# Willie McClinton

Software Engineer · Research Scientist

wmcclinton@mail.usf.edu https://wmcclinton.github.io https://github.com/wmcclinton

## Education

**University of South Florida** *Tampa, Florida*

B.S. in Computer Science and Minor in Mathematics | Honors College *Aug. 2016 - PRESENT*

- Research Interests: Artificial Intelligence: Reinforcement Learning, Imitation Learning, Deep learning, and Meta-Learning; as well as their applications in Brain Computer Interfaces, Robotics, and Human Computer-Interaction
- Cumulative GPA: **4.00**

## Publications

1. 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)
2. Minakshi, M., **McClinton, W.**, Mirzakhalov, J., Bharti, P., and Chellappan, S. (2019). A Deep Learning Framework to Automatically Identify Genus and Species of Mosquitoes from Smart-phone Images. (Submited to IEEE Transactions on Mobile Computing.)
3. **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
4. **McClinton, W.**, Caprio, D., Laesker, D., Pinto, B., Garcia, S., and Andujar, M. (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.
5. Awad, G., Butt, A., Fiscus, J., Joy, D., Delgado, A., **McClinton, W.**, Michel, M., Smeaton, A., Graham, Y., Kraaij, W., Quenot, G., Eskevich, M., Ordelman, R., Jones, G., Huet, B. (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.

## Honors & Awards

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|---|---|---|
| 2019 | **Scholarship**, Barry Goldwater Scholarship ($7500) | *Alexandria, VA* |
| 2019 | **Award**, The Leadership Alliance's Summer Research Early Identification Program - Participant | *Providence, RI* |
| 2019 | **Award**, CRA-W Distributed Research Experiences for Undergraduates Program - Participant ($7000) | *Providence, RI* |
| 2019 | **1st Place**, Best Overall Project (Classroom.ai) at KnightHacks | *Orlando, FL* |
| 2019 | **Award**, Best Hack for Social Good (Emesh.io) at Hack-A-Bull | *Tampa, FL* |
| 2018 | **Award**, USF Dean's List of Scholars | *Tampa, FL* |
| 2018 | **1st Place**, Best Poster Presentation at USF REU in Ubiquitous Sensing Poster Competition | *Tampa, FL* |
| 2018 | **Inductee**, Sigma Xi University of South Florida Chapter | *Tampa, FL* |
| 2018 | **Inductee**, Pi Mu Epsilon University of South Florida Chapter | *Tampa, FL* |
| 2018 | **Award**, Best Hardware Hack (Fix8) at Hack-A-Bull | *Tampa, FL* |
| 2018 | **1st Place**, Best Oral Presentation in Computer Science Division at Emerging Researchers National (ERN) Conference 2018 | *Washington, D.C.* |
| 2017 | **Scholarship**, Honors College Community Engagement Scholarship ($2000) | *Tampa, FL* |
| 2017 | **1st Place**, Best Presentation in Information Technology Division at NIST Summer Undergraduate Colloquium 2017 | *Gaithersburg, MD* |
| 2016 | **Scholarship**, USF Directors Award Scholarship ($16,000) | *Tampa, FL* |
| 2016 | **Scholarship**, The Florida Bright Futures Scholarship Program | *Tampa, FL* |
| 2016 | **Scholarship**, Gerald Champion Regional Medical Center Scholarship ($1000) | *Tampa, FL* |

## Presentations

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| [Poster] | **Brown University 2019 Summer Research Symposium (Aug. 2019)**, "Meta-Learning with Multi-Level Hierarchies via Context Variables" | *Providence, RI* |
| [Oral] | **Leadership Alliance National Symposium 2019 (Jul. 2019)**, "Meta-Learning with Multi-Level Hierarchies via Context Variables" | *Hartford, CT* |
| [Poster] | **ACM CHI Conference on Human Factors in Computing Systems 2019 (May. 2019)**, "Effects of 3D Brain Painting in Virtual Reality" | *Glasgow, UK* |
| [Demo] | **USF Brain Drone Race (Feb. 2019)**, "Mind & Machine: Students to Compete in USF's First Brain Drone Race" | *Tampa, FL* |
| [Demo] | **Roboticon (Sept. 2018)**, "USF Neuro-Machine Interaction Brain Drone Racing Mini-Competition Demo" | *Tampa, FL* |
| [Panelist] | **USF Making Waves 2018 (Sept. 2018)**, "Partnership, Mentorship, Scholarship: Discussing faculty-student connections" | *Tampa, FL* |
| [Demo] | **Orlando iX (Aug. 2018)**, "USF Neuro-Machine Interaction Brain Drone Racing Simulation Demo" | *Winter Park, FL* |
| [Poster] | **USF Ubiquitous Sensing Poster Competition (Aug. 2018)**, "Deriving Trends from Meta-Data to Predict Distress in Online Communications" | *Tampa, FL* |
| [Demo] | **S.T.E.A.M. FORWARD Camp (Jul. 2018)**, "Brain Computer Interface Demo for Middle School kids hosted by USF, FPU, and Intel" | *Haines City, FL* |
| [Oral] | **Emerging Researchers National Conference 2018 (Feb. 2018)**, "TRECVID Multimedia Event Detection evaluation" | *Washington, D.C.* |
| [Oral] | **NIST Summer Undergraduate Colloquium 2017 (Aug. 2017)**, "TRECVID Multimedia Event Detection evaluation" | *Gaithersburg, MD* |

## Research Experience

### Undergraduate Research, Intelligent Robot Lab (Dr. George Konidaris)
*Providence, Rhode Island*

Undergraduate Researcher — *Oct. 2018 - present*

- Explored 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.
- Implemented modern and traditional RL algorithms (Dynamic Programming, Monte Carlo, TD-Learning, Sarsa, DDPG, A3C, DQN, etc.) and explored research directions in attempt to improve on the convergence speed of existing meta-learning approaches.

### Undergraduate Research, Neuro-Machine Interaction Lab (Dr. Marvin Andujar)
*Tampa, Florida*

Software Engineer & Research Assistant — *Feb. 2018 - present*

- Developed Unity applications to make BCI more available to the general public.
- Classified brain data with high signal-to-noise ratio using machine learning techniques (LDA, MLP, SVM, etc.) in Matlab and Openvibe.

### Undergraduate Research, Social Computing Lab (Dr. Sriram Chellappan)
*Tampa, Florida*

Software Engineer & Research Assistant — *Jan. 2018 - present*

- Designed a cross-platform mobile app with React Native and Expo integrating deep learning for detecting mosquito disease-carriers, using Tensorflow and Firebase API
- Developed a platform for social scientist to extract anonymous metadata from users' phones.

### USF Ubiquitous Sensing Research Experience for Undergraduate
*Tampa, Florida*

Summer Undergraduate Researcher — *Jun. 2018 - Aug. 2018*

- 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
*Gaithersburg, Maryland*

Summer Undergraduate Research Fellow — *May. 2017 - Aug. 2017*

- Parsed through and edited 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 implementing parallelization in the new Ruby/Rake evaluation.
- Collaborated with small team of 3 to manage past systems from previous Multimedia Event Detection Evaluations.

### Undergraduate Research, Intelligent Systems Lab (Dr. Lawrence Hall)

*Tampa, Florida*

Researcher for <Detecting Brain Tumors in CT Scans Using Deep Learning>

*Dec. 2016 - May. 2018*

- 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

### Undergraduate Research, Computational Biophysics Lab (Dr. Sameer Varma)

*Tampa, Florida*

Researcher for <Quantify Intrinsic Molecular Motion Using Support Vector Machines>

*Nov. 2016 - May. 2017*

- Created command line applications utilizing GROMACS API in C to parse molecular simulations and quantify their intrinsic motion using Support Vector Machines.

## Leadership Activity

### Society of Competitive Programmers

*Tampa, Florida*

Co-founder & Vice-President

*Jan. 2018 - present*

- 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.
- Worked with small team of 10 officers to manage the organization's events, budget, travel grants, and outreach.
- Achieved over 20K in funding for competition and conference travel through commercial sponsorship.

### Metropolitan Ministries

*Tampa, Florida*

Volunteer

*Sept. 2016, May 2018.*

- Mentored students on First Robotics team and helped them with 3D printers, app development, as well as, technical and career questions.
- Brought donated electronics (Arduinos, Amazon Alexa, servo motors, etc.) in order to spark interest in other technologies.
- 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.

## Selected Press

### USF Envision Magazine: Spring 2019 pg. 38-39

*May 30th, 2019*

"USF Engineering Student Becomes One of USF's 11 Goldwater Scholars"

- Link: https://issuu.com/usfcollegeofengineering/docs/envision_issuu

### USF College of Engineering Newsroom

*May 12th, 2019*

"Willie McClinton Becomes One of USF's 11 Goldwater Scholars"

- Link: https://www.usf.edu/engineering/news-room/mcclinton-goldwater.aspx

### Tampa Bay Newswire

*May 1st, 2019*

"Two USF Students Named Prestigious 2019 Goldwater Scholars"

- Link: https://www.tampabaynewswire.com/2019/05/01/two-usf-students-named-prestigious-2019-goldwater-scholars-77288

### USF Newsroom

*April 29th, 2019*

"USF Students Earn Prestigious Goldwater Scholarship"

- Link: https://www.usf.edu/news/2019/usf-students-earn-prestigious-goldwater-scholarship.aspx

### USF Marshall Student Center Billboard Student Spotlight

*September 28th, 2018*

"Willie McClinton: Student Interview"

- Link: https://www.youtube.com/watch?v=GuAchoV8COg