Benjamin D. Killeen

benjamindkilleen.com

killeen@jhu.edu

(314) 651-6809

Education

- **The Johns Hopkins University** — Baltimore, MD
  Ph.D. in Computer Science — *Expected: 2024*

- **University of Chicago** — Chicago, IL
  Bachelors in Computer Science with Honors — *June 2019*
  Minor in Physics — *GPA: 3.81*

Experience

- **The Johns Hopkins University** — Baltimore, MD
  Ph.D. Student — *August 2019 - Present*
  - **Domain Adaptation**: Investigating sim-to-real transfer learning for robotic manipulation and general domain adaptation. Current work explores the over-dependence on texture in deep neural networks.
  - **Robotic Manipulation**: Leveraged deep reinforcement learning in complex, multi-step robotic tasks. Our approach outperformed prior work by achieving a 99% success rate on adversarial grasping scenarios.
  - **ICRA Paper**: *"Good Robot!": Efficient Reinforcement Learning for Multi-Step Visual Tasks via Reward Shaping.*

- **University of Chicago** — Chicago, IL
  Student Researcher — *March 2018 - August 2019*
  - **Computer Vision**: Combined advanced data augmentation with novel active learning metrics for object detection to facilitate deep learning methods in scientific image analysis.
  - **Honors Thesis**: *Starting from Scratch: Deep Learning for Novel Scientific Image Analysis.*

- **University of Chicago** — Chicago, IL
  Instructional Assistant — *January 2019 - June 2019*
  - **Teaching Assistant**: Instructed students in practical and theoretical machine learning methods, driven by Python and Tensorflow. Wrote supplementary course material and assisted with grading assignments.
  - **Grader**: Provided constructive feedback and quantitative grades for Scientific Visualization and Intro to Comp. Sci. I & II. Augmented classroom instruction via Piazza.

- **Epic Systems** — Madison, WI
  Software Development Intern — *June 2018 - August 2018*
  - **Predictive Modeling**: Developed custom machine learning functionality for 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 an algorithm 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.
  - **Nature Paper**: Coauthor, *Equivalent-accuracy accelerated neural-network training using analogue memory.*
  - **Patent**: Coinventor, *Efficient Processing Convolutional Neural Network Layers using Analog-Memory-Based Hardware.*

Skills

Python • Tensorflow/Keras • PyTorch • C • Scala • Java • MatLab • JavaScript • LaTeX • Haskell • Emacs
Machine Learning • Communication Skills • Scientific Writing • Experimental Design

Coursework

Deep Learning • Computer Integrated Surgery • Unsupervised Learning • Computer Vision • Machine Learning
Operating Systems • Networks • Scientific Visualization • Computer Systems • Programming Languages
Honors Combinatorics • Honors Algorithms • Honors Discrete Math • Multivariate Calculus • Linear Algebra
Quantum Mechanics I & II • Classical Mechanics • Electronics • Electricity and Magnetism • Statistics