Jamshidbek **Mirzakhalov**

Undergraduate Researcher | Software Engineering Intern

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Education

University of South Florida *Tampa, Florida*

B.S. in Computer Science | Honors College | Major GPA: **3.94** *Aug 2016 - May 2020*

- **Research Interests:** Natural Language Processing, Machine Learning, Mobile Computing, and as well as their application to Education and Human-Computer Interaction
- **Coursework:** Natural Language Processing, Automata Theory and Formal Languages, Software Engineering Principles, Brain Computer Interfaces, Database Design, Analysis of Algorithms, Intro to Discrete Structures

Publications

1. Dey, A. K., **Mirzakhalov, J.**, Chellappan, S. (2019). Integrating Wearable Sensing, Smartphone Apps and Machine Learning to Design a Home-based Personalized Secondary Prevention System for Women with Heart Diseases (In preparation)
2. **Mirzakhalov, J.**, Babu, A., Andujar, M. (2019). Mudpoint: Evaluating Instructor Perception on a Continuous and Non-Specific Feedback System (Accepted to appear in HCI International 2020.)
3. Minakshi, M., Bharti, P., McClinton, W., **Mirzakhalov, J.**, Carney, Ryan M., and Chellappan, S. (2019). A Deep Learning Framework to Automatically Identify Genus and Species of Mosquitoes from Smartphone Images. (Submitted to IEEE Transactions on Mobile Computing.)

Patents

1. Extracting and Archiving Anatomies of Mosquitoes from Digital Images using Mask Region-based Convolutional Neural Networks and Performing Genus and Species Classification based on Extracted Anatomies. (USF Ref. 20A016 Chellappan)
2. A Deep Learning Framework to Automatically Identify Genus and Species of Mosquitoes from Smart-phone Images. (USF Ref. 18B171PR Chellappan)

Research Experience

IBM Research (Dr. Rong Chang) *Yorktown, NY*

Research Intern *May 2019 - Aug 2019*

- Automated the deployment of AML and time-series prediction models to cloud environment using Docker and Kubernetes
- Prototyped a general-purpose framework for service deployment to reduce the cloud migration time for researchers
- Developed several notification services as a part of automating REST API service request fulfillments using Firebase, Twilio, SendGrid APIs and libraries.

USF Social Computing Lab (Dr. Sriram Chellappan) *Tampa, FL*

Undergraduate Researcher *Jan 2018 - present*

- Explored the use of Transfer Learning for topic classification from classroom audios on different word embedding variants (word2vec, GloVe, FastText, BERT etc)
- Worked on a team of 3 to develop a deep learning model for mosquito genus and species classification
- Designed an intervention system integrating smartphones, wearables and Machine Learning to prevent the stroke relapse in elderly women
- Developed a mobile and web platform for a team of social scientists for anonymous and qualitative metadata extraction from user phones

USF Neuro-Machine Interaction Lab (Dr. Marvin Andujar) *Tampa, FL*

Undergraduate Researcher *Jan 2018 - Oct 2018*

- Investigated the use of BCI devices as a mode of control in e-sports with the goal of increasing accessibility in gaming for people with physical disabilities
- Worked on a team of 3 on developing a Brain-Drone racing simulation by integrating BCI devices (i.e. Muse, Emotiv) into a Unity environment
- Developed a movement engine for the drone character in C# to navigate through different routes in the game arena

Skills

Languages Java, Python, C++, JavaScript
Tools Android Studio, React Native, Unity, Flask, Tomcat, Kubernetes, Docker, Git, REST
Libraries NLTK, PyTorch, Keras, Tensorflow, OpenCV, GCP

Honors & Awards

2020	**Top 50 Inspirational Hackers of 2020**, Major League Hacking	*New York, NY*
2019	**Category Award**, HackGT 6 at Georgia Institute of Technology	*Atlanta, GA*
2019	**Category Award**, PennApps XX at Univ. of Pennsylvania	*Philadelphia, PA*
2019	**2nd Place**, Hackabull 2019 at Univ. of South Florida	*Tampa, FL*
2019	**1st Place**, KnightHacks 2019 at Univ. of Central Florida	*Orlando, FL*
2019	**Award**, Dean's List of Scholars (x4)	*Tampa. FL*
2019	**Scholarship**, USF Chair's Scholarship ($500)	*Tampa, FL*
2019	**Scholarship**, Honors Community Engagement Scholarship ($600)	*Tampa, FL*
2018	**Category Award**, CalHacks 5.0 at UC Berkeley	*Berkeley, CA*
2018	**Category Award**, MHacks X at Univ. of Michigan	*Ann Arbor, MI*
2016	**Scholarship**, USF Green & Gold Presidential Scholarship ($48,000)	*Tampa, FL*

Projects

Coup.ai
Tampa, FL

Personal Project — *September 2019*

- Developed a command-line game bot for a popular multi-player board game *Coup: The Dystopian Universe* using Python and Pytorch
- Trained a bot using deep neural networks to learn the best strategies (i.e. attack, bluff, steal) in the game through self-playing

Classroom.ai
Orlando, FL

KnightHacks 2019 — *March 2019*

- Developed a mobile platform for students to provide anonymous and qualitative feedback to instructors about their confidence/confusion of the class material in real-time
- Trained a K-nearest neighbor (k-NN) classifier to automatically detect confusion levels in students by their postures and facial expressions
- Awarded **1st Place** at KnightHacks 2019

MosquitoTag
Tampa, FL

USF Social Computing Lab — *Jan 2018 - present*

- Developed a cross-platform mobile application with server-side deep learning models to classify species and genus of disease-spreading mosquitoes
- A **utility patent** has also been filed by University of South Florida (see above)

Presentations & Demos

2019	**USF Undergraduate Research Colloquium**, "Citizen Epidemiology: Enabling Citizens to Automatically Classify Genus and Species of Mosquitoes from Smartphone Images via Deep Learning"	*Tampa, FL*
2018	**Orlando-IX**, "USF Neuro-Machine Interaction Brain Drone Racing Simulation Demo"	*Orlando, FL*

Community Engagement

Society of Competitive Programmers
Tampa, FL

Co-Founder & President — *Jan 2018 - Dec 2019*

- Student organization that helps to foster hackathon culture at USF and supports students in their hackathon trips around the nation
- Helped USF improve in annual Major League Hacking (MLH) rankings from 117th to 44th in the nation in a span of 2 years
- Reached over 350 active members and enabled more than 150 students experience their first hackathons
- Acquired over $20k in funding for student travel through industry partnerships

USF Engineering EXPO
Tampa, FL

Volunteer Director & Exhibitor — *April 2018 - Feb 2019*

- Worked with a committee of 30 students to collaborate on a two-day event organized for over 10,000 K-12 kids interested in STEM fields
- Lead a team of over 200 student volunteers by distributing tasks, assigning daily goals, scheduling, and event set up/break down