Jinrui (Jerry) Gou

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RESEARCH INTERESTS

Information Retrieval, Machine Learning, Mathematical Modeling and Optimization

EDUCATION

New York University — Brooklyn, NY

Ph.D in Computer Science & Engineering — 09/2021-Present
Overall GPA: 3.94/4.0
Course Enrolled: *Web Search Engine, Natural Language Processing*

M.S.E. in Computer Science & Engineering — 09/2019-05/2021
Overall GPA: 4.0/4.0
Course Enrolled: *Machine Learning (1st Rank in Class of 43 students), Design & Analysis of Algorithms I (1st Rank in Class of 47 students), Computer Architecture, Principles of Database Systems, Big Data, Network Design and Algorithms (2nd Rank in Class of 20 students), Algorithmic Machine Learning and Data Science, Deep Learning, Computer Vision*

Sun Yat-Sen University — Guangzhou, China

B.S.E. in Computer Science & Technology — 09/2015-06/2019
Overall GPA: 90/100 (3.8/4.0)
Mathematics Courses GPA: 95/100
Core courses: *Mathematical Analysis I to III, Graph Theory and its Application, Probability and Mathematical Statistics, Combinatorics and Number Theory, Advanced Algebra, Discrete Mathematics, Computer Programming I & II, Data Structure and Algorithms*

RESEARCH & PROJECT EXPERIENCE

Ph.D Research Assistant for Prof. Torsten Suel, NYU — 09/2021-Present

1. Effective Candidate Generation for Web Document Ranking

   - Building first-layer index structures of single term, duplet, triplet and quadruplet based on the samples of AOL query trace.
   - Building ML-based model for predicting the goodness of the posting in the first-layer index.
   - Designing algorithms that selective accesses first-layer index.

Graduate Research Assistant for Prof. Yong Liu, Networked Systems Lab, NYU — 09/2019-05/2021

1. Realtime Mobile Network QoS Prediction:

   - Collecting mobile 4G/LTE bandwidth traces in Metro Area of NYC;
   - Building LSTM RNN models for realtime bandwidth prediction;
   - Building Gradient Boosting Machine (Classifier & Regressor) for 4G/5G mobile network handoffs prediction.

2. Joint Traffic Routing and Computation Server Placement in Edge Cloud Networks:

   - Developing quasi-convex optimization models to obtain optimal traffic routing and computation resource allocation to simultaneously balance the traffic and computation load distribution in edge cloud networks;
   - Using AMPL/CPLEX and Python optimization packages to obtain numerical solutions for comparative case studies.

Master Course Projects at NYU

1. Team Leader, CS-GY 6513 Big Data Course Project   01/2020-05/2020
   - Data cleaning using pyspark to get the daily price, category information for S&P 500 stocks;
   - Applying clustering model based on the correlation and p-value between daily stock price and COVID-19 daily new case number to analyze the impact of COVID-19 on stocks in different categories;

2. Web Developer, CS-GY 6083 Principles of Database Systems Course Project   01/2020-05/2020
   - Designing the database schema and complete backend development for an issue tracking system using MySQL;
   - Building a complete web-based user interface for database designed above using PHP, Django and CSS

3. Team Member, CS-GY 6923 Machine Learning Course Project   09/2019-12/2019
   - Extending soft margin criteria for SVM to get better separating hyperplane than hard margin when data are linearly separable but with some close points or data are non-linearly separable;
   - Applying Guassian kernel function to separate non-linearly separable data with multiple seperating hyperplanes

Undergraduate Research Assistant, NetAI Lab, Sun Yat-Sen University   03/2017-06/2017

1. Block-Chain Research Project:

   - Gathering, translating, classifying essays and related information of BitCoin, proposing potential usage of blockchains to address network security and reliability problems
   - Writing report and presenting in group seminars

PUBLICATION/TECHNICAL REPORT

1. Lifan Mei, **Jinrui Gou**, Yujin Cai, Houwei Cao, and Yong Liu. *"Realtime Mobile Bandwidth and Handoff Predictions in 4G/5G Networks."* Elsevier Computer Networks Journal (2022): 108736;

2. Lifan Mei, **Jinrui Gou**, Jingrui Yang, and Yong Liu. *"On Routing Optimization in Networks with Embedded Computational Services"*, submitted to IEEE Journal on Selected Areas in Communications (JSAC), Multi-Tier Computing for Next Generation Wireless Networks.

TEACHING ASSISTANT EXPERIENCE

Teaching Assistant, ECE-GY 9343 Data Structure and Algorithm, NYU   Spring, Summer, Fall 2020

- Create homework questions, and grade homework submissions and exams;

- Help the professor answer students' questions on Piazza, and hold online TA office hours.

ADDITIONAL INFORMATION

- **Computer Skills:** Python, TensorFlow, Keras, Scikit-Learn, MySQL, AMPL/CPLEX, C++

- **Languages:** Mandarin Chinese (Native), English (Fluent)