ALEX ZUZOW

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EDUCATION

University of California, Irvine **October 2018 – December 2021**
- B.S. in Computer Science specialization in AI/Machine learning with a Minor in Mathematics

COURSEWORK

- Deep Learning for medical images, Neural Networks and Deep Learning, Machine Learning and Data-Mining, Computational Photography and Vision, Intro to MYSQL

WORK EXPERIENCE

Machine Learning Research Internship (Nasa JPL) **October 2020 – January 2021**
- Upcoming, focused on comparing down-sampled versus up scaled satellite observations as basis for hurricane rapid intensification classification

Machine Learning Research Internship (Nasa JPL) **June 2020 – September 2020**
- Researched and implemented machine learning algorithms to predict hurricane rapid intensification.
- Wrote a research paper presented my findings to JPL's Radar Science group which has lead to further research
- Scraped and cleaned data from various online databases containing relevant hurricane information.
- Created a mySQL database containing information about all hurricanes and smaller storms from 1982 to 2019 for future research.

Machine Learning Research Assistant (UCI) **June 2019 – January 2020**
- Simulated cancer cell growth using the Gillespie algorithm to generate a statistically correct trajectory (a possible solution) of a stochastic equation in an efficient manner
- Applied machine learning algorithms such as logistic regression, random forest, and SVM in scikit-learn to detect cancer cell growth early in patients.

PROJECTS

Semantic Segmentation of Lesions **2020**
- Implemented a neural network following a 3-D U-Net architecture with a custom sparse cross-entropy loss function
- Implemented different strategies to combat class imbalance such as stratified sampling, pixel-level class weights, and pixel-level masked loss to create a high sensitivity detector

Multiplayer Capture The Flag App **2019**
- Created a cross-platform (Android, IOS, Desktop) multiplayer capture the flag app in Java using the LibGdx engine to simulate physics. It is cross-platform compatible by using the framework Robo-VM
- The server is hosted on Google's Compute Engine, and the server to client relationship is implemented using the framework Kryonet for efficient TCP and UDP client/server network communication

Search Engine **2019**
- Implemented a web crawler in Python that would only crawl our UCI domain pages. Pruned and ranked the documents using porter stemming lemmatization, TF-IDF ranking, and cosine similarity
- Saved relevant Doc ID's and URLs into a database using MongoDB and created a GUI for multi-word searches using pySimpleGUI

SKILLS

Languages Python, C++, C, Java, mySQL
Technologies pyTorch, Tensorflow, Detectron2, Scikit-learn, Matplotlib, Numpy, Android Studio, Linux, Excel, Pandas