KAIHAN ZHU (PETER)

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EDUCATION

UNIVERSITY OF CALIFORNIA, SAN DIEGO (UCSD)   Expected Graduation: Jun 2021

Bachelor of Science in Computer Science   Major GPA: 3.958 / 4.0

Bachelor of Arts in Economics   Major GPA: 3.66 / 4.0

SKILLS

Languages: Swift, Python, Java, C++, C, Pascal, HTML, CSS, JavaScript, PHP, SQL, Assembly, R

Tools: Xcode, NumPy, SciPy, Tensorflow, Anaconda, Git, OpenCV, React Native, Flutter, Bash, Unix, Linux, GDB, Vim, Eclipse, MongoDB, MySQL, PostgreSQL, Spring Framework, Stata

WORK EXPERIENCES

SOFTWARE ARCHITECT AND LEAD SOFTWARE DEVELOPER, Startup to be Named   Since Sep 2020
- Organized a startup company with CS and Business students, with guidance from professors and experienced developers and project managers.
- We try to connect gaming tutors to gamers in order for gamers to improve their skills and performance. This will expand to general tutoring.
- Designed the software architecture which mainly includes **Spring** on **AWS**, **MongoDB**, **Flutter**, etc.
- Organized and distributed development tasks to software developers.

RESEARCH INTERN, Nanotools Bioscience   Since Mar 2020
- Researching methods to segment individual cells and their boundaries by using computer vision and deep learning methods.
- Researching methods to analyze cells' responses by processing videos of cells using computer vision and machine learning.

COMPUTER SCIENCE TUTOR, University of California, San Diego   Apr 2019 - Jun 2020
- Tutored computer science courses and assisted professors by holding office hours, grading homework, and creating exam questions.

JAVA ENGINEER INTERN, Shanghai Amarsoft Information Technology Corporation   Aug 2018 - Sep 2018
- Utilized **Java**, **Oracle**, and Tomcat to design, manage, and service a fully functional, dynamic, and expandable management system for controlling loans for Wanda Group's financial institution.
- In-depth design of databases, the user privilege managing, the cooperation between team members, the use of **Git** in real teams, etc.

WEB DEVELOPER @SHGREENPOOL.COM, Shanghai Greenpool Environmental Tech Co., Ltd.   Jun 2017 - Sep 2018
- Plan, build, and maintain the entire architecture of a dynamic website with **LAMP** model and **responsive UI design** from scratch.
- Fully **PHP** based with a **MySQL** database storing contents and a complete usable admin system for editing websites.
- Extensive practices of **PHP**, **HTML**, **CSS**, **JavaScript**, **SQL**. Real-life experience with **MySQL** and servers.

PROJECTS AND COMPETITIONS

STUDENT AND STUDENT HOUSING @SSH.ZHUKAIHAN.COM, La Jolla, CA   Mar 2019 - Jun 2019
- Built an application to allow UCSD students to find houses for rent easily without exposing personal information.
- Research technologies and developed a majority of this **React Native** application as a software architect.
- The application communicates with **Firebase asynchronously** and authenticate users with Google accounts. UCSD students can post houses online for others to rent, as well as their profiles for finding roommates.

OBSTACLE DETECTION (DESIGN COMPETITION) @OD.ZHUKAIHAN.COM, La Jolla, CA   Feb 2019 - Jun 2019
- Used technologies to help detect obstacles that may cause patients with Parkinson's disease to fall.
- **Co-lead** the team to partition workloads, manage collaboration strategy, advise appropriate technologies.
- Programmed data collection software that combines disparity map from dual-camera system with RGB image. Trained a single shot detector with **Tensorflow** to detect potholes, unlevel concretes, stairs, edge of the sidewalk, etc. Deployed the trained model onto an **iOS** application through **Tensorflow Lite**.

STOCK PREDICTION, Shanghai, China   Jul 2017 - Aug 2017
- Predict a stock's trend using historical data with deep learning with **Tensorflow**, using LSTM RNN combined with CNN.
- Studied CS231n from Stanford University. Implemented most-used layer with **NumPy** using **Python**.
- Realtime data sourced from AlphaVantage. Understood deep learning, backpropagation, the use and ideology of different layers, and the methodology of different famous networks on a mathematical level.

CRC (CHINA ROBOTICS CHALLENGE, POST SEASON FRC), Shanghai, China   Jun 2016 – Aug 2016
- Developed an algorithm to detect a targeting shape with the robot's controller, **RoboRio**, and a vision controller, **NVIDIA Jetson TK1**.
- Responsible for robot's software and its vision. Utilized **serial and TCP/IP** communication, **OpenCV** to complete the task of detecting a targeting shape with a camera and communicating such information to robot's controller. Researched various noise reduction techniques, edge detecting algorithms, and shape descriptors to detect the targeting shape.

RECT()(WEB AND IOS), Stanford, CA   Jun 2015 - Jan 2016
- A group project during a summer at Stanford, web version for practicing fast prototyping and converted to iOS for fun. Experienced with **software development cycle**, from design to testing.
- Lead the design and programming of Rect() with MelonJS. I later converted this web game to a stable iOS game and achieve a fully **object-oriented design** with SpriteKit. Used Tiles to create XML file for game levels.