

Bixuan LIU

+33 06 85 04 56 67 bixuan.liu@sorbonne-universite.fr Paris, France
www.linkedin.com/in/bixuan-liu-008b732b9 https://bi-xuan.github.io/

PROFILE

I am a PhD candidate in statistical and probabilistic modeling at Sorbonne Université, currently seeking job opportunities in the data science sector for a six-month academic leave (césure). Over the past five years, I have developed strong technical skills through academic training and a wide range of projects, both in large teams and in leadership roles. Recently, I have further strengthened my expertise in dynamical system modeling and simulation through my current PhD research. I aim to build on my research experience and contribute to the research division of an international company.

EDUCATION

- Sorbonne Université** Top100 Sep 2024 - Present
Paris
PhD in Statistical Modeling
- Subject: Modeling of dynamical systems, including theoretical analysis, numerical simulation, and data-driven approaches applied to ecological systems
- University of Luxembourg** Sep 2022 - Aug 2024
Luxembourg
Master in Data Science
- GPA: 17.0 / 20.0
 - Modules studied: Machine Learning, Deep Learning, Scientific Computing, Statistical Methods, Advanced Programming
- Southeast University** 985 211 Sep 2019 - Jun 2023
Nanjing
Bachelor in Mathematics and Applied Mathematics
- GPA: 3.68 / 4.00
 - Modules studied: Mathematical Analysis, Algebra, Statistics, Probability, Mathematical Modeling, Optimization Method, Numerical Analysis, Computer Science

RESEARCH EXPERIENCE

- Dynamical Interaction Network Reconstruction via Regularization** Nov 2025 - Present
Sorbonne Université Paris
- Formalized dynamical network reconstruction as an optimization problem with multiple minimizers
 - Designed a penalization function to enable sparse solutions by balancing variability across candidate models against the risk induced by the penalization
 - Proposed a corresponding penalized estimator and proved that it achieves risk comparable to the optimal estimator
- System Reconstruction Algorithm Design** Jun 2025 - Nov 2025
Sorbonne Université Paris
- Designed a novel heuristic-based algorithm for dynamical system reconstruction from stationary data, for which no existing methods were directly applicable
 - Achieved over 98% accuracy across 100+ simulated scenarios
 - Parallelized computation using HPC, reducing execution time by 70% on a 7-core cluster
- Dynamical System Identification for Lotka-Volterra and Time Series Models** Jan 2024 - Jun 2025
Sorbonne Université Paris
- Established theoretical framework for dynamical system identification using only stationary information via algebraic-statistical methods
 - Applied framework to Lotka-Volterra and time series models and achieved sufficient graphical conditions for system identification
- Event-triggered Adaptive Synchronization Protocol Design** Mar 2020 - Oct 2020
Southeast University Nanjing
- Designed a novel event-triggered distributed adaptive consensus protocol for multi-agent systems
 - Proved theoretically asymptotic consensus and stability under directed communication graphs
 - Conducted numerical simulations and verified convergence of the proposed protocol

PUBLICATION

- Identifiability of VAR(1) in a stationary setting** Apr 2025
Bixuan LIU
- Submitted to Electronic Journal of Statistics (EJS)*
- Developed an algebraic-statistical framework to identify dynamical interaction networks from equilibrium data, establishing graphical identifiability conditions and scalable reconstruction methods

- Preprint: <https://arxiv.org/abs/2504.03466>

PROJECTS

Reproducible Data Analysis Pipeline for Luxembourg Labor Market	Jan 2024 - Jan 2024
University of Luxembourg	Luxembourg
• Developed a reproducible analytical pipeline in R using Luxembourg labor market data, including data visualization, unemployment rate calculation, and regression modeling • Implemented version control using Git • GitHub repository: https://github.com/Bi-xuan/Project_RAP.git	
Music Generation with Deep Learning	Sep 2023 - Dec 2023
University of Luxembourg	Luxembourg
• Developed transformer-based models for music generation, producing coherent sequences • Implemented training pipelines in Python with HPC for scalable training	
MRI Tumor Detection with CNN	Jan 2022 - Feb 2022
2022 Data Science Winter School at Imperial College London	Remote
• Developed CNN models for glioma detection from medical images, achieving 85% accuracy on the validation set • Received an A grade in the overall project assessment	

ACADEMIC ACTIVITIES

"Identifiability of VAR(1) in a Stationary Setting"
Presented at:
• Doctoral Seminar, Paris — Apr 7, 2026 • Algebraic Statistics Workshop, Lille — Mar 13, 2026 • Seminar on Random Modeling of Living Systems, Paris — Oct 1, 2025

TEACHING MISSIONS

Teaching Assistant	Sep 2025 - Present
Sorbonne Université	Paris
• Led tutorials in: Analysis of Multivariate Data, Mathematics for Science II: Algebra and Probability, Probability • Conducted tutorial sessions, designed exercises, and graded coursework	

EXTRACURRICULAR ACTIVITIES

2022 COMAP's Mathematical Contest in Modeling	Feb 2022 - Feb 2022
• Responsible for modeling and thesis writing; the team received an Honorable Mention	
2021 International University Students Fintech Innovation Competition	Aug 2021 - Sep 2021
Team Leader	
• Led a team and was responsible for data analysis, data processing, and solution design; the team ranked in the top 36 nationwide	
Orientation Volunteer Team	Sep 2020 - Sep 2020
• Provided support to incoming students, including distributing food and drinks and answering questions	
Student Union in School of Mathematics	Sep 2019 - Aug 2021
Minister Literature and Art Department	
• Organized the Orientation Party and Annual Commendation Conference for the School of Mathematics, securing sponsorship of RMB 20,000 and attracting thousands of participants • Hosted a cultural event, "Night Talks Around the Furnace," recognized as an excellent activity by the School of Mathematics	

HONORS & AWARDS (SELECTED)

Student Scholarship of University of Luxembourg	2022-2023 Academic Year
Certificate of Excellence	2022-2023 Academic Year
Individual Award (Excellent Social Work Award)	2020-2021 Academic Year
Course Award	2020-2021 Academic Year

MISCELLANEOUS

- **Skills:** Python, R, java, Cloud Computing, Microsoft Office, Adobe Photoshop
- **Languages:** English(TOEFL iBT:104), French(B1), Chinese(native)
- **Interests:** Badminton, Reading, Traveling, Swimming