# Tianliang Xu

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Actively Seeking 2022 Summer Internship

## EDUCATION

***M.S. in Data Science*, University of Michigan – Ann Arbor, MI, USA** Sep 2021 – Apr 2023 (Expected)

- GPA: 4.0/4.0
- Highlighted Coursework: Java Programming, Python Programming, C++ Programming, Data Structure, Algorithms, Database Systems, Software Engineering, Fundamentals of Machine Learning

***B.S. in Computational & Applied Math*, The Chinese University of Hong Kong, CHINA** Sep 2017 – Apr 2021

- GPA: 3.6/4.0 (Top 15% in Math Department), 2020-2021 Dean's List (Top 10% in Science Faculty)

## TECHNICAL SKILLS

- **Languages**: C++, Java, Python, SQL, Matlab, HTML, R, JavaScript, CSS
- **Frameworks**: Django, Mysql, SQL*plus, Pytorch, Pandas, Numpy, Scikit-learn, Flask, PySpark
- **Tools**: Git, Eclipse, Pycharm, AWS, Docker, Navicat, VSCode, Jupyter Notebook
- **Methods**: Web crawling, Machine learning, Data mining, Probability, Mathematical modeling, Stochastic process, Optimization, Network, Regression analysis, Software engineering

## WORK EXPERIENCE

**Machine Learning Research Assistant, CUHK, Hong Kong** Jul 2020 - Jan 2021

- Implemented Image processing method SRCNN and VSNR with Pytorch.
- Explored and implemented SRCNN model on text pictures de-mosaicing tasks; Analyzed and discussed the advantages and disadvantages of Convolutional Neural Network (CNN) method and the traditional look-up-table methods.
- Proposed a combined method to improve restoration performance by 12% compared to traditional method.

**Data Science Research Assistant, CUHK, Hong Kong** Sep 2020 - Mar 2021

- Researched the quantitative relationship between the influence of internet celebrities and their income; built predictive data model to forecast influence.
- Collected and analyzed more than 10,000 data points reflected the influence and income, utilized Python, Microsoft Excel to visualize the data and obtained the regression with R-square 0.95 by Gradient Descent.
- Built ARIMA model to predict the influence movement with Matlab; the R-square of the outcome was 0.7.

## PROJECT

**Web App: StarsNet (Python, Mysql, Networks, Web Crawling)** Nov 2021 – Dec 2021

- Developed a web-based app to simplify the movies information search with Flask in Python.
- Retrieved and transform the information of filmography and movie stars based on the input key words; web-crawling is implemented for the detail information of ratings of filmography.
- Co-acting graphs of two movie stars based on the key words input are generated in real time by the algorithm and displayed at frontend.

**Recommendation System with Network Metrics (Network, SVD, Collaborative Filtering)** Oct 2021 - Dec 2021

- Proposed and implemented a collaborative filtering recommendation system with network metrics to solve the problems of high computational cost and high difficulty in updating of SVD method.
- Reach 0.8 RMSE accuracy on the Netflix Prize Dataset.

**Yelp Review Generator (NLP , RNN, LSTM)** Jan 2022 – Present

- Develop a deep learning algorithm to simply the review automatically generates reviews for restaurants based on keywords and ratings provided.
- Transformer, Longformer and LSTM are implemented with Pytorch.