Zhaoyu Zhang

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Education

MEng in Computer Science *Manchester, UK*
University of Manchester *Sep. 2018 - June. 2022*
- Relevant Modules: AI and Games, Computer Vision, Text Mining, The Internet of Things, Software Security, Data Engineering, Algorithms and Complexity, Databases, Logic and Modelling, Object-oriented Programming, Mobile System, and Cryptography.

A Levels *Wuhan, China*
International Division of Hubei Wuchang Experimental High School *Sep. 2015 - June. 2018*
- Overall: A*, A* in Further Mathematics, A* in Chemistry, A* in Mechanics, A* in Statistics, A in Physics, A in Core Mathematics.

Zhongkao (GCSE Equivalent) *Wuhan, China*
Wuhan Wuluolu Middle School *Sep. 2012 - June. 2015*
- Overall: 462/550, 108/120 in Math, 114/120 in English

Work Experience

Python Developer Intern *Wuhan, China*
iFLYTEK Co., Ltd. *Jul. 2021 - Sep. 2021*
- Conducted research on the development of digital economy industry and optical fiber interception.
- Using librosa, WebrtcVAD, Pytorch and UIS-RNN classification algorithms under Python, the speech extraction under the TIMIT corpus was completed, including basic speech noise reduction, framing, separation, classification, recognition, etc.
- The model built was applied by the company on their investment decision.
- Speech extraction accuracy: 98%, Speech recognition accuracy: 97% (Test set: Texas Instruments, MIT, SRI International TIMIT continuous speech corpus)

Assistant at Visa Service Center of the Ministry of Europe *Wuhan, China*
Hubei Provincial Foreign Affairs Office *Jun. 2019 - Sep. 2019*
- Coordinated more than 10 visitors from Babis-Bojay University for a week-long friendly exchange activity in Hubei Province
- Completed bilingual translation of 6 visa and immigration documents (30 pages in total) and reports in both Chinese and English
- Use Excel and PPT to participate in planning and organize the itinerary during their visit.
- List the optional information of 30+ attractions and projects, and select the best plan which was adopted by leaders

Projects

Personal Website 🔗Github 🔗MainPage *London, UK*
Developer *Oct. 2022 - Ongoing*
- Tech stack: React, Typescript, Javascript, Html5, Css3 , Github Pages and Sass
- Share my project achievements, daily lives, cooking photos and hobbies
- Using a React framework, deployed on Next.js by Vercel
- Currently under development, published on Github Pages, will eventually move to designated URL

Optimizing Minimal Counterexamples 🔗Github 🔗Presentation *Manchester, UK*
Developer *Mar. 2022 - May. 2022*
- Help users better understand bugs (Identify and locate errors) in java programs by reducing the numerical size of counterexamples generated by java BMC (Bounded Model Checker)
- The feasibility of reducing the counterexample value was verified by using two java BMCs, JPF (Java PathFinder) and JBMC (Java Bounded Model Checker)
- Configure and test various error types such as deadlock, race conditions, overflow, underflow in the gradle environment
- All benchmarks in SV-COMP were checked by employing JBMC

Question Classifier 🔗Github 🔗Paper

Developer

Manchester, UK
Feb. 2022 - Mar. 2022

- A question classifier written in Python, which accepts a question and output one of N predefined classes
- Used Bag of Words (Bow) model, Bidirectional LSTM and its ensemble networks to implement
- Test under random and pre-trained embeddings
- Reached at accuracy 0.852 and F1-score 0.697

Leader Follower 🔗Presentation

Developer

Manchester, UK
Mar. 2021 - May. 2021

- A program which plays repeated 2-person Stackelberg pricing games as the leader under imperfect information
- The leader chooses his strategy to play based on the provided set of historical data (a list of prices given by leaders and followers in the past) and update his knowledge by analysing the follower's pricing response
- Used all historical data approach, Modified Moving Window approach and Weighed Least Square with Forgetting Factor approach
- Largest profit reached 19.488 (3 d.p.) per trade against 3 different followers

Road Tracking in Aerial Images 🔗Paper

Developer

Manchester, UK
Sep. 2020 - Apr. 2021

- Without the use of GPS, by analyzing the satellite images returned by the drone, extracting location information surround it (match similar objects on the map to locate the camera) to establish the scope of the drone's activities
- Using Jupyter Notebook to implement OpenCV, Keras model and U-Net machine learning algorithm under Python to locate the drone
- Accuracy is around 100 meters for well-trained models

AI plays Mancala 🔗Github

Developer

Manchester, UK
Oct. 2020 - Dec. 2020

- Mancala (also known as Kalah) is a 2-person board game which is already proved to be a solved game with a first-player win if both players play perfect games
- Using Monte Carlo tree search and alpha-beta pruning to create an AI to play the perfect game under the pie rule
- The AI player successfully beat other 37 agents in a tournament of 51 teams

EventLite Website

Developer

Manchester, UK
Feb. 2020 - May. 2020

- Eventlite is a website for Event Management Application, designed and built by a team of 6
- Developed in Java, REST APIs and the Spring Framework
- Allow users to manage and edit upcoming events in terms of adding/removing attendees, changing location/time of the event, sending automatic emails to attendees when anything updates
- Connect with Google Map API to visulise the location of the event
- Code versioned and preserved via GitLab

Stendhal Local Enhancement

Developer

Manchester, UK
Nov. 2019 - May. 2020

- Added new cheating commands in the Stendhal game: teleportation, resurrection, invincibility, auto-following, auto-pathfinding
- Expanded maps on the basis of the original game: added two new accessible scenes
- Modified attributes of the original items: life recovery of food, attack power of weapons, defense power of clothing, etc.
- REST API/TDD and Web/SPRING frameworks in Java are used

BitTime Website

Developer

Manchester, UK
Jan. 2019 - Apr. 2019

- BitTime is a website for reminding people that their deadlines are approaching
- Simple sign up and log in functionality, allows users to add and set their works' titles and deadlines
- A google chrome add-on to push notifications if deadlines are about to reach
- Pure html, css, php, mysql and javascript are used

SkillSet

DevOps	Git, Code Review, Github Actions
ML	Pytorch, Numpy, Matplotlib, Jupyter Notebook, Pandas, TensorFlow(Keras), Scikit-learn.
Programming	Python, Java, HTML5, CSS3, Typescript, Javascript, Sass, React, LaTeX
Image	OpenCV, Convolution, Compression, Filtering, Transformation, Denoising
Language	Chinese (Native), English (Fluent)
Cloud	AWS, Microsoft Azure, Windows Active Directory, LAMP
Other	Markdown, Windows PowerShell, Ubuntu.