# Darasy Reth

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## Summary

Computer systems engineering graduate student and experienced software developer with an understanding of general software development, algorithms, machine learning, and artificial intelligence. Experienced and skilled at working in a team, highly responsible and hard working. Interested in a software development position utilizing Python, C, Java, and R as well as applying data science and machine learning knowledge.

## Technical skills

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| Programming languages: | Python, Java, C, C++, R, Verilog |
| Operating systems: | Linux, Macintosh, Windows 7/8/10 |
| Web technologies: | JavaScript, HTML, CSS |
| Database: | MySQL, Spark |
| Cloud platform: | AWS |

## Education

**Northeastern University**, Boston, MA
Master of Science in Computer Systems Engineering - IoT                    Expected December 2020
Relevant courses: Data Science Engineering Method and Tools, Concepts of Object-Oriented Design

**State University of New York at Buffalo**, Buffalo, NY
Bachelor of Science in Computer Science                                                        December 2018
Bachelor of Arts in Mathematics
Relevant courses: Machine Learning, Artificial Intelligence, Algorithm Design and Analysis, Software Engineering, Data Structure, Operating Systems, Compilers, Linear Algebra, Applied Probability and Statistics Inference
- Dean's List.
- Tau Sigma National Honor Society.

## Experience

**Embedded Sensing and Computing Lab**, Buffalo, NY                    May 2018 – January 2019
**Undergraduate Research Assistant**
- Built a tool to extract human body key points from video surveillance using deep learning technology.
- Designed a deep learning model in Python to identify and to distinguish fall motion from other human activities with 95% of the positive fall detection rate.
- Evaluated and optimized the model to significantly increase the efficiency of fall detection to compute in real-time by reducing the system's complexity.
- Presented the Fall Detection project and the significance of human skeleton extraction method to the public during the Computer Science Education Week at the University at Buffalo.
- Utilized computer vision technology in Python to analyze human foot parameters including foot length, foot width, foot circumference, heel circumference, toe height, and foot back height.
- Designed algorithms to determine the foot shape of a person using Euclidean distance, circle, and ellipse circumference with at least 90% of the overall correct foot parameters' estimation.
- Visualized and evaluated human foots' computed data, and optimized the algorithms to reduce error rates.

**Experiential Learning Project, Curbell Medical**, Buffalo, NY                    August 2018 – December 2018
**Software Developer and Researcher**
- Designed machine learning models including K-Nearest Neighbors, Random Forest, and Convolutional Neural Networks to analyze unusual human's activities using Tensorflow and Scikit-Learn.
- Analyzed human motions' data, visualized and interpreted statistical data collected from the models and OPPORTUNITY dataset, and recommended an efficient system to Curbell Medical team.
- Led the software team in researching and developing the models to follow the project timeline.
- Collected patient's movements dataset using Arduino to feed to the models.