

XUAN JIANG

1333 Powell Street Unit A322, Emeryville, California, 94608

☎ +1 571-426-9968 ✉ jiangxuan2019@gmail.com [in xuan-jiang](https://www.linkedin.com/in/xuan-jiang) github.com/Xuan-1998 [🏠 Personal Website](#) [G Scholar](#)

Xuan is a Ph.D. candidate at the **University of California, Berkeley**, specializing in Transportation Engineering with a keen interest in **AI, High-Performance Parallel Computing, LLM, and Aviation Operation Optimization**. His research addresses **urban transportation system challenges, leveraging machine learning and high performance computing** to optimize transport scenarios and predict system impacts.

Academic Education

University of California, Berkeley

June 2021 – Dec 2024(Exp.)

PhD in Transportation Engineering (Minor in Computer Science) GPA:4.0 / 4.0

Berkeley, CA

Courses: Applications of Parallel Computers, Introduction to ML, Back-End Web Architecture, Software Dev, Advanced Matrix Computations, Distributed Systems, Deep Reinforcement Learning and Decision Making

University of California, Berkeley

July 2020 – May 2021

Master of Science in Transportation Engineering GPA:4.0 / 4.0

Berkeley, CA

Courses: Data Structures and Algorithms, Introduction to Database Systems, Introduction to AI, Operating Sys

Tongji University

Sep. 2016 – May 2020

Bachelor of Science in Traffic Engineering | Object-Oriented Design, Compilers, Internet Protocols

Shanghai, China

Research Experience

Massachusetts Institute of Technology, Cambridge, MA

May 2023 – Now

Visiting Scholar in JTL - Urban Mobility Lab at MIT. Focused on using **Reinforcement Learning (RL)** for optimizing transportation scenarios, specifically addressing challenges like bus bunching with strategies such as skipping, holding, and turning around. Evaluated optimization techniques using high-performance computing-based traffic simulators. Supervisor: Jinhua Zhao and Haris Koutsopoulos

Lawrence Berkeley National Laboratory, Berkeley, CA

June 2021 – May 2023

Graduate Student Researcher in the EA - Energy Analysis Env Impacts Division. Spearheaded the development of predictive models for multi-modal transportation systems, emphasizing the integration of machine learning techniques to optimize logistics and supply chain scenarios. Supervisor: Thomas Wenzel

University of California, Berkeley, CA

August 2020 – Now

Research Scholar in Transportation Engineering at Civil and Environmental Department's Aviation Innovation Research Lab. Develop GPU-based parallel multi-modal micro traffic operation simulator. Supervisor: Prof. Raja Sengupta. Co-supervisor Prof. Joan Walker, Prof. James Demmel, Prof. Mark Hansen, Prof. Daniel Rodriguez, Prof. Alexandre M. Bayen

University of Washinton, Seattle, WA

August 2020 – Now

Research Assistant in Smart Transportation Application & Research Lab (STAR Lab). Contributed to pioneering research on city-wide network congestion prediction by integrating traffic science with representation learning, developing the Traffic-informed Transformer (TinT). This work involved overcoming challenges related to diverse sensor modalities, congestion fluctuation modeling, and network structure generalization. Played a key role in enhancing the accuracy of traffic forecasting through innovative approaches such as anisotropic graph aggregation and traffic-informed tokenization. Supervisor: Prof. Yin Hai Wang

National Academies of Sciences, Engineering, and Medicine, Washington DC

April 2022 – Now

Young Member in transportation research board standing committee on aviation safety, security and emergency management (AV090) Review aviation-related papers, triennial strategic plan, and airport cooperative research program (ACRP) problem statements. Chair: Gaël Le Bris

Main Member in the Transportation Research Board Standing Committee on Marine Environment (AW030). Engaged in high-performance computing (HPC) and deep learning to address environmental challenges and promote sustainable practices in marine settings. Chair: Richard Billings

National Academies of Sciences, Engineering, and Medicine, Washington DC

April 2022 – Now

Young Member in transportation research board standing committee on aviation safety, security and emergency management (AV090) Review aviation-related papers, triennial strategic plan, and airport cooperative research program (ACRP) problem statements. Chair: Gaël Le Bris

American Society of Civil Engineers (ASCE)

July 2023 – Now

Committee Member in the Transportation Development Institute's Artificial Intelligence in Transportation Committee. Engage in activities related to AI applications in transportation systems, spanning across various transportation modes and aspects. Participate in conferences, workshops, and contribute to publications to foster innovation in AI applications within transportation. Chair: Lili Du, Ph.D., Aff.M.ASCE

Committee Member in the Active Transportation Committee. Participate in discussions, initiatives, and activities aimed at improving and promoting active transportation modes such as walking, biking, and other forms of human-powered transportation. Contribute to the development of best practices, guidelines, and policies that enhance the safety, accessibility, and convenience of active transportation. Chair: Cong Chen

Working Experience

Google

May 2024 – August 2024

Software Engineering Intern

Berkeley, CA

- Use Google Cloud Services, e.g. GAE and Datastore, to design a GCP based infrastructure for Google internal probing system. It will provide advanced I/O capabilities for verifying a system's ability to interact with various communication mechanisms, including Slack and Webhook.
- Apply Multi-GPU based high performance computing and LLM for improving internal probing system
- Created OSS Notification Solution for Cloud Alerting Notification Forwarding

California Consortium for Public Health Informatics & Technology

May 2023 – May 2024

Artificial Intelligence in Public Health Informatics Intern

Berkeley, CA

- Instructed over 250+ students in applying AI methodologies to Public Health Informatics and GIS Mapping & Analytics, emphasizing on the use of machine learning algorithms for spatial data analysis and public health decision-making.
- Acquired proficiency in leveraging LLM techniques within ArcGIS applications for Public Health, creating predictive models and analytics dashboards to forecast public health trends and challenges.
- Mastered the application of AI in enhancing data interoperability through RESTful API calls using HL7/FHIR resources on a Postman environment, automating data analysis and insights generation.

Lawrence Berkeley National Laboratory

June 2021 – June 2023

GSRA @ LBNL-UCB-STI/beam/Xuan/ActivitySim-micromobility

Berkeley, CA

- Deploy agent based traffic simulation on AWS EC2 instances to enhance cloud computation and multi-task implement but also on NERSC(National Energy Research Scientific Computing Center) to utilize the Cray EX system with AMD CPUs and NVIDIA A100 GPUs Berkeley Lab owns
- Inherit the Akka FSM trait which provides a domain-specific language for programming agent actions as a finite state machine to achieve the goal of doing **traffic simulation based on 2,466,019** households travel plans from bay area

Shanghai HeroTech Education Technology Co., Ltd.

Sep 2021 – Present

Co-founder

Shanghai, China

- Dedicated to promoting public understanding and education in the fields of artificial intelligence, deep learning, and computer vision
- Recognized as a Microsoft Most Valuable Professional (MVP) in Artificial Intelligence and a Huawei Cloud Developer Expert (HCDE) in A.I.
- Member of the Popularization and Education Committee of the China Graphics Society
- Managed and grew a successful Bilibili channel, accumulating 210,000 subscribers and over 10 million cumulative video views
- Produced notable works, including in-depth discussions on AI research papers, comprehensive lectures on Stanford CS231N Computer Vision and CS224W Graph Neural Networks (in Chinese), and practical tutorials
- Engaged diverse audiences, including open-source developers, university students, postgraduate candidates, researchers, IT professionals, programmers, and individuals interested in machine learning, computer vision, AI art, and related fields
- Collaborated with renowned companies such as Huawei Cloud, Baidu, Alibaba, Amazon, SenseTime, and digital product companies on various projects and initiatives

- Established partnerships with publishers, open-source organizations, and participated in international events and exhibitions

China Ocean Shipping Company

July 2020 – Oct. 2020

Data Engineer Intern

Shanghai, China

- Developed and integrated an enterprise-level database, encompassing over **100,000+ shipping records**, showcasing proficiency in managing vast logistics datasets.
- Implemented the backend Restful API to provide up-to-date access to Google Earth and Kylin data.
- This API provided an intelligence utility that equipped **2000+ analysts** in the company.

Eastrong International Logistics Co., Ltd

Jan. 2018 – May. 2018

Data Scientist Intern

Shanghai, China

- Conducted an inventory forecast by building a linear regression model in Python based on historical data, which increases the **accuracy** by **17%** and further analyze the causality relationships between different factors.
- Validated the prediction on dataset, and developed a dynamic visualization dashboard with JavaScript and Tableau.

Journal Publications

Jiang, X., Sengupta, R., Demmel, J., Williams, S. (2024). Large scale multi-GPU based parallel traffic simulation for accelerated traffic assignment and propagation. *Transportation Research Part C: Emerging Technologies* 169 (2024): 104873.. DOI: <https://doi.org/10.1016/j.trc.2024.104873> [Journal Paper]

Jiang, X., Cao, S., Mo, B., Cao, J., Yang, H., Tang, Y., Hansen, M., Zhao, J., and Sengupta, R. (2024). Simulation-based optimization for vertiport location selection: A surrogate model with the machine learning method. *Transportation Research Record*, 03611981241277755.. DOI: <https://doi.org/10.1177/03611981241277755> [Journal Paper]

Jiang, X., Tang, Y., Tang, Z., Cao, J., Bulusu, V., Poliziani, C., Sengupta, R. (2024). Simulating the Integration of Urban Air Mobility into Existing Transportation Systems: A Survey. arXiv preprint *Journal of Air Transportation*, 32(3), 97-107. DOI: <https://doi.org/10.2514/1.D0431> [Journal Paper]

Jiang, X., Sengupta, R., Demmel, J., Williams, S. (2024). Multi-modal Regional Scale Traffic Simulation: A Case Study of Regional Airports as Vertiports. *In revision with IEEE Transactions on Intelligent Transportation Systems*.. DOI: <https://doi.org/10.1016/j.trc.2024.104873> [Journal Paper]

Jiang, X., Jiang, C., Sengupta, R., Kurzhanskiy, A., Skabardonis, A.(2024). DRBO - A Regional Scale Simulator Calibration Framework based on day-to-day Dynamic Routing and Bayesian Optimization. *In revision with MDPI Smart Cities*. [Journal Paper]

Jiang, X., Wenzel, T., and Needell, Z. (2024). Integrative Analysis of Docked Bikeshare Systems in Urban Mobility: A Case Study of the San Francisco Bay Area. Submitted to *Transportation Research Part D: Transport and Environment*. [Journal Paper]

Jiang, X., Cao, A., Sengupta, R., and Hansen, M. (2024). Synergistic Optimization of eVTOL Flight and Charging Schedules in Urban Air Mobility: A Model for Efficient Fleet Management. Submitted to *IEEE Transactions on Intelligent Transportation Systems*. [Journal Paper]

Tang, Y., Qu, A., **Jiang, X.**, Mo, B., Cao, S., Rodriguez, J., Zhao, J., Wu, C. (2024). Domain-Randomized Curriculum for Robust Reinforcement Learning in Bus Operations. Accepted by *MDPI Smart Cities*. [Journal Paper]

Wenzel, T., **Jiang, X.**, Needell, Z., and Poliziani, C. "Simulating Docked Bikeshare and Public Transit in the San Francisco Bay Area." *In Energy Technologies Area, Lawrence Berkeley National Laboratory, Berkeley, CA, USA, Nov 2023*. [Technical Report]

Yang, H., Zheng, W., Cai, J., Wang, P., **Jiang, X.**, Du, S., Wang, Y., and Wang, Z. (2023). Integrating the traffic science with representation learning for city-wide network congestion prediction. *Information Fusion*, 99, 101837. [Journal paper] DOI: <https://doi.org/10.1016/j.inffus.2023.101837>

Chai, C., Lu, J., **Jiang, X.**, Shi, X., & Zeng, Z. (2022). An automated machine learning (automl) method for driving distraction detection based on lane-keeping performance. arXiv preprint arXiv:2103.08311. Submitted to *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Aug 2022. Under review. [Journal paper]

Bauranov, A., Parks, S., **Jiang, X.**, Rakas, J., & González, M. C. (2021). Quantifying the Resilience of the US Domestic Aviation Network During the COVID-19 Pandemic. *Frontiers in Built Environment*, 7, 642295. [Journal paper] DOI: <https://doi.org/10.3389/fbuil.2021.642295>

Conference Proceedings

Jiang, X., "Designing a Time-Driven Simulation Framework for Large-Scale Traffic Networks." *Proceedings of the 38th ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (SIGSIM-PADS '24)*, pp. 79-80, 2024. DOI: <https://doi.org/10.1145/3615979.3665104> [Conference paper]

Jiang, X., C. Jiang, J. Cao, A. Skabardonis, A. Kurzhanskiy, and R. Sengupta. "DRBO - A Simulator Calibration Framework Based on Day-To-Day Dynamic Routing and Bayesian Optimization." *Proceedings of the 2024 IEEE 27th*

International Conference on Intelligent Transportation Systems (ITSC), Edmonton, Canada, September 24-27, **2024**.

[Conference paper]

Cao, S., **Jiang, X.**, Bulusu, V., Charkrabarty, A., Hansen, M., Onat, E., Sengupta, R., and Zou, B. "Integrating flight and charging schedules in urban air mobility." In *Proceedings of the 103rd Annual Meeting of Transportation Research Board*, Washington D.C., USA, Jan **2024**. [Poster Session]

Cao, J., **Jiang, X.**, Tang, Y., Moody, J. T., Mo, Q., and Yang, H. F. "Understanding the Effect of Connector Buses on Flight Itinerary Choice." In *Proceedings of the 103rd Annual Meeting of Transportation Research Board*, Washington D.C., USA, Jan **2024**. [Oral Presentation]

He, H., Li, J.B., **Jiang, X.** and Miller, H. "Sparse Matrix in Large Language Model Fine-tuning." *ICLR 2024 Conference USA*[Submitted]

Cao, S., **Jiang, X.**, E. B. Onat, B. Zou, M. Hansen, R. Sengupta, and A. Chakrabarty. "Fleet Size and Spill for UAM Operation under Uncertain Demand." *Proceedings of the 11th International Conference on Research in Air Transportation (ICRAT)*, **2024**. [Conference paper]

Onat, E. B., S. Cao, R. Rizwan, **Jiang, X.**, M. Hansen, R. Sengupta, and others. "A Simulation-Optimization Framework for Developing Wind-Resilient AAM Networks." *Proceedings of the 11th International Conference on Research in Air Transportation (ICRAT)*, **2024**. [Conference paper]

Tsai, M., Liu, C., Yang, H., **Jiang, X.**, Zhu, M., and Wang, Y. "Unified Framework for Multi-Contrastive Learning in Spatial-Temporal Traffic Forecasting." In *Proceedings of the 103rd Annual Meeting of Transportation Research Board*, Washington D.C., USA, Jan **2024**. [Conference paper]

J. Bachan, J. Ye, **Jiang, X.**, T. Nguyen, M. Natarajan, M. Bremer, and C. Chan. "Devastator: A Scalable Parallel Discrete Event Simulation Framework for Modern C++." *Proceedings of the 38th ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (SIGSIM-PADS '24)*, pp. 35-46, **2024**. [Conference paper] DOI:

<https://doi.org/10.1145/3615979.3656061>

Jiang, X., Laurence Lu, and Linyue Song. "Incompressible Fluid Simulation Parallelization with OpenMP, MPI, and CUDA." *Advances in Information and Communication: Proceedings of the 2023 Future of Information and Communication Conference (FICC)*, Volume 2. Cham: Springer Nature Switzerland, **2023**. [Conference paper] DOI:

https://doi.org/10.1007/978-3-031-28073-3_28

Jiang, X., Lin, W., and Nagda, A. "Optimizing Matrix Multiplication on NERSC's High Performance Computer Cori." In *Proceedings of the Future Technologies Conference (FTC) 2023*, Session 12: Computing, San Francisco, CA, USA, Nov **2023**. Presented in-person. [Conference paper]

Jiang, X., Zhuang, D., Cao, S., Cao, J., Tang, Y., Li, J., Bulusu, V., Sengupta, R., and Zhao, J. "Performance Benchmarking and Scalability of LPSim: A Multi-GPU Traffic Simulation Approach." Presented in *IEEE DTPI 2023*. [Conference paper]

Cao, J., **Jiang, X.**, Tang, Y., Mo, Q., and Yang, H. "Understanding Different Connector Buses' Effect on People's Choices in Selecting Itinerary." *2023 INFORMS Annual Meeting*, Phoenix, AZ, USA[Invited Oral Presentation]

Yang, H., Zheng, W., Cai, J., Wang, P., **Jiang, X.**, Du, S., Wang, Y., and Wang, Z. "Integrating the Traffic Science with Deep Learning for City-wide Network Congestion Prediction." In *Proceedings of the 102nd Annual Meeting of Transportation Research Board*, Washington D.C., USA, Jan **2023**. Accepted. [Conference paper]

Jiang, X., Yang, H., and Wang, Y. "Making Sense of Electrical Vehicle Discussions Using Sentiment Analysis on Closely Related News and User Comments." *2022 International Conference on Transportation and Development (ICTD)*, American Society of Civil Engineers (ASCE). [Conference paper]

Jiang, X., Peng, X., Bulusu, V., Poliziani, C., Chatterji, G., & Sengupta, R. (2022, September). A Metrics-based Method for Evaluating Corridors for Urban Air Mobility Operations. In *2022 IEEE International Smart Cities Conference (ISC2)* (pp. 1-7). IEEE. [Conference paper] DOI: [10.1109/ISC25366.2022.9922442](https://doi.org/10.1109/ISC25366.2022.9922442)

Pham, H., **Jiang, X.**, & Zhang, C. (2022). Causality and Advanced Models in Trip Mode Prediction: Interest in Choosing Swissmetro. *2022 International Conference on Transportation and Development (ICTD)*, American Society of Civil Engineers (ASCE). [Conference paper]

Huang, W., Yan, C., & **Jiang, X.** (2019). Chemical and rheology evaluation on the field short-term aging of high content polymer modified asphalt (No. 19-00486). In *Proceedings of the 98th Annual Meeting of Transportation Research Board*, Washington D.C., USA, Jan **2019**. [Conference paper] URL: <https://trid.trb.org/view/1572334>

Teaching Experience

CEE 290/190S Emerging Technologies in Public Health

Spring 2024

Lead Teaching Assistant

Berkeley, CA

- Assessed assignments and papers with an emphasis on the application of emerging technologies to public health challenges, providing specialized tutoring to enhance student understanding and innovation.
- Organized and led discussions on the latest trends in public health technology, facilitated the integration of guest speakers from the field, and moderated engaging debates to deepen student insight into course materials.

CEE 290I Civil Systems: Control and Information Management

Fall 2023

Lead Teaching Assistant & Guest Lecturer

Berkeley, CA

- Collaborated with Prof. Raja Sengupta and alumni from the Systems Engineering Ph.D. program to design and deliver an "invited lecture series" focused on Data-intensive, AI/ML applications, covering topics such as collaborative software development, containers, microservices architectures, cloud infrastructure, infrastructure as code, and MLOps.
- Developed comprehensive lecture materials and practical assignments to expose students to industry-standard practices and tools, facilitating their understanding of modern software engineering and data engineering concepts.
- Engaged in one-on-one tutoring and group discussions to deepen students' practical skills and theoretical knowledge, ensuring their readiness for the dynamic demands of the tech industry.

CEE 290/190S Emerging Technologies in Public Health

Fall 2023

Lead Teaching Assistant

Berkeley, CA

- Evaluated student assignments and provided feedback on case studies and projects related to leveraging technology for public health improvements, focusing on the integration of data, technology, and policy for equitable health outcomes.
- Supported students in understanding and applying concepts such as HL7, FHIR, continuous health monitoring, and bio-surveillance through hands-on tutoring and guidance on homework assignments.
- Facilitated engaging student discussions on the application of emerging technologies to mental health, environmental health, and lifestyle, enhancing their capability to innovate in public health technology.
- Coordinated with domain experts for guest lectures and capstone project mentorship, enriching the course experience with real-world insights and applications of technology in public health.

CEE 290I Civil Systems: Control and Information Management

Fall 2022

Lead Teaching Assistant

Berkeley, CA

- Supported the delivery of a curriculum exploring core computer science principles tailored for non-CS majors, covering topics from Von-Neumann Machine, DLX programming, to cloud computing, aimed at equipping students with a foundational understanding of computational systems.
- Oversaw grading and provided feedback for a series of biweekly homework assignments aligned with lecture topics such as memory management, data structures, and networking, emphasizing practical applications and safety in computing.
- Led tutoring sessions that clarified concepts of computational complexity, pointers, memory safety, and the Turing model of computation, reinforcing students' comprehension and application of these fundamental principles.
- Facilitated discussions and hands-on learning experiences related to cloud computing and computational reduced models, guiding students through the complexities of modern computing environments and their applications.

CEE 290I Civil Systems: Control and Information Management

Fall 2021

Teaching Assistant

Berkeley, CA

- Contributed to demystifying computer science for non-CS majors, covering a broad range of topics including semantics, the Von-Neumann Machine, DLX programming, memory management, computational complexity, data structures, and cloud computing.
- Assessed and graded a series of challenging homework assignments and a semester-long project, emphasizing the practical application of course topics in real-world scenarios.
- Provided targeted tutoring and guidance on complex topics such as memory safety, pointers, parsing, and networking, enhancing students' understanding and ability to innovate with computational technologies.
- Supported students in the development and presentation of their final projects, focusing on the intelligent use of computation to solve practical problems, and facilitated the final oral exam to assess their comprehensive understanding of the course material.

CEE 298/198 Transportation Equity and Justice

Spring 2021

Teaching Assistant & Instructor of Practice

Berkeley, CA

- Performed comprehensive grading of homework and papers, and provided targeted tutoring with a focus on justice and equity problem-solving in transportation.
- Facilitated student discussions, coordinated guest speaker sessions, and moderated dialogues to enrich course content and engagement.

Fundings

NSF I-Corps 2024 Cohort

Jan 2024 - Dec 2024

Chief Technology Officer, *Vertisim.ai*

NSF I-Corps Virtual Southwest Hub

- Secured funding from the National Science Foundation (NSF) I-Corps Program to explore commercialization strategies for advanced Urban Air Mobility (UAM) simulation and optimization solutions.
- Led a cross-functional team in conducting over 100 customer discovery interviews, refining product-market fit and identifying high-value use cases for UAM operators, municipalities, and airport planners.
- Utilized NSF I-Corps resources to develop a comprehensive business model, focusing on autonomous decision-making technologies for eVTOL fleet optimization and urban airspace integration.
- Engaged with industry stakeholders during I-Corps sessions, incorporating insights into *Vertisim.ai*'s 3D route analytics platform and reinforcement learning optimization techniques.
- Collaborated with NSF I-Corps instructors and program directors to create an entrepreneurial roadmap, aligning *Vertisim.ai*'s offerings with market demands and regulatory requirements.
- Acknowledged by NSF for advancing commercialization readiness and contributing to the UAM ecosystem with cutting-edge simulation frameworks.

Emerging Technologies for Public Health

Aug 2023 - Dec 2024

Course Developer

UC Berkeley, Berkeley, CA

- Secured federal funding through the California Consortium for Public Health Informatics Technology (CCPHIT) Education grant, under the U.S. Department of Health and Human Services, to develop a new course curriculum.
- Collaborated with Prof. Raja Sengupta and Mr. Gora Datta to design CE190S/290, focusing on leveraging technology for equitable public health outcomes.
- Integrated cutting-edge case studies on mental health, bio-surveillance, environmental health, and lifestyle innovations to equip students with practical, interdisciplinary skills.
- Aligned course development with a new statewide curriculum in Public Health Informatics and Technology, supporting undergraduate and graduate education across California institutions.
- Acknowledged by CCPHIT stakeholders for contributions to fostering the next generation of public health informatics professionals.

Urban Air Mobility Research and Development

Dec 2022 - Aug 2023

Lead Researcher

UC Berkeley, Berkeley, CA

- Secured funding from Supernal under Award No. 052838-002 to advance research in Urban Air Mobility (UAM), focusing on system economics and airspace integration.
- Developed a UAM micro-simulator and partially implemented a 3D route analytics platform to evaluate eVTOL fleet dynamics and optimize urban airspace operations.
- Conducted case studies for the Los Angeles and San Francisco Bay Area regions, covering demand modeling, route design, vertiport infrastructure sizing, and air traffic management strategies.
- Proposed innovative UAM airspace structures and integration with legacy aviation systems, grounded in research from FAA's UAM ConOps and advanced simulation frameworks.
- Published findings in leading forums, including ICRAT 2024, contributing to the field of eVTOL network performance, fleet optimization, and wind-resilient AAM networks.
- Acknowledged by Supernal for advancing UAM system economics and vehicle capability requirements, enabling sustainable airspace solutions.

Simulating Docked Bikeshare and Public Transit in the San Francisco Bay Area June 2021 - Dec 2022

Lead Researcher

LBNL, Berkeley, CA

- Secured sponsorship from the U.S. Department of Energy (DOE) Vehicle Technologies Office (VTO) under the Systems and Modeling for Accelerated Research in Transportation (SMART) Mobility Laboratory Consortium, part of the Energy Efficient Mobility Systems (EEMS) Program.
- Maintained additional funding from the U.S. Environmental Protection Agency (EPA) for comprehensive agent-based simulations integrating docked bikeshare systems with public transit in the San Francisco Bay Area.
- Acknowledged by DOE EEMS technology managers and EPA officials for significant contributions to the Micromobility-Integrated Transit and Infrastructure for Efficiency (MITIE) project under the SMART Mobility Laboratory Consortium.
- Ensured alignment with federal guidelines, allowing the U.S. Government to retain rights for nonexclusive publication and reproduction of research outputs.

Journals/Conferences Peer Reviewer

[Frontiers in Built Environment Editor](#) (Advanced Technologies for Aviation Operations and Passenger Experience) [Frontiers in Psychology](#) (1 article - Accepted) [Scientific Reports](#) (1 article - Publons)

[ICLR 2024](#) (3 articles) [TRB 2024/2023](#) (19 articles - Publons) [ASCE ICTD 2024 Proceedings](#) (1 article) [ITSC 2023, 2024](#) (3 articles) [AAAI 2024](#) (2 articles) [IEEE Intelligent Transportation Systems Society Conference 2022](#) (3 articles)

Awards

[2024 ICRAT Best Paper Award in the Trajectories and Networks track](#)

[2023 ASCE ICTD AI in Transportation Committee Outstanding Session Organizer](#)

[2023 Selected Participant for Falling Walls Lab San Francisco Bay Area](#)

[2022 NSF AI workshop Phase II Travel Award](#)

[Joseph M Sussman 2021 Best Paper Prize](#)

Projects

Shenzhen Metro Website | [Java](#), [Docker](#), [JavaScript](#), [React](#), [Spring Cloud](#), [JWT](#), [Mybatis Plus](#), [Redis](#), [AWS](#) [GitHub](#)

- Split-Stack-Developed an online metro application that includes a user system and a management system.
- Implemented authority management, subway management, statistical analysis, and line classification management.
- Used Spring Boot for the back-end, React+Hooks For the front-end, and Amazon S3 to store files.
- Deployed the web application to real users with AWS Elastic Beanstalk.

Shanghai Airport App | [Java](#), [Spring Boot](#), [Shiro](#), [Redis](#), [Mybatis](#), [Docker](#), [Swagger](#) [GitHub](#)

- Established the passenger management and travel management modules' back-end of a commercial mobile app.
- Deployed and achieved distributed architecture, load balancing and hot backup via Haproxy & XtraBackup.
- Optimized around **300** SQL query through Slow Query Log, and reduced **80%** query time through Elasticsearch.

Interpreter for a new Script Language | [Java](#), [C](#), [Git](#), [GluonJ](#) [GitHub](#)

- Designed a new high-level dynamically typed, multi-paradigm, interpreted programming language.
- Implemented the interpreter with java which features garbage collection, lexical scope, closures, classes, and inheritance.
- Optimized the traversal of Abstract Syntax Tree and improved the performance by redesigning the Virtual Machine.

Technical Skills

Languages: Java, Go, Python, C/C++, HTML/CSS, JavaScript, SQL

Frameworks/DataBases: gRPC, Spring Boot, Node.js, MyBatis, MySQL, MongoDB, Redis, Amazon S3

Developer Tools: Gradle, Maven, Git, Docker, Nginx, Tomcat, Amazon EC2, Elastic Beanstalk

Community Engagement and Leadership

UC Berkeley Civil and Environmental Engineering Graduate Student Society **June 2023 - Present**
Event Organizer and Coordinator *Berkeley, CA*

- Coordinated the monthly Social Hour to foster a sense of community among graduate students, faculty, staff, and postdocs within the CEE department.
- Organized informational sessions prior to the Social Hour, encouraging participants to bring resumes for networking opportunities, enhancing career prospects and industry connections for attendees.

UC Berkeley Representation of Asian and Pacific Islanders (RAPID-CEE) **June 2023 - Present**
Financial Treasurer & Event Coordinator *Berkeley, CA*

- Led the organization of the monthly event, such as Lantern Festival Social Lunch, promoting cultural awareness and community among Asian and Pacific Islander students and faculty within the CEE department.
- Spearheaded the application process for Graduate Registered Student Organization (GRSO) funding, utilizing multiple avenues to secure financial support for cultural events, ensuring diverse and inclusive programming.
- Managed budgeting and financial oversight for the event, demonstrating adeptness in fund allocation for catering, decorations, and marketing materials to enhance event quality and attendee experience.
- Oversaw efficient guest list management, including RSVP follow-up, to maximize participation and foster an environment of cultural exchange and professional networking.

- Played a key role in the administration of the GA Mutual Aid Fund in collaboration with the Basic Needs Center, designed to support students facing financial challenges, enhancing inclusivity and accessibility of financial support systems.
- Contributed to the oversight and distribution of USP Emergency Grants and the Birgeneau Perelman Fund for Undocumented Graduate Students, directly impacting basic needs, professional development, and tuition support for marginalized student populations.
- Managed applications and allocations for the Graduate Assembly's monthly Funding Round, ensuring transparent and equitable distribution of resources to graduate student organizations and initiatives.
- Engaged in fundraising efforts for the Berkeley Graduate Assembly, focusing on supporting Graduate Student Parents and Disabled Graduate Students through community-building, advocacy, and professionalization events.
- Facilitated student engagement opportunities, including the promotion of the Student Regent application process, advocating for student representation and policy development at the University of California Board of Regents.

Students Mentored

Yuhan Tang: MIT Master of Science in Transportation

Junzhe Cao: ETH Zurich ESOP scholar

Jiaying Li: CMU Master of Science in Computer Science

Luze Sun: Upenn Master of Science in Computer Science

Yibo Zhao: JHU Master of Science in System Engineering

Jieying Zhang: Duke University Master of Science in Electrical and Computer Engineering

Andrew Park: UC Berkeley Master of Science in Transportation

Jorge Duarte: UC Berkeley Master of Science in System Engineering

Rishi Kumar Srinivasan: UC Berkeley Master of Engineering in Transportation