Cade Brown

Undergraduate at University of Tennessee, Knoxville

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EXPERIENCE

- **PAIRS @ UTK**
  Research Assistant - Knoxville, USA (2021-)
  Worked on Human-Computer Interaction (HCI) projects designed to boost developer productivity, as well as large scale graph databases of source code.

- **Innovative Computing Laboratory (ICL)**
  Research Assistant - Knoxville, USA (2019-2021)
  Worked as a research assistant, with a focus in dense linear algebra on High Performance Computing (HPC) systems, and code optimization on GPUs

- **OLCF @ ORNL**
  Research Intern - Oak Ridge, USA (2016-2017)
  Worked as a research intern, assembling a distributed GPU cluster computer (SimpleSummit) that demonstrates how distributed computing via rendering fractals and real-time data vizualization

EDUCATION

- **University of Tennessee Knoxville**
  B.S. Computer Science (2019-2023)

AWARDS & RECOGNITION

- **ISEF (2018): Intel International Science and Engineering Fair Finalist**
  Qualified after winning Grand Reserve Champion at SASEF (the local science/engineering fair) for my submission, *Software Techniques for Rendering Fractals*

- **SASEF (2018): Intel Excellence in Computer Science Award**
  Awarded for my submission, *Software Techniques for Rendering Fractals*

SKILLS

- **Software**
  C/C++, Python, JavaScript, WASM, CUDA, HIP, OpenMP, LLVM, NumPy, Tensorflow

- **Technologies**
  Liquid/Jekyll, git/GitHub, LaTeX

- **Patterns & Practices**
  Object Oriented Programming, Functional Programming, Continuous Integration (CI), Version Control (git), Scrum, Agile Development

PROJECTS

- **MAGMA** `[icl.cs.utk.edu/magma]`
  Software library aimed at HPC dense linear algebra on many-core, GPU, and multi-GPU platforms
  I worked on porting MAGMA to the HIP/ROCm platform, and optimized its performance on existing NVIDIA hardware.
  Used: C/C++, CUDA, HIP

- **kscript** `[kscript.org]`
  Dynamic programming language runnable on the web or desktop. Includes tensors, broadcasting, and operations as a first class citizen
  I am the creator and primary author
  Used: C/C++, WASM, OpenMP

- **MPFR** `[mpfr.org]`
  A FOSS library for arbitrary precision floating point math. I implemented various functions and test cases
  MPFR is used in the GNU Compiler Collection (GCC)

- **Full Timeline** `[cade.site/timeline]`
  A more detailed timeline of my experience can be found at the above link, on my personal website.