## Zhaorun Lin, Kevin

+852 62045198 Hong Kong SAR MPhil student in CS 🔽 lzr5198@gmail.com 🕗 linzhaorun.com github.com/lzr5198 in /in/lzrun/ SUMMARY SKILLS I'm a year 2 MPhil student at the Hong Kong Univer-Programming Languages: C++, Python, Rust, Solidity, sity of Science and Technology (HKUST) major in Com-JavaScript, HTML. puter Science with my research interests in Algorithms, Technologies: Ethereum · Blockchain · Smart Contract · Cryp-Blockchain, and their intersections. I am a member of the tosystems · zkSNARK · Consensus Algorithms · Game Theory ALPACAS Research Group which focuses its research on · Algorithms · Data Structures · AI · Machine Learning Theoretical Computer Science. In my undergraduate study, I major in Computer Engineering which exposed me to a lot Languages: English - IELTS 7.5, Mandarin, Cantonese - native of different fields such as AI, software engineering, etc. EDUCATION 09/2023 -MPhil in Computer Science HKUST Present Research interests: Blockchain, Ethereum, Smart Contract, Cryptography, Algorithm

09/2019 -**BEng in Computer Engineering** HKUST 07/2023 Minor in Big data Technology PUBLICATIONS (Authors ordered alphabetically) 2025 Fast and Gas-efficient Private Sealed-bid Auctions PODC J. Ballweg, A. K. Goharshady, Z. Lin **Improved Gas Optimization of Smart Contracts** 2025 **FSEN** T. Barakbayeva, S. Farokhnia, A. K. Goharshady, P. Li, Z. Lin Blind Vote: Economical and Secret Blockchain-based Voting 2024 IEEE Blockchain A.K. Goharshady, Z. Lin **INTERNSHIPS** 07/2023 -**Research Assistant** HKUST 09/2023 Worked on a vacancy detection system for smart carpark, including optimizing code and setting up environments for edge devices such as OrangePi Mini computer and Jetson Orin NX board. Integrated an elderly fall detection system in a web application for displaying extracted human gesture in real time and alert in case a fall is detected. Edge AI / CUDA / cv2 / Yolov8 / Django 07/2022 -AI & Data Engineering Intern Baronford & Associates 09/2022 o Developed a MERN (MongoDB, Express, React Node.js) stack app that supports basic CRUD applications for recording information. Performed exploratory data analysis on patient datasets to draw meaningful insights and built a random forest regression model on predicting patient vitals, then optimized model using automated hyperparameter tuning by GridSearchCV. Data augmentation of the patient dataset using SMOTE, RandomOversampler and GaussianCopula from SDV. The synthesized data has a high similarity of >95% in distribution and <0.5 of bivariate correlation difference. MERN Stack / EDA / Random Forest Regression / Data Augmentation 12/2021 -Junior Developer Radiance Tech International Ltd. 02/2022 Designed and implemented the company's webpage using HTML, JavaScript, and CSS. Continuously improved the prototype interface and optimized user experience through trial and error and user feedback. Worked in a team to build and fine-tune a Cantonese voice recognition system using DeepSpeech and CommonVoice corpus. HTML / JavaScript / CSS PROJECTS

## 01/2025 -**Optimizing Coin Selection Strategies in UTXO-based blockchains** present Trying to map the coin selection problem in multi-assets UTXO-based blockchains (multi-objective Knapsack problem) to graph problems and develop tree-based parameterized algorithms.

09/2024 - 02/2025	<b>Ethereum Smart Contract Gas Optimization</b> Improved the state-of-the-art Syrup2.0 gas optimization tool by using it as a black box and combined with a dynamic programming approach. Our method further doubled the savings produced by Syrup2.0, and reduced the gas usage of real-world smart contracts by 11.23%.
09/2023 - 01/2024	Blockchain-based E-voting system using Blind Signatures <u>Github</u> Designed and implemented a voting system on blockchain (Ethereum) by utilizing the technique of blind signature. The protocol achieves untraceable anonymity and other properties such as verifiability, trans- parency, completeness, etc., while being at least 40% more efficient than other existing e-voting systems in terms of gas cost.
02/2023 - 05/2023	<b>3-party Random Number Generation on Ethereum</b>
08/2022 - 05/2023	Real-time Vacancy Detection System Using Fisheye CamerasGithubBuilt a vacancy detection system for smart carparks using fisheye cameras and computer vision technologies by leveraging the state-of-the-art yolov5 model and training a convolutional neural network.The system achieves an 92.8% accuracy in identifying vacant parking slot and won the Best FYP award.
02/2022 - 05/2022	<b>Stock Price Predictor</b> <u>Github</u> Built a price predictor of the stock Apple Computer, Inc(APPL) by training a Long Short Term Memory (LSTM) Network using historic stock price from Yahoo Finance 2022. The next-hour trend of the stock can be displayed on the webpage for user interaction with the use of AWS.
TEACHING ASSISTANTSHIPS	
09/2024 - 12/2024	Honors Discrete Mathematical Tools for Computer Science
02/2024 - 06/2024	Computer Organization HKUST
AWARDS	
06/2023	Professor Samuel Chanson Best FYP Award
06/2023	Industry Sponsored Best FYP Award

11/2019Dean of Engineering Scholarship