

# TANG Tianhao

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## EDUCATION

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### Hong Kong University of Science and Technology

Kowloon, Hong Kong

*Bachelor of Sciences in Computer Science and Mathematics*

*Sept. 2018 – Present*

- Current CGA: 3.997 / 4.3
- Coursework focus: Programming Languages, Deep Learning, Computer Vision, Data Mining, Algorithms

## RESEARCH EXPERIENCE

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### Final Year Project

Sept. 2021 – Present

*Supervised by Prof. CHEN Qifeng, CSE, HKUST*

### Optimize Algorithms for Integer Programming Problems with Graph Neural Networks

- Currently working on developing an efficient (polynomial time) deep-learning-based greedy heuristic framework to solve integer linear programming.

### Individual Study

Sept. 2021 – Present

*Supervised by Prof. CHAN Shueng-Han Gary, CSE, HKUST*

### Image to Markup Project

- Currently working on constructing models that can decompose handwritten or complex mathematical formula images to interpretable sequences in better formats and accuracy.

### Undergraduate Research Opportunity Program

May 2019 – July 2019

*Supervised by Prof. CHAN Shueng-Han Gary, CSE, HKUST*

### Recognize Dyslexia Using Handwriting from Patients

*June 2020 – Aug. 2021*

- Constructed deep-learning models to distinguish different symptoms on handwriting data from dyslexia patients.
- Proposed and developed ideas to improve distinguishing tasks through handwriting using the methods of chirality prediction and radical decomposition. Constructed models including transformer, encoder-decoder to achieve the idea and fine-tuned the hyper-parameters and ameliorated the structures for better performance.

### Spam User Detection

*Sept. 2020 – Dec. 2020*

- Trained and fine-tuned a Graph Neural Network (GNN) to deal with data of users and comments in a large-scale graph form. Proposed different sampling methods and training strategies to deal with large scale.
- Trained SVM, Random Forest, and other models for performance comparison and evaluation with GNN.

### Indoor Localization Program

*July 2019 – Dec. 2019*

- Maintained the localization system and test different algorithms on localization tasks.

### Course Project of COMP4471: AI in Computer Vision

Sept. 2020 – Dec. 2020

*Supervised by Prof. CHEN Qifeng, CSE, HKUST*

- Built a deep learning model that can identify digit-alphabet-mixed CAPTCHAs of variable lengths and sizes in a fast and accurate manner.

## WORKING EXPERIENCE

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### Part-time Research Assistant

Sept. 2021 – Present

*HKUST CSE Department, in the group supervised by Prof. CHEN Lei*

- Currently working on building Bayesian-based models like Tree-Structured Parzen Estimator (TPE) for blackbox hyper-parameter optimization problems.

### Student Helper

Jan. 2021 – Feb. 2021

*HKUST CSE Department, in the group supervised by Prof. CHEN Qifeng*

### Facial Recognition System for Campus

- Collected data used for training facial recognition models.
- Experimented and evaluated models to find the best model for classification tasks.

## AWARDS

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### University's Scholarship Scheme for Continuing Undergraduate Students

*1st tier, in 2018 and 2019 academic years*

### Dean's List of School of Engineering

*in academic semesters Fall 2018 to Spring 2021*