John Day

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EDUCATION

University of Michigan   **Ann Arbor, MI**
- Dual Degree: Computer Science and Neuroscience – GPA: 3.5/4.0   **Spring 2021**
- Relevant Coursework: Data Structures & Algorithms (EECS 281), Computer Organization (EECS 370), Machine Learning (EECS 445), Web Systems (EECS 485), Computer Security (EECS 388) | Discrete Math, Linear Algebra | Cell & Molecular Neuroscience, Behavioral Neuroscience, Animal Physiology | Linguistic Analysis, Minds & Machines

TECHNICAL SKILLS

Proficient: C++, Python, MATLAB, Git, Unix
Familiar: C#, C, TensorFlow, Unity, R, SQL, .NET, HTML, CSS, CAD, VR/AR

PROFESSIONAL EXPERIENCE

Computer Aided Diagnosis (CAD) Research Lab & Luker Lab – University of Michigan   **Summer 2019 - Present**
- Developed software to segment cell nuclei in both 2D and 3D cancer cell images using a Deep CNN (U-net architecture)
- Using various computer vision and ML techniques to extract latent information from radiological images, inc. genealogy

Neurable Inc.   **Boston, MA**
Backend Software Development Intern   **Summer 2018**
- Built application for sending live brainwave (EEG) data across computers and integrating the data into the API, allowing Neurable to work on mobile devices such as Microsoft HoloLens and Android phones; built using Unity, C#, and TCP
- Designed tests to assess the generalized performance of machine learning algorithm using exhaustive cross-validation
- Optimized Neurable's architecture by allowing for parallelized training and testing of ML models

Life Sciences Institute, S. Xu Lab - University of Michigan   **Fall 2016 – Fall 2018**
Research Assistant on Improved Behavioral Analyzation Methodology using Machine Learning with Dr. Adam Iliff
- Designed Matlab program using transfer learning on a pre-trained deep neural net to track worms from video recordings and predict specific behavioral features; spoke about project at multiple conferences nationwide
- Analyzed current and potential approaches to automatic behavior interpretation using computer vision

Research Assistant on Novel Sensory Transduction in C. elegans with Dr. Adam Iliff
- Investigated possible sensory receptors responsible for the sensory transduction of baroreception in the model organism
- Conducted behavioral assays on candidate null mutants and analyzed differences in behavioral response data, providing the lab a refined understanding of the unknown sensory mechanism and involved genes

MCubed Research Fellowship - Dr. Mark Lindquist and Dr. Bruce Maxim   **Summer 2017**
- Designed study to evaluate how perceiving experiences with VR affected physiological state
- Built VR environments using Unity and C# for Oculus Rift to support the study

ACTIVITIES

Neuroprosthetics Club - Software Team Lead
- Construct executable plans to achieve the goals of the team each week, distributing tasks to 10+ other software members
- Implementing algorithm using SVM to classify user intent to control prosthetic device using electrophysiological data

MUSIC Matters - Community Service Organization
- Organize music festivals and other fundraising events that support service projects and local community scholarships

PROJECTS

- Computer Vision program for animal tracking
    - Utilized MATLAB Computer Vision toolbox
    - Used to track *C. eligans* nematode movement for neurobiology studies
- Unity Chat Server (*Find on github.com/jday54*)
    - Chat app allowing computers (incl. HoloLens) to send messages through a server-client TCP connection
    - Used Unity GUI, C#, .NET Core, and .NET Framework

ACHIEVMENTS

- 2nd place in international poster presentation competition at CeNeuro *C. elegans* Neuroscience Conference 2018
- Poster presentation at the regional Midwest *C. elegans* Meeting
- Ted Bates Memorial Community Service Award: For significant dedication to volunteer service