John Muchovej

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Education

University of Central Florida – Orlando, Florida

- **BS:** Computer Science (May 2020); **BS:** Mathematical Economics (May 2020)
- **Minor:** Cognitive Sciences; **Minor:** Intelligent Robotic Systems
- **Awards:** Epsilon Pi Upsilon Honor Society, Dean's List, First Year Scholar, Summer Research Academy;
- **Selected Courses:** Evolutionary Computation (grad); Computer Vision (grad);

Udacity (Nanodegrees) – Online

Machine Learning (Aug 2016); Deep Learning (Jun 2017); Artificial Intelligence (Jul 2017); Virtual Reality (Dec 2017); Robotics (Jan 2018); Self-Driving Car (Mar 2018)

Coursera – Online

Medical Neuroscience (Oct 2016); Introduction to Natural Language Processing (Jan 2017); Game Theory (Mar 2017); Computational Neuroscience (Jun 2017);

edX – Online

Simulation Neuroscience (Dec 2017);

Research Experience

NeuroLogic, Institute for Simulation & Training – Orlando, Florida

Research Assistant (Aug 2017 – Present)

Advised by Dr. Alan Paris. Working to better understand the visible refresh rate of the brain, particularly for use in augmented and virtual reality environments.

SREAL, Institute for Simulation & Training – Orlando, Florida

Research Assistant (Aug 2017 – Present)

Advised by Dr. Charles Hughes. Working with virtual reality to better understand notions of body ownership. Leading project on haptic feedback within virtual environments.

AMALTHEA REU, Florida Institute of Technology – Melbourne, Florida

Research Intern (May – July 2017)

Advised by Dr. Ronaldo Menezes. Worked with data from the United Network for Organ Sharing to analyze temporal trends in demographic data with respect to race and education.

Work Experience

Forage – Orlando, Florida

Team Lead & Core Engineer (May 2018 – Present)

Leading a team of three in building a new way to visualize research, how it interacts, and summarizing dense work into succinct, layman-accessible, abstracts. Primarily involved in assembling the corpus, natural language processing, and web design.

Udacity's School of AI – Remote (Orlando, Florida)

TA (Student Mentor / Project Reviewer) (Mar 2017 – Present)

Counseling numerous students enrolled in various Udacity Nanodegrees. Roles include clarifying content, helping students foster skills in solving programming difficulties, and providing prospective career counseling when necessary. Also grading projects across all listed Nanodegrees, notably Facial Keypoint identification and Continuous Control.

Selected Skills

Web

Proficient: JavaScript, Go, Selenium

Data Science / HPC

Proficient: Python, NLTK, OpenCV, pandas, scikit-learn, PyTorch
Familiar: CUDA, R, Julia, Slurm

UI / Games / Virtual Reality

Proficient: C++, C#, Qt

Fun Facts

Spoken Languages

Native: English, Portuguese
Fluent: Spanish
Working: German, Russian

Certifications

Adobe Certified Associate: Photoshop, Illustrator, Dreamweaver, InDesign, Flash, Premiere (2013)

Non-categorized

Intramural soccer; Habitat for Humanity (from 2014); Rotary International Paul-Harris Fellow (2008)

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Biomedical Acoustics Research Laboratory – Orlando, Florida

Application Developer (Jan – Nov 2016)

Led a team of three to develop an Android application for digital signal processing (heavy usage of JNI), primarily with use in acoustics research and in medical environments – funded by a local hospital for on-site testing.

Student Academic Resource Center – Orlando, Florida

Peer Tutor [Introduction to C Programming] (Jan – May 2016)

Conducted numerous weekly tutoring sessions for students learning the fundamentals of programming, C, and the Procedural Paradigm. Continued the program's goals of raising average grades by up to 10% for each student who regularly attended.

Supplemental Instructor [Object Oriented Programming] (Aug – Dec 2015)

Conducted numerous weekly, supplemental, sessions for students learning Java and the Object-Oriented Paradigm. Continued program goals as mentioned in Peer Tutoring.

Publications

Under Review

1. Vasquez, S.*, **Muchovej, J.***, Pinheiro, D., Bastos-Filho, C., Cadeiras, M., and Menezes, R.; On the Characterization of Equity in Organ Transplantation

* Denotes equal contribution

Teaching Experience

SIGAI@UCF (Aug 2017 – Present)

Lectures:

1. An Intro to Neural Networks (09/27/17, 01/31/18)
2. Seriously, Neural Networks? – RNNs (03/07/18)
3. Can Machines Learn like Humans? – Reinforcement Learning, Part 1 (04/04/18)

Workshops:

1. Build Your Own Neural Network (10/07/17, 02/07/18)
2. Do We Need English Lit Anymore? – RNNs (03/21/18)
3. Overcoming Car Troubles with Q-learning (04/18/18);

Selected Projects

Axcelion (Aug 2017 – Present)

Leading a team of 3, working on hybridizing brain-computing interfaces and mixed reality displays to provide highly interactive computing experiences.

Klasse (Oct – Nov 2016)

Capstone project for Udacity's Machine Learning Engineer Nanodegree; utilizing Word2Vec and custom heuristics. "Mean quadratic weighted kappa" (Kaggle's original metric) score of ~94%.

Echo (Nov 2016 – Present)

Natural Language Processor that has been attempting to further flesh out the Goodreads 'Quotes' system. A self-introduction into focusing on the semantics of a statement, rather than the syntax, as has been done with most NLP systems in the past.

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Tangram (Sep 2016)

Custom-built 3D printer, open-sourced, to learn how they work, kinesthetically. Two-person collaboration, primary areas of focus are CAD designs for simulation and software linkages.

Involvement

ACM@UCF (Aug 2014 – Present)

- SIGAI@UCF Coordinator (Aug 2016 – May 2019)
- SIGAI@UCF Director (Jan 2018 – May 2019)

As a coordinator, responsibilities lie in designing and conducting lectures and workshops on a weekly basis, as well as seeking sponsorship from institutions such as Intel and the Center for Brains, Minds, and Machines. Lecture and workshop topics include Neural Networks (vanilla, recurrent, convolutional, and adversarial), Markov Decision Processes, and Evolutionary Computation, among many others.

TechKnights (Aug 2015 – Present)

- KnightHacks Mentor (Feb 2016, Oct 2017)
- KnightHacks Workshop Lead (Oct 2017)

As a mentor during KnightHacks I helped participants brainstorm and troubleshoot projects, among many other tasks during the hackathon. As a Workshop Lead, I ran the highest attending workshop in the hackathon's history, with 100+ attendees, wanting to learn about Neural Networks and TensorFlow for use in one of the many data-science related competitions.