Boyu CHEN

+1 (858)-999-7192 | boyuchen29@outlook.com | LinkedIn | Github

Education

University of California, San Diego San Diego, CA, U.S.
M.Sc in Electrical and Computer Engineering *Sept. 2021 - Mar. 2023*
- Selected Courses: Data Structure, Distributed Systems, Computer Architecture, Computer Vision

Zhejiang University Hangzhou, Zhejiang, China
B.Eng in Electrical Engineering *Sept. 2016 - June 2020*
- Honors & Awards: Honorary Title of Excellent Graduation Project (2020), Inventronics College-set Scholarship (2019), Excellent Social Work Scholarship (Twice, 2017 2019), Outstanding Student Leader Awards (2017), etc.

Skills

Programming Languages: C/C++(proficient), Java, Python, Golang, HTML/CSS, JavaScript, SQL, Matlab
Framework & Tools: Docker, Bootstrap, Spring Boot, React, Vue, Node.js, Git, Ajax, Flask, Express, RESTful, socket, MongoDB, Django, MySQL

Experience

Hot Spot Grid Reliability Solution | Neudesic LLC, an IBM Company Phoenix, AZ, U.S.
Consultant Intern, Digital Innovation Group *Jan. 2023 - Mar. 2023*
- Performed outlier detection using **Mahalanobis Distance** with $\chi^2_{0.975}$ to identify/extract poor reliability devices;
- Modeled power grid as **network graph**(meters as nodes); generated pairwise distance matrix between each node; optimized the computation using **Spark SQL** and numpy broadcast from **10 hours** to **seconds**
- Performed **DBSCAN** on distance matrix to find **hotspot clusters**; visualized them on interactive map
- Expected to accelerate problem identification by **50%** and increase power reliability by **30%**

Speech Recognition in TWS Earphone | iFLYTEK Co., Ltd. Hangzhou, Zhejiang, China
Software & Machine Learning Intern, iFLYBUDS Consumer Business Group *July 2020 - Dec. 2020*
- Collected **100k+** individual words from voice conversion engine and performed data cleaning; reorganized them into complete sentences according to natural language semantics; deployed the project via **python-flask**
- Analyzed conversation contents; built **logistic regression** model to identify unstable network(**90% accuracy**)
- Implemented **TextRank** algorithm to the meeting recording text by calculating cosine similarity; extract top 2 sentences as text summary, improving the efficiency of noting and reading meeting minutes by 50%

Summer Research Program | Purdue University West Lafayette, IN, U.S.
Research Assistant, Advisor: Meng Cui *July 2019 - Sept. 2019*
- **Deep Fog Imaging:** Built a spatiotemporally-gated detection system to filter out deep fog(scattering background and shot noise); yielded high resolution and contrast image in Matlab; published the results on ***Optics Express***
- **Real-time Image Stabilization:** Generated triangle signals in vertical directions to control laser scanning speed; collected time-series data gravity core as feedback for real-time image motion tracking and correction(200Hz)

Selected Projects

Human Pose Estimation for Squat Counting in Python *May 2022 - June 2022*
- Built human body model via **BlazePose**, extracted 33 key points to represent body skeleton and depict body pose
- Calculated distance between selected pose joints, applied **k-NN** to generate classifier for "up" and "down" position
- Visualized sigmoid curves and counters for squat detection on video streams; supporting fitness app development

HIV-TRACE Graph Representation in C++ *Apr. 2022 - May 2022*
- Pre-processed **100,000** pieces of HIV sequence data via ifstream, modeled it abstractly as undirected graph
- Implemented **Dijkstra's Algorithm** to find the shortest path and connected threshold given two patients
- Yielded transmission clusters to better understand HIV transmission and inform prevention efforts.

SurfStore Cloud Storage Service based on Dropbox *Mar. 2022 - Apr. 2022*
- Initiated interfaces for file saving and indexing in server and **gRPC** clients, allowing multiple **concurrency**
- Synchronized files of newer versions from cloud to local client; updated new/modified local files to the server
- Handled sync conflicts following "whoever syncs first wins"; deleted files marked with "tombstone"(0 hash value)

TritonHTTP(HTTP/1.1) Network Protocol Implementation in Golang *Jan. 2022 - Feb. 2022*
- Built **peer-to-peer** connection; formalized & validated http requests; acquired files and wrote responses in **bufio**
- Enabled end-to-end data transmission via **TCP**; processed **pipelined** requests; closed connection when required
- Validated good/bad http requests; generated statuscode and response headers accordingly; sent requested contents