Tianyuan(Alex) Du | Résumé

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Education

Bachelor of Science, Computer Science and Statistics (Double Majors)
University of Michigan, Ann Arbor *2022/01 – 2024/05(expected)*
GPA: 3.80/4.00
Courses: Autonomous Robotics, Computer Vision, Data Mining, Human-Centric ML, Computer Organization, Computer Security, Database System, Combinatorics, Theoretical Statistics. **Capstone**: Predicting Song Popularity using Affective Programming.

Computer Engineering and Business Management (Dual Degree Program)
Hong Kong University of Science and Technology (HKUST) *2020/09 – 2021/12*
Courses: Random Process, Signals and Systems, Multivariable Calculus, Matrix Algebra, Case Analysis

Experiences

Interactive Sensing & Computing Lab, University of Michigan, Ann Arbor, US
Research Assistant *2022/05 – present*
Under guidance of Professor Alanson Sample and graduate student Yang-Hsi Su, worked on a novel system for indoor sensing with Bl6uetooth Low Energy antenna array. Conceptualized and implemented a custom two-dimensional Angle of Arrival measurement algorithm that improved prior work. Proposed and implemented a depth estimation pipeline based on machine learning, creating a 3-dimentional localization pipeline. Designed experiments to evaluate its performances. Submitted the work to IEEE WCNC 2024 as **first author**. [Intro]

Hong Kong University of Science and Technology, Hong Kong S.A.R.
Undergraduate Research Opportunity (UROP) *2021/09 – 2022/02*
Under guidance of Professor Kevin Chau from HKUST, worked on a paper for real time improvement of speech intelligibility. Constructed experiment and evaluation pipeline for the novel algorithm on a comprehensive dataset. Co-authored paper can be found here. [Paper]

Applied Science & Technology Research Institute, Hong Kong S.A.R.
Engineer Intern *2021/06 – 2021/08*
Worked in Communication Division of Network Software Group, focusing on automated-driving vehicles. Developed a system that could assist vehicles to park automatically. Developed an end-to-end automatic camera calibration pipeline with a senior engineer. Highly recognized by the group management team, and the work was presented to the Hong Kong Government.

Projects

Context-Aware Deep Emotion Recognition with Physiological Signals: Transformer-based model for emotion recognition. Demonstrated capability of higher classification intricay with accuracy comparable to prior works. In submission for PerCom 2024.

Reconstruct 3D Human Pose with NeRF: Tuned NeRF model for three dimensional human pose reconstruction. Collected custom dataset for training and testing.

Robot Simulation: Simulated robotic arm supporting Forward Kinetics/Inverse Kinetics/Motion Planning with RRT. [Demo]

Thread Library for Operating System: Thread library that supports creating/swapping/joining/interruption of threads by lock/mutex/signal. Includes scheduling algorithm and error handling for bad style/thread functions misuse/resource exhaustion.

Awards

2022-2023: University Honors (two times). Awarded by University of Michigan, Ann Arbor for academic excellence.

2021: Dean's List. Awarded by HKUST for academic excellence.

2021: Scholarship Scheme for Continuing Undergraduate Student. Awarded by HKUST for recognition and honor of outstanding academic performance (top 10% of all continuing undergraduates).

Skillset

Programming Languages: C++, C, MATLAB, Python, Java, Javascript, R, SQL

Technical Expertise: Wireless Systems, Maching Learning, Computer Vision, Signal Processing, Robotics & Control, Database Developement

Languages: Chinese(Native), English(Fluent)

Extracurriculars

Triathlon: Member of Michigan Triathlon Club. Finisher of 2023 USAT Michigan State Championships, 2023 USA Collegiate National Championships.