

# Norman Karr

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## EDUCATION

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### University of California, Berkeley

*Bachelors of Arts: Computer Science*

- GPA: 3.60, Major GPA: 3.68
- Relevant Courses: Computer Vision, Natural Language Processing, Machine Learning, Data Ethics

Berkeley, CA  
8/2018–5/2022

## PROFESSIONAL EXPERIENCE

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### Berkeley Artificial Intelligence Research

*Undergraduate Researcher*

- Worked 8+ hours per week with two Ph.D. students under Professor Alexei Efros' computer vision group researching generative vision models
- Designed and trained an unconditional diffusion model with 32+ million parameters on UCF101
- Reduced necessary computation and model size by a factor of 8 by using pretrained autoencoders and performing downstream tasks in the encoded latent space

Berkeley, CA  
1/2022–Present

### Berkeley Lab Physics Division

*Undergraduate Researcher*

- Worked 6+ hours per week as an independent researcher in Benjamin Nachman's lab studying the application of machine learning in particle physics
- Demonstrated viability of 5 novel, unsupervised, machine learning based approaches for anomaly detection on jet data from Large Hadron Collider simulations
- Designed mixture density networks to interpolate and generate particle jet data as a means to increase training data for downstream tasks

Berkeley, CA  
1/2021–Present

### Medtronic

*Software R&D Intern*

- Developed production-level algorithms that operate on the next-generation continuous glucose monitors
- Refactored pre-existing programs to improve maintainability, computational efficiency and memory usage
- Learned a new form of development known as model-based development to manage control algorithms

Northridge, CA  
Summer 2021

### EECS Department Course Staff

*Reader/Tutor*

- 8+ hour Reader/Tutor for CS 170: Efficient Algorithms and Intractable Problems
- Hosted weekly office hours to help students with homework and answer student questions and aided in weekly discussion sections by facilitating breakout rooms and answering live chat questions
- Produced supplementary walk-through videos to improve student understanding of lecture topics, discussion problems, and previous exams

Berkeley, CA  
8/2020–5/2021

### Intellex

*Data Science Intern*

- Learned a new coding language, Clojure, on site to contribute directly to a NLP-based classifier
- Engineered and deployed 2 custom feature extractors within a document classifier pipeline to improve downstream search accuracy
- Fine-tuned a pretrained BeRT language model to specialize its learned embeddings for legal language
- Developed efficient data analysis algorithms on corpuses with over 300,000 legal documents to extract relevant statistics to help fine-tune model architecture

Singapore  
Summer 2019

## VOLUNTEERING EXPERIENCE

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### Academic Intern for CS 61C: Great Ideas in Computer Architecture

- Volunteered 3+ hours per week as general course helper holding office hours and weekly check-ins to ensure students stay up-to-date with course material

Fall 2020

### Academic Intern for CS 61B: Data Structures and Algorithms

- Volunteered 3+ hours per week, guiding students through lab assignments and providing general course help

Fall 2019

## SKILLS

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- **Coding Languages:** Python, R, Java, C++, Matlab, Clojure
- **Software Development:** Algorithms and Data Structures, Data Analysis, Version Control, Software Lifecycle
- **Machine Learning:** Clustering, Classification and Regression, GPU Training, SVMs, CNNs, Transformers
- **Tools:** PyTorch, Sci-Kit Learn, AWS EC2, OpenCV, WandB, NumPy, Pandas, Git
- **Languages:** English (Native), Chinese (Fluent)