Brandon McKinzie

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EDUCATION

UC BERKELEY

B.A. in Physics
Minor in Computer Science
Dec 2016 | Berkeley, CA
GPA: 3.82

STANFORD UNIVERSITY

Artificial Intelligence
Graduate Certificate
Feb 2019 - Present | Stanford, CA

LINKS

Website: **mckinziebrandon.me**
Github: **mckinziebrandon**
LinkedIn: **mckinziebrandon**

COURSES (STANFORD)

Machine Learning Theory
Deep Multi-Task and Meta Learning
Deep Generative Models
Artificial Intelligence

COURSES (UCB)

COMPUTER SCIENCE

Artificial Intelligence
Machine Learning
Neural Computation
Quantum Computing
Data Structures & Algorithms
Machine Structures
Interp. & Struct. of Computer Programs

PHYSICS

Advanced Electrical Laboratory
Advanced Experimentation Laboratory
Statistical and Thermal Physics
Particle Physics

MATHEMATICS

Discrete Math & Probability Theory
Advanced Linear Algebra
Differential Equations
Calculus I, II, III

WORK EXPERIENCE

MACHINE LEARNING ENGINEER

Cupertino, CA | Apple, Inc. | Oct 2018 - Present

- Designed and trained novel architectures for multi-modal understanding.
- Designed framework for distributed training of advanced language models.
- Trained and shipped models optimized for low-latency on-device machine learning.

NLP ENGINEER - AI RESEARCH & DEVELOPMENT

Cambridge, MA | Forge.AI | Sep 2017 - Sep 2018

- Designed and implemented event extraction models composed of conditional random fields and deep neural networks (C/C++).
- Implemented hierarchical attention networks and optimized for low-latency inference (Python/C++).
- Research on training DNNs on synthetic data while improving generalizability.

RESEARCH EXPERIENCE

AUTOMATIC GENERATION OF DEEP NEURAL NETWORKS

UC Berkeley | Advised by Prof. Dawn Song | Sep 2016 – Dec 2016

- Implemented support for early-stopping during architecture search process.
- Extended the set of allowed merge operations between network layers.
- Refactored initial codebase to improve stability & scalability.

VIRTUAL TRAINING WITH THE HTC VIVE

MIT Media Laboratory | Living Mobile Group | Summer 2016

- Designed virtual training environments in Unity3D for use with the HTC Vive.
- Implemented support for full-body tracking with personalized avatars.
- Built circuits containing IMUs and bend sensors fed to Arduinos for tracking location, orientation, and geometry of the user.

CLUSTERING ALGORITHM – SPHENIX COLLABORATION

MIT | Heavy-Ion Group | Summer 2016

- Implemented a photon clusterizer (C++) for the sPHENIX collaboration.
- Designed cluster visualization software and user interface.
- Tested clusterizer on simulations within the RCF global computing grid.

EVENT GENERATION & JET FINDING

Berkeley National Lab | Relativistic Nuclear Collisions | Jan 2015 - June 2016

- Built an event-generator (C++) for identifying jets in terabytes of LHC data.
- Primary contributor to design and 3D-printing of Event-Plane Detector (STAR).
- Optimized meson decay cuts in massive datasets on NERSC supercomputers.

LATTICE QUANTUM CHROMODYNAMICS COMPUTING

Brookhaven National Lab | Advised by Dr. Meifeng Lin | Summer 2015

- Analyzed simulated gauge configurations from the BNL supercomputing facility.
- Employed Monte-Carlo sampling, jackknife statistics, and all-mode averaging for high-precision estimates.
- Implemented numerical approximation techniques in C and analyzed simulation outputs with the ROOT data-analysis framework (C++).

RESEARCH EXPERIENCE (CONT.)

COMPUTATIONAL NUCLEAR PHYSICS

UC Davis | Nuclear Physics Group | Aug 2013 - Aug 2014

- Computed 1st systematic uncertainty estimate of Upsilon polarization at CMS.
- Optimized effective signal of Upsilons produced in 2012 p-p STAR dataset.

PERSONAL PROJECTS

LEARN ARTIFICIAL INTELLIGENCE WITH TENSORFLOW

Course Link: Learn Artificial Intelligence with Tensorflow

- Authored content and recorded videos for online TensorFlow course published by Packt Publishing.

CONVERSATION MODELS IN TENSORFLOW

Github Link: DeepChatModels

- User-friendly API for building sequence-to-sequence conversation models.
- Performance-optimized input pipeline and model serialization.
- Models deployed with Flask on Google App Engine.

AWARDS

2015 Laslett Scholar – UC Berkeley Physics Department
2014 Best Undergrad. Theoretical Research – American Physical Society