JUNCHEN XIONG

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EDUCATION

Columbia University, Graduate School of Arts and Sciences **New York City, NY**
M.A. Quantitative Methods in the Social Sciences (QMSS) – Data Science Track *Sep 2023 – Feb 2025*
Honors: Top 5% (GPA: 3.98/4.0); 1st Place, Environmental Track, Columbia Data Science Society Datathon
Relevant Coursework: Modern Data Structure, Time Series Analysis, Natural Language Processing

Boston University, Questrom School of Business **Boston, MA**
B.S. Business Administration – Management Information Systems & Business Analytics; *Minor:* Mathematics *Sep 2019 – May 2023*
Honors: Magna Cum Laude (GPA: 3.82/4.0), Dean's List, 1st Place in wildcard round – DICK'S Sporting Goods Analytics Case Competition
Relevant Coursework: Corporate Finance, Enterprise Resource Planning (ERP), Database Design, Agile Methodology (certified PSM I)

PROFESSIONAL EXPERIENCE

New York State Energy Research and Development Authority (NYSERDA) **New York City, NY**
Energy Markets Analyst Intern, Policy, Analysis, & Research Unit (PandA) *Feb 2024 - Dec 2024*

- Accelerated critical energy market queries by **45+ minutes** by engineering robust **PySpark pipelines** on AWS EC2, integrating S3 and Redshift data; improved data quality for downstream reports and models via schema validation, partitioning, and KNN imputation.
- Designed and implemented a hybrid anomaly detection system combining business-driven validation rules with **unsupervised Isolation Forest** modeling—reducing anomaly misclassification by **30%** and streamlining the data cleaning workflow.
- Enhanced forecast robustness by introducing **Gradient Boosting models** (Optimized by GridSearchCV) for load prediction, outperforming previous OLS approaches and reducing error by **20% (<100 MW)** through integration of market, utility, and economic features.
- Developed over **10 interactive Power BI dashboards** utilizing DAX, drill-down, and geospatial features, enhancing market reporting efficiency by **70%**. Enabled actionable insights for **cross-functional teams**, including energy analysts and policymakers.

Deloitte **Sichuan, China**
Financial Advisory Intern *Jun 2023 - Aug 2023*

- Reduced data refresh times by **70%** for a $5M ESG project by optimizing **Snowflake/SQL pipelines**—refining joins and CTE logic to extract actionable insights from 1M+ transit flow records, including features like congestion, route efficiency, and underlying demand.
- Developed an **automated Python tool** using the Requests package to interface with Chengdu RailTransit's API, converting JSON and XML interim data into Excel-based traffic volume trend maps, enhancing accessibility for over **15 colleagues** with mixed skill levels.
- Presented weekly findings to 5 internal teams and 20+ client engineers and produced extensive reports of over **10 pages** that supported downstream **risk assessment & regulatory compliance** strategies for implementing Transit-Oriented Development (TOD).

Chengdu Wide Horizon (WanHua) Investment Group Co. Ltd **Sichuan, China**
Data Operation Consultant *Apr 2021 - Jul 2021*

- Designed and implemented a customer segmentation workflow leveraging **K-means clustering** optimized by silhouette scores, enabling personalized marketing that reduced bounce rates by **10%+**, achieved **70%** initiative acceptance (**~¥5,000** in incremental value).

PROJECTS AND RESEARCH

Hybrid Machine Learning Modeling of Spatial-Temporal NO_2 Concentrations in Israel **New York City, NY**
Research Assistant for Professor Mike Z. He, Columbia University, https://doi.org/10.1289/isee.2023.MP-011 *Jan 2025 - Present*

- Elevated team outcomes by delivering an interpretable, residual-explaining **extreme Gradient Boosting (XGBoost)** model, refining NO_2 concentration predictions at a granular 200 m^2 resolution, and achieving a spatial **R^2 of 0.84** and an overall **R^2 of 0.51**.

Solar Eclipse Energy Resilience and Emergency Preparedness Project **New York City, NY**
Energy Markets Analyst Intern *March 2024 - May 2024*

- Empowered the policy team to enact **2 policy changes** and **5 annex amendments** by delivering actionable insights—engineered an **OLS regression model in Python** analyzing gasoline price drivers and presented results via **Excel Power Query** and a strategic memo.

SKILLS AND INTERESTS

- **Programming & Tools:** Python (Pandas, scikit-learn, Matplotlib, Streamlit, Requests, SciPy), R, SQL, Git, Jupyter, SAP, Shell Scripting
- **Data Engineering & Infrastructure:** AWS (EC2, S3, Glue), Databricks, MongoDB, Apache Airflow, BigQuery, Microsoft Azure
- **Finance, Risk & Project Management:** Risk Analytics (Model Risk, VaR), GitKraken, Salesforce CRM, Asana, Jira, Oracle
- **Statistics & Machine Learning:** Regression, Boosting Algorithms, Advanced Tree Models, Causal Inference, Predictive Modeling
- **Interests:** Fitness Coaching (NASM CPT Certified), Powerlifting & Strength Training, Collegiate Swimming, Speedcubing