# Shen Huang

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## EDUCATION

**California State University, Northridge**, Northridge, California, USA       September 2017 - June 2019 (Expected)
MS in Computer Science
**Queens University**, Kingston, Ontario, Canada                                                                June 2015
BS in Electrical Engineering

## SKILLS

**Programming Languages:** Object-oriented design using **Java**, front end development with **HTML**, **JavaScript**, backend development with **Go** and **Node.js**. Web testing with **Selenium**. Statistical analysis using **Python/MATLAB/OCTAVE/Excel**, mobile game development with **Unity-C#**, microprocessor programming with **Arduino**, **C** and **Assembly**.
**Computer Science:** Data structures, algorithms, computer system architecture, object-oriented programming, operating system, signal processing, data analysis, artificial intelligence (both machine learning and game AI).
**Electrical Engineering:** Power converters, renewable energy, energy storage, electrical circuit, microprocessor architectures, computer hardware architectures, electromagnetics, sensors and actuators, control systems.

## WORK EXPERIENCE

**Graduate Assistant**                                                                        Starting September 2018
• Assisted the professor with research tasks including code production.
**Software Engineer Internship, CETC Motor**                              July 2013 - September 2015
• Worked on a compiler to support floating point calculation by modifying the lexical and syntax analyzer.
• Added English and Chinese support for help documents.
**Electrical Engineer Internship, State Grid Corporation of China**       July 2012 - September 2012
• Designed and Implemented a Java application to help managing error reports.
• Collaborated with six other engineers to validate the integrity of the communication system between the distribution station and the headquarters.

## PROJECTS

**Improved Classification Algorithms**
• Invented and applied a mathematical theorem to improve conventional classification models. The accuracy was improved from 72% to 100% for the target data set. The average case theoretical error reduction should be 300 times better.
• Implemented the data collection mini-game interface with HTML5 Canvas, backend in both Node.js and Golang. Data preprocessing and analysis was done in OCTAVE, EXCEL, Python, WEKA and Node.js.
• Participants were found by communicating with random people on Campus, without paying the candidate.
**BPANN in Unity**
https://github.com/shenhuang/Connect4/blob/master/Connect%204%20ANN/Assets/Engine.cs
• Wrote a customizable multi-layered perceptron in C#.
• Implemented back propagation to train the neural network, and a random number generation conversion from uniform to Gaussian distribution.
**Game Design**
• Built multiple games in Unity for mobile platform, utilizing touch screen inputs, accelerometers, gyroscope, cameras and VR developments.
• Built a grid-based underground mining lava run game with procedurally generated level and lava automaton, mobile friendly with many UI design improvements built on easily adjustable custom UI objects.
• Built multiple multiplayer games with HTML5 and Unity front end with C# .NET Framework, Node.js backend. Familiar with Unity LBS, DynamoDB and Buckets in both GCP and AWS. Some games are ongoing.
• Improved complexity of real time algorithms to $O(1)$, including information inside fog of war only available on the server side.
• Implemented AI algorithms such as min-max tree and state machines. Exposed to algorithms such as A* Search, Monte-Carlo search and Deep Q Learning.
**Queens ECE Annual Robot Competition, 1st Place**
• Designed a slam-dunk robot, code based on Arduino. Robot moves and grabs with servo motors utilizing Pulse Width Modulation. Robot senses the environment through touch sensor and distance sensors, and therefore was designed to have a close loop control system to adjust the speed for optimal performance.