YUHANG CHEN (TONY)

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Education

Bachelor of Engineer: **Computer Science** — Graduated in June 2021
Oregon State University — Corvallis, OR
Senior Standard
GPA: 3.94 Dean's List [2017-2021]

Skills

C, C++, C#, Python, scikit-learn, Java, JavaScript, jQuery, React, Assembly, Haskell, fast-learner

Research Experience

Baby behavior psychology analysis — Feb 2020 - July 2020

Alan. Fern (Professor and Associate Head of Research at Oregon State University) — Corvallis, OR

- Joined Dr. Fern's ML research group during school and worked with another PHD student.
- This project came from NYU psychology lab. This lab group wants to analyze the psychology behavior of babies and they recorded the video of babies within the toy room. They want to gain some useful ideas and help from ML perspective.
- According to the video, I helped the PHD student to make some visualization tools. We made a website to simulate the movements of baby and toys. I added multiple features including detect the interactions between babies and toys, log this history of baby and toy movements, etc.

Self-Aware Comedy Robots — Sep 2019 - June 2020

Naomi. Fitter (Assistant Professor at Oregon State University) — Corvallis, OR

- Joined Dr. Fitter's robot research group during school and did a senior capstone project with her for a year.
- Developed a software by using Praat library to **extract raw data** from the recorded audio of the comedy robot. The raw data information includes Mean, Max/Min, Standard deviation of Intensity and pitch.
- Created a Python software by using **scikit-learn** to train machine learning models and help the robot detect and classify if the audience laugh during or after the joke. The models include K-nearest-neighbor, Random Forest, Support vector machine and Ensemble model of all three previous models. My team improved "Post-Joke classification" accuracy from **53% to 85%**, and set "Mid-Joke classification" accuracy to **73%**.

Work History

Software Engineer Intern — Apr 2019 - Sep 2019

Electro Scientific Industries, High Tech Company — Portland, OR

- Made a C# software to process **100,000 plus** of data from machine and applied different algorithms to analysis data and help system engineers make decisions.
- Implemented algorithms including Peaks and valley detection, Polynomial best fit of the curve, Normal distribution best fit of the curve, Logistic regression (**Classify data into two groups**).
- Helped system engineers to draw graphs and do data analysis with different algorithms. As a result, they can select a threshold to separate good and bad capacitor chips (You can find more info at projects below)

Teaching Assistant — Sep 2017 – March 2020

Oregon State University - College of Engineering — Corvallis, OR

- Taught a 20 people's recitation, explained C++ knowledge including pointers and reference, OO programming and dynamic memory, shared the mindsets of CS problem-solving.
- Hold up to 6 hours of office hours that help students to understand class contents and debug, especially segmentation fault. Graded assignments and provided quality feedback.

Projects

- ***Multi-Algorithms – Data Processing and Analysis tool with different ML algorithms***
  1. Six months individual project at my 2019 summer internship at Electro Scientific Industries.
  2. C# software application that used the Facade design pattern, windows form, Dll, and **ML algorithms.**
  3. it's able to process **100,000 plus** of machine data and apply different algorithms to get analysis results
  4. **Peak and Valley detection** helped users to find a list of peaks and valleys, it would be marked in the graph too.
  5. **Polynomial fit** helped users to draw the best fit of the curve for the current dataset.
  6. **Normal distribution fit** helped users to draw the best fit of the normal distribution curve, users would get the value of mean and standard deviation.
  7. **Logistic Regression** helped users to find a threshold to separate two groups of data.
  8. The app is **expandable and flexible.** The Systems engineers used my software to do data analysis and find a threshold to separate good and bad capacitor chips. Overall, they improve the accuracy of machine from **70% to 90%**