Yongheng Li

447 Plaza Drive, Apt 55, Vestal, NY 13850 ● 607-232-0369 ● yli241@binghamton.edu ● linkedin.com/in/yonghengli

Summary

I am pursuing dual bachelor degrees in Computer Science and Mathematics. I have gained over 1-year work experience via research and course assistantship. I am passionate about statistics/machine learning/deep learning and have been working on a few relevant projects apart from my curriculum. I am looking forward to working on challenging projects from June-2019 to utilize my skills as a full-time professional.

Education and Society

Binghamton University, State University of New York Expected **May 2019**

*Bachelor of Science in **Computer Science** & Bachelor of Arts in **Mathematics***

- GPA: 3.83/4.00 | Dean's List: 2015-Present | Upsilon Pi Epsilon Honor Society

Technical Skills

Languages	Python, C++, C, C#, JavaScript, PHP, Java, R, SQL, HTML, CSS, X-86 Assembly, LaTeX
Software	Jupyter Notebook, Tableau, MATLAB, AWS, Git, GDB, NodeJS, MongoDB, Express, React, MS Office
Data Analysis	Regression, Classification, Clustering, Decision Tree, Neural Network, Hypothesis Testing, A/B Testing
Python Packages	NumPy, Pandas, SciPy, scikit-learn, TensorFlow, Keras, MapReduce, Spark, seaborn, matplotlib, ggplot2
Operating Systems	Linux, Mac OS, Windows, Raspbian

Professional Experience

Undergraduate Research Assistant, Real-Time Embedded Systems Laboratory **May 2018-Present**

Binghamton University, Watson School of Engineering and Applied Science

- Formulated the device-to-device link establishment challenge in heterogeneous 5G networks into a Multi-Armed Bandit problem
- Explored various state-of-art, such as Epsilon-Greedy, Upper Confidence Bound, and Thompson Sampling, to find optimal routing paths
- Improved Thomson Sampling supported by Beta distribution with a selection technique to overcome the wireless channel randomness
- Enhanced the overall throughput by up to 15% compared to the best performing baseline in the dense and noisy environment
- Investigated and designed optimal routing paths for Unmanned Aerial Vehicles (drones) based on an improved Prim's algorithm. The proposed approach significantly reduces the computational complexity compared to the tested state-of-the-art approach.

Course Assistant, CS 105 - Introduction to Computing **Aug-Dec 2016**

Binghamton University, Watson School of Engineering and Applied Science

- Provided guidance in data analysis using Microsoft Access and Excel by holding two weekly laboratory sessions with 50 students
- Graded assignments based on given rubrics and provided students with comprehensive feedbacks to enhance their performance
- Collaborated with a team of four Course Assistants via weekly meeting and actively contributed new ideas on course improvement

Project Experience

Twitter Sentiment Analysis via Deep Learning **Aug 2018-Present**

- Invesitagted machine learning and deep learning techniques to perform sentiment classification on large Twitter user datasets
- Performed various feature engineering on unstructured textual data and explored word embedding techniques (Word2Vec and GloVe)
- Designed and implemented a robust CNN model consisted of 4 convolution layers and a RNN model with LSTM using Keras
- Archived a maximum classification accuracy by 83.33% using the proposed CNN model and by 83% using the RNN model

Stock Pair-trading via Machine Learning **May-Aug 2018**

- Designed an algorithm that navigates a high-dimensional search space to find tradeable stock pairs among 1500 stocks
- Implemented Principle Component Analysis to reduce the dimension of the stocks' data and extract the latent common factors
- Identified candidate stock pairs by applying DBSCAN clustering algorithm with k-distance plot to find its optimal epsilon value
- Visualized clusters in high dimensional space in 2-dimension using t-SNE and analyzed datasets using Matplotlib and Seaborn

Website for Information Retrieval **Jan-May 2018**

- Built a website with front-end and back-end functionalities using JavaScript which allows users to retrieve key-words via document search
- Implemented RESTful APIs to handler server-side routings using Express and leveraged MongoDB as the internal databse at the back-end
- Designed interactive user interfaces at the client-side using React and utilized Mustache template to dynamically render HTML pages

Publication

Robust Communication via Multi-Armed Bandit at Link and System Levels in Heterogeneous 5G Networks

Under review process of MDPI - Big Data and Cognitive Computing journal's special issue on Real-Time Data Services for the IoT

Leadership Experience

Technical Support and Publicity Chair **Sep 2015-Jan 2018**

Binghamton University, CSSA

- Led a team of 15 core members to publicize events and maintain the club's official website, Facebook, and WeChat official account
- Contributed to ideas and collaborated with 12 executive board members to expand the club's reach and diversify the club's activities

Social Volunteer **Feb-May 2016**

Rescue Mission, A Non-profit Organization

- Counseled over 20 local homeless individuals on weekly basis for their concerns and encouraged them towards the positive changes
- Held the career day workshop for the residents in the organization to educate them about MS Office, email etiquette and job portals