# Brianna Kozemzak

*Seeking full-time employment as a Software Engineer.*

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## 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

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|---|---|
| Design and Analysis of Algorithms | *Stanford University* |
| Data Structures | *Saint Mary's College* |
| Computer Organization and Systems | *Stanford University* |
| Web Applications | *Stanford University* |
| Machine Learning | *Stanford University* |
| Deep Learning | *Stanford University* |

## 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.

## Projects

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

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

- Located and extracted hidden values describing game state from a ROM using system calls on a concurrently running process.
- Created a React dashboard that polls a Flask backend to display the current values as the game is played.

**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.

**Sequence Aligner** *South Bend, IN*

NumPy, Python *Aug. 2016 - Dec. 2016*

- Implemented dynamic programming algorithms Needleman-Wunsch and Smith-Waterman for sequence alignment.
- Delivered three public presentations on the mathematical foundations of pairwise and multiple sequence alignment algorithms.

## 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