实 习 简 历

姓　　名：刘欣怡
本科院校：南京邮电大学
在校时间：2015-2019
本科专业：通信工程
学分绩点：3.95/5
排　　名：1/26

研究生院校：哥伦比亚大学
预计毕业时间：2022.04
研究生专业：数据科学
学分绩点：4.2/4
托　　福：106/120
GRE　　：323/340

15850508779　　xl3057@columbia.edu

项 目 经 历

2020.10-2021.01　纽约市就业情况分析
2020.10-2021.03　Rician 信道下两跳 MIMO 中继系统上行链路性能
2019.01-2019.06　基于差分的无线传感网分簇算法研究
2017.10-2018.10　基于车联网方向的无线传感网分簇算法
2018.01-2018.02　基于人工神经网络的国家稳定性分析
2016.09-2017.01　基于可见光通信的智能网络系统

科 研 成 果

- 发明型专利：基于差分算法的森林环境监测中的簇首定位模型的建立方法（第三发明人）
  专利申请号：201910367221.5
- 发明型专利：一种基于改进遗传算法的智能交通信号灯调控方法（第一发明人）
  专利申请号：201910441394.7
- EI 检索论文：Clustering Algorithm in Wireless Sensor Networks Based on Differential Evolution Algorithm（第一作者）

获 得 奖 项

- 数创杯全国大学生数学建模大赛二等奖
- 全国大学生英语能力竞赛三等奖
- 美国大学生数学建模竞赛二等奖
- 校创新杯科技大赛论文类组一等奖
- 校数学建模比赛二等奖
- 校“禹舜杯”英语演讲比赛二等奖
- 校“诚信·责任·荣誉”演讲比赛优秀奖
- 校优秀毕业生、三好学生标兵、校三好学生、校优秀学生干部、校优秀团员
- 校一等奖学金、校二等奖学金

技 能 和 证 书

- ☑ 证书：全国计算机等级考试 C 语言二级
- ☑ 编程语言：Python, R, SQL, Matlab
- ☑ 云服务：GCP, AWS
- ☑ 数据可视化：Matplotlib, ggplot2, Tableau, Echarts, d3
- ☑ 其他：LaTex, Flask

XINYI (TRACY) LIU

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EDUCATION

Columbia University New York, NY
Master of Science in Data Science, 4.2/4.0 Expected Apr 2022

Nanjing University of Posts and Telecommunications (NJUPT) Nanjing, CN
Bachelor of Engineering in Communication Engineering, 3.95/5.0, 1st Rank, Honorary Graduate Jul 2019

PROJECT EXPERIENCE

COLUMBIA: New York City Employment Analysis, *Team Leader* Oct 2020 - Jan 2021

- Collected data from United States Census, mined data and analyzed patterns of missing values with pandas and R.
- Visualized data based on R and analyzed the rules based on visualizations.
- Realized the interactive visualization component based on d3.
- Built an R bookdown book for this project. Link: https://tracy3057.github.io/NYC_Employment_Analysis_Book/
- Selected in DSI Best Student Project Competition Finalist. Link: https://www.youtube.com/watch?v=9nRL7f8gijo

NJUPT: Low-resolution Analog-to-Digital Converters (ADCs) for Two-hop Massive MIMO Relay System under Rician Channel, *Team Member* Oct 2020 - Mar 2021

- Converted one-hop Rayleigh system to two-hop Rician system and increased the sum achievable rate by 245.5%.
- Applied low-resolution ADCs instead of high-resolution ADCs to improved the energy efficiency by 150%.
- Accomplished a research manuscript for this project.

NJUPT: Clustering Algorithm in Wireless Sensor Networks (WSN) Based on DE, *Team Leader* Dec 2018 - Jun 2019

- Analyzed three AI Algorithms with 2 team members based simulation results and selected Differential Evolution Algorithm (DE) to establish the model.
- Combined algorithms of Simulated Annealing Algorithm (SA) and Chaos Optimization Algorithm (COA) with DE and improved DE by delaying the cluster-head death emergence for 1550 iteration times.
- Designed new methods of "cluster-head swift" and "partition communication" and reduced 71.4% energy consumption.
- Published an EI paper: *Clustering Algorithm in Wireless Sensor Networks Based on Differential Evolution Algorithm.*

NJUPT: Research on Brazil's Fragility and Climate Change with Artificial Neural Network (ANN) Dec 2017 - Jan 2018

- Advanced our feature extraction by subdividing fragility into environmental, social, economic, military and political fragility and using Analytic Hierarchy Process (AHP) to determine weights of the five components.
- Implemented Fuzzy Comprehensive Evaluation (FCE) to build a measurement system.
- Employed ANN to research on environmental index, which is the one with greatest variation in given period.
- Used Support Vector Regression (SVR) to predict the tipping point and applied Grid Search to optimize SVR's penalty factor with Python.

WORK EXPERIENCE

NJUPT: Teaching Assistant in Circuit Analysis Jan 2019 - Jun 2019

- Organized and led group discussions for 26 students once two weeks after designing with professor.
- Corrected students' homework and set up Q&A sessions to answer common questions.

SKILLS

Programming	Python, R, SQL, MATLAB
Python Packages	Numpy, Pandas, Scikit-Learn
Cloud Services	GCP, AWS
Data Visualization	Matplotlib, ggplot2, Tableau, Echarts, d3
Other	LaTex, Flask