Missouri St Louis, Bachelor's and Master's in Computer Science, graduated May 2023. (2019-2023)

Washington University in Missouri St. Louis, Ph.D. in Computer Science. (2023 - current)

Professional Summary and Experience

Worked on writing various scripts for working with CAD files inside of databases. Developed a method to modify the file metadata to allow for updating drawings without recreating the entire file.

While completing my Master's degree, I became acquainted with the CUDA programming paradigm and Mixed Integer Processing using branch and bound algorithms.

My current research revolves around studying the scheduler of various CUDA capable devices to understand their behavior. This will ultimately be utilized for evaluating various ways to implement elastic scheduling within GPUs.

Professional Skills

Algorithmic Programming:

- Branch and Bound Algorithms
- Mixed Integer Processing
- Sorting algorithms
- Search algorithms

Parallel Computation:

- Extensive work with the multiprocessing paradigm
- Extensive knowledge of the pthreads/OpenMP libraries
- Extensive work with parallel algorithms
- CPU and GPU Parallelism

CUDA Development:

- CUDA C++ Development
- Knowledge of the CUDA Parallelization Paradigm
- Experience with various CUDA Architectures (Kepler – Ampere)
- Cursory knowledge of the PTX Assembly Language

OpenCV:

- Extensive use of OpenCV within Python
- Comfortable with using OpenCV in C++
- Extensive knowledge related to using OpenCV with other libraries like Unreal or tkinter

Contact:

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Bachelor's and Master's portfolio:

https://github.com/1Guardian

Languages:

- C++
- C
- Java
- Python
- NodeJS
- Bash/Shell
- JavaScript
- Kotlin (Android)
- CUDA C/C++

Education:

Bachelor's & Master's in Computer Science
University of Missouri St Louis
2019-2023
St. Louis Missouri

Ph.D. in Computer Science
Washington University in St Louis
2023-
St. Louis Missouri

Work History

2023-
Researcher *Washington University in St. Louis*

Currently working at Washington University in St. Louis conducting research within the field of real time systems as I work on my Ph.D. in computer science. I primarily work with GPUs and how various real time systems can be extended to include GPU acceleration without compromising deadlines.

2021-2023
CS Tutor *University of Missouri St Louis*

I worked at the UMSL UTC (University Tutoring Center) as a computer science tutor. I particularly worked with operating system design, Linux usage, as well as languages at various levels of difficulty such as C/C++ and Java/Kotlin. I also worked with many students on writing and understanding Introductory and Intermediate Algorithms.

2022
CS Pilot Program *University of Missouri St Louis*

When hired in the Fall 2022 semester, the UTC desired that there be a pilot program for CS students in the following semester. This pilot class would focus on C++, and more abstract ideas such as object oriented design, and programming practices in general. My role in the process was planning the entire semester long program as well as all the projects, and curriculum that would be used to facilitate student learning.

2021 - 2022
Free Lance Programmer *Contractor*

I wrote programs that matched revised drawings to existing matching identified items to allow mass revision updating and that created a file of cross-matched numbers to another set of numbers to allow merging of those file to a master database. That was used to track items identified as the duplicates within existing Databases. Languages used: C++ and Bash.

2018-2020
Web Designer *Contractor*

Free Lance Web Developer. I designed and deployed websites for churches, nursing homes, and startup businesses while attending high school. These websites were primarily in HTML, CSS, and JavaScript with a few requiring SQL integration.

Publications

- ***Symmetry-based Abstraction Algorithm for Accelerating Symbolic Control Synthesis.***

  Sibai, H., Huriot, S., Martin, T., & Arcak, M. (2024). arXiv preprint arXiv:2403.11816.

- ***Towards a concurrency platform for scalable multi-axial real-time hybrid simulation***

  Sudvarg M., Bell O., Martin T., Standaert N., Zhang T., Kwon S.-B. & Gill C. (2024)