Willie McClinton

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EDUCATION

UNIV. OF SOUTH FLORIDA
BS in Computer Science
Minor in Mathematics
Honors College
Expected May 2020 | Tampa, FL
Cum. GPA: 4.0

PUBLICATIONS

Wang, Y., McClinton, W., Xiaopeng, L. (2019). *Optimizing for Both Fuel Efficiency and Displacement of Neural Network Controllers for Autonomous Vehicle using Cross-Entropy and Reinforcement Learning.* (In preparation)

Minakshi, M., McClinton, W., Mirzakhalov, J., et. al. (2019). *A Deep Learning Framework to Automatically Identify Genus and Species of Mosquitoes from Smart-phone Images.* (Submitted to IEEE Transactions on Mobile Computing.)

McClinton, W., Garcia, S., Andujar, M. (2019) *An Immersive Brain Painting: The Effects of Brain Painting in a Virtual Reality Environment.* In: Schmorrow D., Fidopiastis C. (eds) Augmented Cognition. HCII 2019. Lecture Notes in Computer Science, vol 11580. Springer, Cham

McClinton, W., Caprio, D., Laesker, D., et. al. (2019) *P300-Based 3D Brain Painting in Virtual Reality.* In Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems (CHI EA '19); ACM, New York, NY, USA, Paper LBW1119, 6 pages.

Awad, G., Butt, A., Fiscus, J., et. al. (2017) *TRECVID 2017: Evaluating Ad-hoc and Instance Video Search, Events Detection, Video Captioning, and Hyperlinking.* TREC Video Retrieval Evaluation (TRECVID), Nov 2017, Gaithersburg, MD, United States. hal-01854790.

COMMUNITY ENGAGEMENT

USF Brain Drone Race, Tampa, FL - "Mind & Machine: Students to Compete in USF's First Brain Drone Race" Public Demonstration. (Feb. 2019)

USF Making Waves, Tampa, FL - "Partnership, Mentorship, Scholarship: Discussing faculty-student connections" Invited Panelist. (Sept. 2018)

Orlando iX, Winter Park, FL - "USF Neuro-Machine Interaction Brain Drone Racing Simulation Demo" Public Demonstration. (Aug. 2018)

STEAM Forward Camp, Haines City, FL - "Brain Computer Interface Demo for Middle School kids hosted by USF, FPU, and Intel" Public Demonstration. (Jul. 2018)

RESEARCH EXPERIENCES

INTELLIGENT ROBOT LAB | Undergraduate Researcher
Oct 2018 - Present | Providence, RI
Worked with **Prof George Konidaris** to explore the use of Meta-Learning and Hierarchical Reinforcement Learning, specifically the use of high level options, in constructing procedures by which agents can discover new skills autonomously and transfer them effectively to new tasks.

SOCIAL COMPUTING LAB | Software Engineer & Research Assistant
Jan 2018 - Present | Tampa, FL
Designed a cross-platform mobile app with React Native and Expo integrating deep learning for detecting mosquito disease-carriers, using Tensorflow and Firebase API, in collaboration with **Prof Sriram Chellappan**'s group. Publication submitted.

NEURO-MACHINE INTERACTION LAB | Undergraduate Researcher
Feb 2018 – Present | Tampa, FL
Developed the first ever 3D Brain Painting Application using a P300 Method with **Prof Marvin Andujar**. Classified brain data with high signal-to-noise ratio using machine learning techniques (LDA, MLP, SVM, etc.) in Matlab and Openvibe.

USF UBIQUITOUS SENSING RESEARCH | Summer Intern
Jun 2018 – Aug 2018 | Tampa, FL
Worked with a team of 4 to build an Android application that detects distress in users from non-textual SMS message data. Built a classifier using Scikit-Learn and Tensorflow to identify user distress from features extracted from the metadata.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY | Summer Intern
May 2017 – Aug 2017 | Gaithersburg, MD
Parsed through and edited large video databases composed of videos from the YFCC100M dataset with SQL to synthesize datasets for the TRECVID Multimedia Event Detection Evaluation. Reduced scoring time 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.

INTELLIGENT SYSTEMS LAB | Undergraduate Researcher
Dec 2016 – May 2018 | Tampa, FL
Gathered, formatted, and augmented CT brain scan segmentations using ImageJ and Matlab to create training, testing, and validation datasets. Constructed Deep Convolutional Generative Adversarial Networks (DCGANs) to synthesize more training examples from sparse data under **Prof Lawerence Hall**

COMPUTATIONAL BIOPHYSICS LAB | Undergraduate Researcher
Nov 2016 – May 2017 | Tampa, FL
Worked with **Prof Sameer Varma**'s group to create command line applications utilizing GROMACS API in C to parse molecular simulations and quantify their intrinsic motion using Support Vector Machines.

PRESENTATIONS

McClinton, W., et al. (2019). Meta-Learning with Multi-Level Hierarchies via Context Variables. Poster presentation: Brown University 2019 Summer Research Symposium, Providence, RI

McClinton, W., et al. (2019). Meta-Learning with Mulit-Level Hierarchies via Context Variables. Oral presentation: Leadership Alliance National Symposium 2019, Hartford, CT

McClinton, W., et al. (2019). An Immersive Brain Painting: The Effects of Brain Painting in a Virtual Reality Environment. Oral presentation: HCI International 2019, Orlando, FL

McClinton, W., et al. (2019). Effects of 3D Brain Painting in Virtual Reality. Poster presentation: ACM CHI Conference on Human Factors in Computing Systems 2019, Glasgow, UK

McClinton, W., et al. (2018). Deriving Trends from Meta-Data to Predict Distress in Online Communications. Poster presentation: USF Ubiquitous Sensing Poster Competition Tampa, FL

McClinton, W., et al. (2018). TRECVID Multi-Media Event Detection Evaluation. Oral presentation: Emerging Researchers National Conference 2018, Washington, D.C.

COURSEWORK

Analysis of Algorithms
Bayesian Statistics
Calculus I-III
Computer Architecture
Data Structures
Linear Algebra
Introduction to Artificial Intelligence
Theory of Computation
Vector Calculus
(Independent Study: Reinforcement Learning)
(Supervised Research: Brain-Computer Interfaces)

SKILLS

LANGUAGES

Proficient:
C • C++ • Matlab • Python • Ruby

Prior Experience:
Bash • C# • Emacs Lisp • Java • Rake • SQL

SOFTWARE

Andorid/iPhone • Emacs • Expo • Git • GROMACS • OpenCV libraries • Pytorch • React Native Tensorflow • Unity • Unix/Linux

ACADEMIC AWARDS

- 2019 Barry M. Goldwater Scholar
- 2019 The Leadership Alliance's Summer Research Fellowship
- 2019 Computing Research Association-Widening Participation DREU
- 2018 Best Poster, USF REU in Ubiquitous Sensing
- 2018 Inductee, Sigma Xi
- 2018 Inductee, Pi Mu Epsilon
- 2018 Best Oral Presentation, ERN Conference, Washington, D. C.
- 2017 National Institute of Standards and Technology Summer Fellow
- 2017 Best Presentation, NIST Colloquium
- 2016-2019 Dean's List

HACKATHON AWARDS

- 2019 Best Overall Project (Classroom.ai), KnightHacks, UCF
- 2019 Sponsor Prize (Waldo), HatterHacks, Stetson University
- 2019 Best Hack for Social Good (Emesh.io), Hack-A-Bull, USF
- 2018 Sponsor Prize (YacPack), CalHacks, UC Berkeley
- 2018 Best Hardware Hack (Fix8), Hack-A-Bull, USF

See projects at: https://devpost.com/wmcclinton

LEADERSHIP

SOCIETY OF COMPETITIVE PROGRAMMERS | Co-founder & Vice-President
Jan 2018 - Present | Tampa, FL

- Created a student organization that helps to foster hackathon culture at USF and supports students in their hackathon trips around the nation.
- Reached over 100 active members in a period of 7 months and helped dozens of students experience their first hackathons.
- Achieved over 20K in funding for competition and conference travel through commercial sponsorship.

METROPOLITAN MINISTRIES | Volunteer
May 2018 - Present | Tampa, FL

- Mentored students on First Robotics team and helped them with 3D printers, app development, as well as, technical and career questions.
- Informed instructors about emerging computer science resources, including online tutorials and texts, in order to give them more tools to educate students and stay educated themselves.

PROJECTS

HACK NIGERIA | Hackathon
Nov 2019 | Tampa, FL

- Creating a virtual hackathon in collaboration with Nigerian data science company Vilsquare, Meluibe Foundation, and USF Society of Competitive Programmers to promote the development of technological solutions for local community problems in Nigeria.
- Ambassadored the connection between the organizations and helped with logistics, funding, and hosting for the event.

CLASSROOM.AI | Hackathon Project
Mar 2019 | Orlando, FL

- Developed a classroom application that allows students to self-report their confidence levels and give feedback anonymously in real-time
- Created personalized models that recognizes individual student's faces and determines whether they are feeling confused, neutral, or confident.
- Won 1st Place at KnightHacks (UCF)

MOSQUITO TAG | Research Project
Dec 2018 | Provisional Patent

- Developed a Convolutional Neural Network (CNN) model for server-side species and genus identification of mosquito.
- Created a mobile application to run the CNN model on the server that communicates with the app and developed an embedded classifier for mosquito vs non-mosquito classification using Tensorflow-Lite.
- A **provisional patent** has also been filed by Univ. of South Florida titled "A Deep Learning System for Automatic Tagging and Uploading of Mosquito Genus, Species and Anatomy from Smart-phone Images" (USF Ref. No. 18B171PR Chellappan).

HACKERBOARD | Personal project
Jul 2018 | Website

- Created a student organization that helps to foster hackathon culture at USF and supports students in their hackathon trips around the nation.
- Reached over 100 active members in a period of 7 months and helped dozens of students experience their first hackathons.
- Achieved over 20K in funding for competition and conference travel through commercial sponsorship.