

# Benjamin Killeen

github.com/bendkill

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(314) 651-6809

## EDUCATION

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- **University of Chicago** Chicago, IL
  - *Bachelors in Computer Science* Expected: June 2019
  - *Minor in Physics* GPA: 3.778

## EXPERIENCE

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- **Epic Systems** Madison, WI
  - *Software Development Intern* June 2018 - August 2018
    - **Predictive Modeling:** Developed custom machine learning functionality to SlicerDicer, a web-based tool enabling clinicians to investigate health data.
- **IBM Research - Almaden** San Jose, CA
  - *Research Intern* June 2017 - September 2017
    - **Systolic Data Flow of CNNs:** Developed algorithms for systolic data flow of Convolutional Neural Networks with analog-memory-based deep learning. Simulated forward propagation time and estimated a speedup over state-of-the-art GPUs by two orders of magnitude.
- **University of Chicago** Chicago, IL
  - *Research Assistant* June 2016 - March 2017
    - **Cosmic Rays:** Analyzed the Fermi LAT database for possible gamma ray events from Jupiter's Great Red Spot. Concluded the GRS emits no significant gamma rays above 20 MeV.

## PATENTS AND PUBLICATIONS

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- Burr, Geoffrey and **Killeen, Benjamin**. Efficient Processing Convolutional Neural Network Layers using Analog-Memory-Based Hardware. Provisional U.S. Patent filed October 12, 2018.
- Ambrogio, S., Narayanan, P., Tsai, H., Shelby, R., Boybat, I., Nolfi, C.D., Sidler, S., Giordano, M., Bodini, M., Farinha, N., **Killeen, B.**, Cheng, C., Jaoudi, Y., and Burr, G. "Equivalent-Accuracy Accelerated Neural Network Training using Analog Memory." *Nature* 558:60 - 67 (2018).

## SKILLS

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Python • Tensorflow • C • C# • MatLab • JavaScript • POV-Ray • LaTeX • Haskell • Emacs  
Communication Skills • Scientific Writing • Experimental Design • Neural Networks

## PROJECTS

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- **Artifice:** Applying computer vision to high precision object detection in laboratory images, driven by Deep Neural Networks.
- **Creative Writing:** Pursues independent creative writing projects: short stories, fantasy novel.

## COURSEWORK

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Unsupervised Learning and Data Analysis • Networks and Distributed Systems • Computer Vision  
Operating Systems • Machine Learning on Big Data • Honors Combinatorics  
Scientific Visualization • Honors Algorithms • Honors Discrete Math • Computer Systems  
Quantum Mechanics • Classical Mechanics • Electronics • Electricity and Magnetism • Statistics