TIANYU LU

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EDUCATION

Northeastern University, San Jose, CA *Jan 2021 - Dec 2022*
Master of Computer Science *GPA:3.5*

Cleveland State University, Cleveland, OH *Jan 2015 - Dec 2019*
Bachelor of Computer Science *GPA:3.5*

WORK EXPERIENCE

SPEDE Technologies, Cleveland, OH *Dec 2019 – Dec 2020*
Software Developer
Packing Control Application

- Optimized the application to monitor and count number of objects in the loading dock automatically in real-time.
- Added a motion trigger function that automate the application to scan the package in dock and inform the operator using **C#** with **OpenCV** on **Microsoft Visual Studio**.
- Implemented an **ASP.NET** function to send fulfilled package data on **Microsoft SQL Server** for tracking purpose.
- Increased the whole package process efficiency by **30%** and the package integrity rate by **20%**.

Parts Validation Application

- Developed an OCR project using **Tesseract OCR** with **Python** to recognize automobile parts serial number.
- Reduced the cost of existing system by 300% by using self-developed object detection and recognition system.
- Improve the TesseractOCR accuracy by **20%** by training with customized datasets with **LSTM neural network**
- Tuned the USB camera using **OpenCV** to adapt different factory environment. Set up the camera parameter in the corresponding situation to eliminate the **90%** of the lighting and vibration noise.

Steel Coil Locator

- Developed an inventory check application to work with BLE beacons to track warehouse inventory flow.
- Implement a bluetooth receiver system on **WPF** using C# with **Arduino** to track surrounding **BLE** beacon signals
- Achieved automate location tracking and traceability to increase the workflow efficiency and accuracy by **50 %**.

Cleveland University State, Cleveland, OH *May 2018 – May 2019*
Research Assistant
Hardware Security Experiments

- Designed 12 experiments on **embedded system** vulnerabilities using **FPGA** board using **Quartus** and **VHDL**.
- Developed a the cost efficient way to detect and prevent different potential Hardware Trojan injection vulnerabilities by using a combination of **side channel analysis**, **hardware obfuscation**, and **AES encryption**.

PROJECTS

B2C E-commerce Platform │ *Vue, ElementUI SpringBoot, SpringCloud, MybatisPlus, Mysql, Redis, ElasticSearch*

- Developed an E-commerce website including both Consumer(Search, Filter, Ordering, Payment - 3rd party) and Merchant Platforms (Storefront, Inventory Management, Integration with 3rd-party parcel tracking services) based on **SpringCloud SpringBoot**, and **MyBatis Plus**
- Built a full set of front-end management system, based on the **Docker** environment, using **Vue** and **Element-UI**
- Used a set of microservices for registration center, product search, traffic protection system, distributed transaction.
- Boosted search speed by 30% through leveraging cached filters and asynchronous thread pool by **ElasticSearch7**

TECHNICAL SKILLS

Programming: Python, Java, JavaScript, C, C++, C#, Golang, SQL, HTML, VHDL, R
Framework: Django, Spring Boot, Vue, Angular, React.js, Node.js, Pytorch, Tensorflow, Hadoop, Docker
Software & Tools: Git, AWS, Redis Cluster, MongoDB, MySQL, Linux, HTTP, Dropout, Jupyter, Colab