

# CURRICULUM VITAE

Applicant: Python Song | Program: MS in Industrial & Operations Engineering

## INTRODUCTION

I come from IEOR department at Columbia University. I am not afraid of difficulties, dare to challenge, have a firm goal, continuously improve in technology, and explore the unknown in the universe, which is the adventurous theme of my life. I have a great interest in hardcore technology, especially in achieving general-purpose artificial intelligence, life sciences, etc.

## EDUCATION

### Columbia University

Sep. 2024 – Dec. 2025

*Master of Operations Research (AI and Machine Learning Track)*

*New York City, USA*

- **Courses:** Optimization Models, Probability and Statistics, Algorithm Trading, Robot Learning, Applications Programming for Financial Engineering, Corporate Finance, Simulation

### University of Sydney

Feb. 2020 – Dec. 2023

*Bachelor of Advanced Computing (Majors: Computational Data Science / Financial Mathematics)*

*Sydney, Australia*

- **Highest Honor** Graduate Student with **First-Class Honour**
- **Average Score** in all Mathematics courses was 90+, with the highest score of 97.
- **Courses:** Natural Language Processing (Graduate-Level), Machine Learning (Graduate-Level), Introduction to Computer Systems, Computer Science Research Methods, Object-Oriented Programming, Data Structures and Algorithms, Probability and Estimation Theory, Stochastic Process

## PUBLICATIONS

**NTIRE 2024 Dense and Non-Homogeneous Dehazing Challenge Report**(2024). *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) workshop.* (Cited by **18** times)

**Rethinking the Knowledge Distillation From the Perspective of Model Calibration.** (Arxiv). (Cited by **3** times)

## BOOK

### Learn Android Development from Scratch (Chinese Edition)

Song, J. **Author's Alias: Song, Taixu.** (2021). Mechanical Industry Press.

I am the author of this best-selling book, published by the top publishing house in China. This book ranked **9th globally** on the *Programmers' Frequently-Read Books List* on the renowned e-commerce platform JD.COM. The publication of this book aims to lower the threshold for developers to learn computer science while striving to advance human technological progress and create value for human society.

## PROFESSIONAL EXPERIENCE

### JD.com

#### Machine Learning Algorithm Intern

Dec. 2021 – June 2022

*Department of JD Technology*

*Beijing, China*

- **Competitive Selection:** Selected from a highly competitive pool with a **1/200** admission rate, tasked with leading key projects in risk control and enhancing JD's core recommendation algorithm.
- **Research Direction:** Played a pivotal role in boosting product purchase and loan repayment rates, focusing on the interpretability of neural network models and domain adaptation.
- **Innovative Contribution:** Pioneered a novel multi-objective algorithm, augmenting the KS score of our user profile prediction algorithm by 12.03 points, contributing to a minimum US \$3 million increase in JD.com's annual profits.

### KBRZ

#### Data Engineering Intern

Dec. 2020 – June 2021

*Department of Technology and Data*

*Sydney, Australia*

- **Data Pipeline Development:** Established and optimized the data processing pipeline, integrating Kafka and Spark Streaming for real-time processing of large volumes of transaction data.
- **Advanced Data Processing:** Performed data cleaning, normalization, and feature extraction processes. Incorporated machine learning models into the data stream for anomaly detection and risk assessment.
- **System Optimization:** Improved system performance for high-concurrency data streams, ensuring efficient stored and queried processed results in HBase, significantly boosting real-time analysis capabilities and risk identification accuracy and efficiency.

- **Entrepreneurial Leadership:** Established the company with a mission to revolutionize the industry, leading to the development and growth of innovative technological solutions.
- **Product Innovation:** Pioneered an AI-based hair-styling system, enhancing customer experience by enabling hairstyle previews before cutting, and successfully developed and delivered multiple client-focused web solutions.

## RESEARCH EXPERIENCE

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University of Sydney

Research Assistant

Jan. 2023 – Nov. 2023

Research at the *Sydney Artificial Intelligence Center*

Sydney, Australia

Supervised by **Dr. Chang Xu**(<http://changxu.xyz/>)

- **Groundbreaking Achievement:** Introduced an LLM-Based AI Agent into Neural Architecture Search (NAS) for the first time in the world, setting a new precedent in neural network design.
- **Novel Methodology:** Developed a novel approach utilizing the enhanced Chain-Of-Thought(COT) by embedding memory and reasoning modules into AI Agent-based neural network searches, improving upon existing techniques.
- **Conference Submission Goal:** Achieved state-of-the-art performance in the ImageNet16-200 benchmark dataset, aiming to submit these significant research findings to the prestigious CVPR conference.

## PROJECT

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Computer Software Copyright Registration Certificate

Centimeter-level Vital Sign Detection Software Based on Three-axis Accelerator No.3465068

## SKILLS & HONORS

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Honors:

Top%2: CCF Big Data and Computing Intelligence Contest

2021

First – Price(Top%0.01): National High School Physics Olympiad

2018

Skills and Hobby:

Python, Flask, Java, C++, Android Development, React.js, Machine Learning, Leadership, Communication, Raise Funds, Self-Researcher in AI without any Supervisor, Assemble powerful PC to code and to play Poker Magic