Tianjie Qiu

tianjie_qiu@brown.edu | +1 401 612 1221 | Providence, RI | LinkedIn

EDUCATION

BROWN UNIVERSITY   08/2022 - 05/2024

Sc.M in Data-Enabled Computational Science and Engineering
Advisor: Prof. George Em Karniadakis
Coursework: Deep Learning for Scientists, Advanced Machine Learning, Advanced Mathematical Statistics, High Performance Scientific Computing
Thesis: GCONT - A Contrastive Learning Framework for Point Cloud Reconstruction in High-Luminosity Large Hadron Collider

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN   08/2018 - 12/2021

B.Sc in Physics
B.Sc in Applied Mathematics
Susan Schaeffer Scholarship(2021), James Scholar, Dean's List, Highest Distinction
Thesis: Physical Laws Meet Machine Learning: A Study of Neural Physical Network

PROFESSIONAL EXPERIENCE

BROWN UNIVERSITY | Data Scientist Researcher   Providence, RI | 07/2023 – Present

- Developed advanced machine learning models for sentiment analysis, leveraging natural language processing to inform strategic decision-making and enhance user engagement with Campus Life initiatives.
- Employed statistical analysis and predictive modeling to understand and anticipate campus community needs, contributing to targeted communication strategies and improved campus services.

RIPEC | Data Analyst Intern   Providence, RI | 12/2022 – 05/2023

- Conducted data-driven analysis on public policy issues, utilizing statistical tools and machine learning to uncover insights into state finance, housing, and tax policy, influencing policy recommendations.
- Collaborated with senior analysts to apply quantitative research methods for evaluating policy impacts, contributing to high-impact policy briefs and reports.

JD.COM, INC. | Data Analyst Intern   Remote | 05/2022 – 08/2022

- Leveraged data analytics and machine learning techniques to analyze consumer data and market trends, delivering actionable insights for strategic consulting projects.
- Developed predictive models to support client decision-making processes, enhancing client satisfaction and contributing to business growth through data-driven strategies.

DOUYIN | Data Scientist Intern   Remote | 05/2021 – 08/2021

- Designed and implemented machine learning algorithms for the Douyin Shopping team, significantly improving product recommendation systems and personalization features.
- Contributed to a data science project that resulted in a marked increase in user engagement and sales by optimizing the product discovery experience through personalized content delivery.

UNIVERSITY OF ILLINOIS | Internet Specialist   Champaign-Urbana, IL | 08/2018 – 12/2021

- Pioneered the development and operation of social media platforms, mobile applications, and websites, reaching over 6,000 students and significantly boosting online engagement.

ACADEMIC EXPERIENCE

BROWN UNIVERSITY | Graduate Research Assistant   Providence, RI | 08/2022 – Present

- Advanced the development of unsupervised/weakly-supervised/reinforcement learning schemes for the HL-LHC project at CERN, achieving breakthroughs in particle shower labeling and colliding reconstruction by integrating Graph Neural Networks, Attention mechanism and Transformer models.

BROWN UNIVERSITY | GRADUATE RESEARCH ASSISTANT   Providence, RI | 08/2022 – 08/2023

- Pioneered a project integrating theoretical dimension reduction and numerical simulation of quasilinear transition in 2D Navier-Stokes equations using pseudo-spectral methods.

BROWN UNIVERSITY | TEACHING ASSISTANT AND GRADER   Providence, RI | 08/2022 – 12/2023

- Recognized for excellence in teaching and grading in courses like Dynamics and Vibrations, Electricity and Magnetism, Laser and Non-Linear Optics, contributing to enhanced learning experiences for students.

ILLINOIS GEO. LAB | UNDERGRADUATE RESEARCH ASSISTANT Champaign-Urbana, IL | 08/2019 – 12/2019

- Collaborated in a cross-university project to analyze Atlantic ocean flow, presenting key findings at the 2019 IGL Fall Meeting.

SKILLS

PROGRAMMING LANGUAGES	C++, Python, Java, MATLAB, Julia, Stata, R, SQL, SAS, SPSS
LIBRARIES/FRAMEWORKS	TensorFlow, Keras, Pytorch, Pandas, Seaborn, Matplotlib, Scikit-learn
TOOLS / PLATFORMS	Tableau, AWS, Linux, Azure, Git, Docker

PROJECTS / OPEN-SOURCE

PARTICLE PHASE FLOW IN FIELD   Keras, NumPy, Scikit-learn

- Developed and implemented SympNet and Physics-informed Neural Networks to accurately predict the phase flow of charged particles in random electromagnetic fields, enhancing simulation precision.

SATURATION TO RESONANCE   Julia, MATLAB, SageMath

- Engineered simulations of resonance behavior in multi-dimensional lattices using linear and non-linear oscillators. Utilized the Ising model, Potts model and Einstein model, showcasing results through detailed visualizations in MATLAB and SageMath.

POCKET PL   Java, Android Studio, Firebase, AWS

- Pioneered an Android platform software using Firebase, Web API, and AWS services to provide real-time Premier League information and statistics for over 100 users, significantly enhancing user experience and accessibility for football enthusiasts.

PUBLICATIONS & CONFERENCE PAPERS

- (2023) Rapid, Sensitive Detection of Intact SARS-CoV-2 using DNA Nets and a Smartphone-Linked Fluorimeter. Hankeun Lee, Weijing Wang, Tianjie Qiu, Weishan Huang, Xing Wang, and Brian T. Cunningham. Optical Diagnostics and Sensing XXIII: Toward Point-of-Care Diagnostics, Paper No. 12387-21
- (2022) Rapid detection of intact SARS-CoV-2 using designer DNA nets and a pocket-size smartphone-linked fluorimeter. Hankeun Lee, Weijing Wang, Tianjie Qiu, Weishan Huang, Xing Wang, and Brian T. Cunningham. Biosensors and Bioelectronics. 2023 Mar 16:115228. doi: 10.1016/j.bios.2023.115228.