

# Cade Brown

Undergraduate at University of Tennessee, Knoxville

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## EXPERIENCE

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- **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 visualization.

## EDUCATION

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

## AWARDS & RECOGNITION

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- **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*

## PROJECTS

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- **Personal GitHub** [github.com/CadeBrown]  
Most of my projects and history can be found on my GitHub.
- **Full Timeline** [cade.site/timeline]  
A more detailed timeline of my experience can be found at the above link, on my personal website.
- **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)

## SKILLS

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- **Software**  
C/C++, Python, JavaScript, WASM, CUDA, HIP, OpenMP, LLVM, NumPy, Tensorflow
- **Patterns & Practices**  
Object Oriented Programming, Functional Programming, Continuous Integration (CI), Version Control (git), Scrum, Agile Development