Willie McClinton

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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY — Cambridge, MA
Ph.D. in Electrical Engineering and Computer Science — 2021-TBD

- GPA: 5.0 /5.0 Honors: MIT Presidential Fellowship and NSF GRFP Recipient
- Relevant Coursework: Computational Sensorimotor Learning (A), Managerial Finance (A), Independent Study in Program Synthesis (Satisfactory)

UNIVERSITY OF SOUTH FLORIDA — Tampa, FL
Bachelor of Science in Computer Science, Minor in Mathematics — 2016-2020

- GPA: 4.0 /4.0 Honors: King O'Neal Scholar and Dean's List – All semesters
- Relevant Coursework: Differential Equations (A+), Linear Algebra (A+), Calculus III (A), Vector Calculus (A), Probability and Statistics (A), Natural Language Processing (A), Improvisation (A)

WORK EXPERIENCE

GOOGLE AI — San Francisco, CA
Resident Research Scientist — October 2020 - December 2021

- Improved unsupervised and semi-supervised computer vision systems by adding the ability to learn representations that are equivariant to data augmentations during Contrastive Learning, creating a 100x improvement in augmentation time for new datasets.
- Implemented modern and traditional RL algorithms as baselines (Dynamic Programming, Monte Carlo, TD-Learning, Sarsa, DDPG, A3C, DQN, etc.) and explored research directions in improving the convergence speed of Deep Hierarchical RL approaches.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY — Gaithersburg, MD
Summer Undergraduate Research Fellow — May 2017 - August 2017

- Parsed large video databases composed of videos from both the YFCC100M and HAVIC datasets with SQL to synthesize datasets for the TRECVID Multimedia Event Detection Evaluation.
- Reduced scoring time by 10x by implementing parallelization in the new Ruby/Rake evaluation.
- Collaborated with small team of 3 to manage past systems from previous Multimedia Event Detection Evaluations.

RESEARCH EXPERIENCE

MIT CSAIL (Drs. Leslie Kaelbling, Tomas Lozano-Perez, and Armando Solar-Lezama) — Cambridge, MA
Visiting Research Assistant and Graduate Student — January 2020 - present

- Developed new approaches to learn state and action abstractions and neuro-symbolic models for Bilevel Planning in robotics.
- Surveyed over a dozen modern program synthesis and deep learning techniques for neuro-symbolic programming.

USF NEURO-MACHINE INTERACTION LAB (Dr. Marvin Andujar) — Tampa, FL
Software Engineer and Research Assistant — February 2018 – December 2019

- Built Unity applications in both C++/C# for 100+ end users to make BCI more available to the general public.
- Classified EEG data with high signal-to-noise ratio using ML techniques (LDA, MLP, SVM, etc.) in Matlab and Openvibe.

USF SOCIAL COMPUTING LAB (Dr. Sriram Chellappan) — Tampa, FL
Software Engineer and Research Assistant — January 2018 – January 2020

- Led a team of 4 to build an Android application that collected and detected distress in users' non-textual SMS message data.
- Incorporated a classifier using Scikit-Learn and Tensorflow to identify user distress from features extracted from the meta-data.
- Created a cross-platform mobile app with React Native integrating deep learning for detecting mosquito disease-carriers with over 80% accuracy, using TensorFlow Lite and Firebase API. Patents: US Patent 11048928 and 10963742.

SELECTED PUBLICATIONS

1. "Inventing Relational State and Action Abstractions for Effective and Efficient Bilevel Planning." Silver, T., et al. In Preparation for Submission to AAAI Conference on Artificial Intelligence (2023)
2. "HAC Explore: Accelerating Exploration with Hierarchical Reinforcement Learning," McClinton, W., et al. In Preparation for Submission (arxiv link: https://arxiv.org/abs/2108.05872) (2022)
3. "Steerable Representation Learning," Krishnan, D., and McClinton, W., et al. Submitted to ICML International Conference on Machine Learning (2022)
4. "Evaluating Ad-hoc and Instance Video Search, Events Detection, Video Captioning, and Hyperlinking," Awad, G., et al. TREC Video Retrieval Evaluation (TRECVID) (2017)

SKILLS & INTERESTS

- Software: Android/iPhone, Git, LaTeX, Numpy, OpenCV, Pytorch, React Native, SciPy, Scikit-learn, TensorFlow, and Unix/Linux
- Languages: Proficient in C, C++, JavaScript, Matlab, Python; prior experience in Bash, C#, Lisp, Java, R, Ruby/Rake, and SQL
- Interests: Volunteering, Cryptocurrency, Hobby-Robotics, and Brazilian Jiu Jitsu