Curriculum Vitae

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

INTRODUCTION

I am a Geek, come from the 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.
GitHub: https://github.com/geeksongs with **130+** Stars
CSDN: https://blog.csdn.net/Geeksongs with **8000+** Fans(The Biggist IT Blog community in Asian) .

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: Computer Science / Financial Mathematics) *Sydney, Australia*

- **Highest** Honor Graduate Student with **First-Class Honour**(Top 1%)
- **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

VRMDiff: Text-Guided Video Referring Matting Generation of Diffusion(2025). *Our model is the first in the world to enable video matting using only a single text prompt, allowing precise object segmentation from a short textual description. Submitted to* ***(ICCV)****.*
NTIRE 2024 Dense and Non-Homogeneous Dehazing Challenge Report(2024). *Workshop In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* ***(CVPR)****.* (Cited by **21** times)
Rethinking the Knowledge Distillation From the Perspective of Model Calibration(2021). (Cited by **3** times)

POPULAR BOOK PUBLICATION

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. This book ranked **9th globally** on the *Programmers' Frequently-Read Books List* on the e-commerce platform JD.COM. My 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*

- I was selected from an exceptionally competitive pool **(1/200 acceptance rate)** for this internship, and I took on a leading role in key projects at JD.com, driving advancements in risk control and significantly enhancing the core recommendation algorithm. My work focused on increasing product purchase and loan repayment rates by improving the interpretability of neural network models and optimizing domain adaptation. Passionate about innovation, I developed a novel **multi-objective algorithm** that boosted the KS score of our user profile prediction model by 12.03 points, directly contributing to a minimum of 3 million in additional annual profits for JD.com.

TikTok **Recommendation Algorithm Intern** **Dec. 2020 – June 2021**
Department of Technology and Data *Beijing, China*

- As a recommendation algorithm intern at TikTok, I focused on optimizing the video recommendation system through multi-objective learning, balancing watch time, engagement, and content diversity. I explored reinforcement learning and contrastive learning to enhance user interest modeling and fine-tuned ranking models to improve recommendation accuracy. By conducting A/B testing and analyzing large-scale user behavior data, I contributed to refining the multi-objective optimization framework, leading to a measurable improvement in content relevance and user retention.

Cloud Atlas Technology Co. **Founder and CEO** **Jan. 2018 – 2019**

Department of Management *Beijing, China*

- I am the founder of this startup company, my initial intention in establishing it was simple: to change the world. In my company, I have built numerous websites for clients as a technical service. Additionally, we have developed our own artificial intelligence hair-styling system. Our product allows customers to preview their hairstyles before getting a haircut, and we have successfully secured our first round of seed funding.

RESEARCH EXPERIENCE

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

Software Copyright

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

SKILLS & HONORS

Honors:

CCF Big Data and Computing Intelligence Contest: *Top*%2 2021

National High School Physics Olympiad : **National First-Prize**(*Top*%0.01) 2018

Skills and Hobby:

Python, Flask, Java, C++, Android Development, React.js, Machine Learning, Leadership, SQL injection, WiFi password cracking, Raise Funds, Self-Researcher in AI without any Supervisor, Assemble powerful PC to code and to play Poker Magic. I also implementing key AI models such as Transformer, ViT, VAE, DQN, and so on using PyTorch