Zilin Bian
6 MetroTech RM466
Brooklyn, NY
USA
352-281-3680
zb536@nyu.edu

Dear Members of Search Committee,

I am writing to express my interest in the tenure-track assistant professor position within the Civil and Construction Engineering (CCE) Department at Brigham Young University. With a strong background in transportation engineering, digital twin technologies, and data-driven urban mobility systems, I am eager to contribute to BYU's mission of providing a world-class education that is spiritually strengthening, intellectually enlarging, and character-building.

Throughout my postdoctoral and PhD work at NYU, I have served as PI and Co-PI on five federally and locally funded research projects, securing over $535,000 in funding, as well as a lead researcher on six additional projects, contributing $1.7 million. Altogether, these roles have helped secure more than $2.2 million in funding from the U.S. Department of Transportation (USDOT), state agencies, and industry partners. My research centers on human-centered decision intelligence, digital twin technologies, and AI-driven solutions for urban and transportation resilience, as well as smart infrastructure sensing and monitoring. This experience has equipped me with a comprehensive understanding of modern transportation networks and the complexities involved in integrating advanced technology to address critical mobility challenges. I believe these experiences align well with BYU's strengths in fostering innovative research and interdisciplinary collaboration. Moving forward, I plan to pursue further funding opportunities from federal grants (e.g., NSF, FHWA) and local agencies (e.g., DOT, DOE) to advance interdisciplinary research initiatives in line with BYU's strategic goals.

My research interests include Intelligent Transportation Systems, Transportation Mobility and Incident Management, Transportation Resilience, Connected and Automated Vehicles, and Transport Policy Regulation and Impact. I employ interdisciplinary methodologies that integrate AI, advanced data visualization, and systems modeling to address urban challenges, ensuring my work bridges research and practice. A core strength of my work is successfully translating my research, published in top journals such as Transportation Research Part A and Part C, into real-world applications. For instance, one of my recent digital twin projects, where I serve as Co-PI, is being prepared for pilot implementation at the upcoming 2026 World Cup, in collaboration with local agencies and FIFA to leverage digital twin technologies for transportation planning, management, and crowd control, while my work on transportation equity has informed planning strategies for underserved and vulnerable communities. Residing in New York City, I have focused my research at NYU on adopting AI-integrated solutions to address the complex challenges of an urban environment as intricate as NYC. Using NYC as a large-scale testbed, I have developed a deep understanding of the city's unique transportation and infrastructure issues, as well as the broader challenges faced by urban systems worldwide. I have collaborated with local governments, state agencies, and private industry on projects

that translate research into actionable solutions. I am particularly interested in expanding this work by exploring opportunities for technology commercialization, partnerships with non-profit organizations, and contributions to policy development.

In addition to research, I am passionate about teaching and mentoring the next generation of transportation engineers. Over the past five years, I have taught graduate-level courses such as Forecasting Urban Travel Demand and Data-Driven Mobility Modeling and Simulation at NYU. My teaching philosophy centers on fostering critical thinking and practical skills through active learning, equipping students with the tools they need to tackle complex real-world challenges. I look forward to contributing to BYU's curriculum by developing courses that incorporate human-centered sustainability, equity, and advanced data-driven methodologies, and by advising undergraduate and graduate-level research projects.

I am equally committed to promoting diversity, equity, and inclusion (DEI) within engineering. I have actively mentored students from underrepresented backgrounds and engaged in outreach to support diversity in STEM. I am enthusiastic about joining BYU's inclusive academic community, contributing to initiatives that expand access and success for all students, and engaging with student chapters of organizations like ITE and Engineers Without Borders.

Thank you for considering my application. I look forward to the opportunity to discuss how my experience and vision align with the goals of BYU's Civil and Construction Engineering Department.

Sincerely,

Zilin Bian