Brianna Kozemzak

brianna-kozemzak kozemzak@stanford.edu kozemzak (651) 769-5835

Passionate researcher with strong problem-solving and critical thinking skills seeking full-time employment as a Software Engineer. Most interested in backend and systems opportunities located in the Bay Area or Minnesota beginning Fall 2019.

Education

Stanford University — *Palo Alto, CA*

Academic M.S. in Biomedical Informatics — *Sept. 2017 - June 2019*

GPA: 3.59/4.00

Saint Mary's College — *South Bend, IN*

B.S. in Computing and Applied Mathematics — *Aug. 2013 - May 2017*

GPA: 3.99/4.00

Coursework

- Design and Analysis of Algorithms
- Data Structures
- Computer Organization and Systems
- Web Applications
- Machine Learning
- Deep Learning

Projects

Nintendo 64 ROM Hack: Harvest Moon — *Palo Alto, CA*

Python, Flask, React — *Dec. 2018 - Present*

- Automated extraction of process ID for concurrently running emulation based on ROM name using the psutil library.
- Inspected ROM memory to identify locations of bytes encoding hidden game state values using system calls.
- Built a Flask server that responds to requests with JSON mappings of the raw game state bytes into human-readable values.
- Created a single page application that polls the backend to display the current values as the game is played using React.

Heap Allocator — *Palo Alto, CA*

C — *March 2018*

- Implemented an implicit heap allocator and an explicit heap allocator with custom malloc, realloc, and free functions.
- Augmented a test harness by adding methods for validating a heap structure after each call to the explicit or implicit allocator.

Photo Sharing Application — *Palo Alto, CA*

MongoDB, Express.js, AngularJS, Node.js, HTML, CSS — *May 2018 - June 2018*

- Developed a single page web application for sharing, commenting on, and favoriting photos.
- Adhered to a MVC architecture and included session management with the notion of a user being signed in.

Research

Segmentation of Prostate Lesions using Convolutional Neural Networks — *Palo Alto, CA*

Keras, Python, Jupyter — *April 2018 - Present*

- Built SegNet and U-Net with a VGG16 encoder pre-trained on ImageNet to achieve a test dice score of 0.58 in Keras.
- Incorporated dropout and data augmentation to reduce variance and utilized weighted cross-entropy loss to address class imbalance.
- Visually presented the results of the project using a Jupyter notebook built on the existing model pipeline.

Cluster Validation for Autism Subtypes — *Palo Alto, CA*

NumPy, Pandas, Python, Jupyter — *Sept. 2017 - Dec. 2017*

- Analyzed soft k-means clustering results generated using a Generalized Low Rank Model with logistic loss on autism phenotype data.
- Tracked the movement of individuals between clusters as the number of clusters changed to assess their biological meaningfulness.

Leadership & Awards

2017 **Graduate Research Fellowship**, National Science Foundation

2017 **Valedictorian**, Saint Mary's College

2016 **Elizabeth Lin Lo Award**, Mathematics and Computer Science Department, Saint Mary's College

2015 **PRISM Women Scholars Program**, National Science Foundation

2015 **Student Independent Study and Research (SISTAR) Grant**, Center for Academic Innovation, Saint Mary's College