Cade Brown — cade.site/about

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Software Developer ∪ Mathematician ∪ Digital Artist

PROFILE

- **Technical Communication**
  I've given talks, written technical documentation, and published papers
  Fluent in: LaTeX, markdown, HTML
- **Animation and Video Editing**
  I'm a digital artist, doing 3D CGI, video editing, and physical simulations
  Using: Blender3D, KdenLive, ffmpeg, Python, OpenGL
- **Computer Poweruser**
  I have spent years managing servers/websites, automating workflows, and deploying applications

EXPERIENCE

- **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.

- **PAIRS @ UTK**
  Research Assistant - Knoxville, USA (2021-2022)
  Worked on Human-Computer Interaction (HCI) projects designed to boost developer productivity, as well as large scale graph databases of source code.

- **Leadership Computing Facility @ ORNL**
  Research Intern - Oak Ridge, USA (2016-2017)
  Primary software developer on the SimpleSummit visualization project, which entailed distributed realtime rendering on the embedded NVIDIA Jetson hardware, using both CPU and GPU resources.

SKILLS

- **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

PROJECTS

- **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 for solving linear algebra problems using GPUs and CPUs. I ported and tuned the library for use on new AMD GPU hardware
  Used: C/C++, CUDA, HIP

- **kscript** `[kscript.org]`
  My dynamic programming language, which supports arbitrary precision, tensors, broadcasting, and more in the standard library
  Used: C/C++, WASM, OpenMP

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