

Smart Planning Rising Up with Digital Twin: Transforming the Interconnection Between Open Data and City Planners



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11:00 AM – 12:15 PM
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Online/Webinar (Zoom)

Registration Link

About the Panel

Mr. Dustin Carlino has 5 years of experience working with traffic simulation and OpenStreetMap, both as an undergraduate at UT Austin and as an independent software engineer. He has dedicated 2.5 years so far to building open-source A/B Street. A/B Street, developed by Mr. Carlino, is a widely used open-source traffic simulator designed for use by the general public. Without prior training, anybody can visualize how a road looks with its space reallocated (for example, transforming on-street parking into a bike lane) or watch traffic flow through an intersection with modified signal timing or turns (for example, adding a dedicated left turn phase). The software runs on Mac, Windows, Linux, and web browsers and works anywhere in the world, using OpenStreetMap and a variety of heuristics for generating travel demand models.

Dr. Xuesong (Simon) Zhou from Arizona State University (ASU) is an expert in dynamic traffic assignment and simulation and maintains an open-source mesoscopic traffic simulator called DTALite. As a leading open-source development team for USDOT, the ASU Trans + AI team has been developing a broader set of seamlessly integrated open-source computational engines, e.g., OSM2GMNS, Grid2Demand, as open source transportation modeling and planning/operations tools. DTALite has been applied in Maryland Statewide model with 26 million agents, and open-source tools developed by ASU Trans + AI team have been downloaded and installed more than 20000 times.

About the Talk

The recently emerging trend of digital twin technology and high-performance computing is creating a revolutionary paradigm shift in the coming years. For smart city and regional mobility applications, the pairing of the virtual and physical world allows analysis of data and monitoring of systems, evaluating different improvement strategies, and planning the future by using models and simulators. A long-term goal of Smart City Digital Twin (SCDT) is to create sustainable urban systems that benefit all citizens and societies at large. This talk and related interactive demonstration aim to introduce our efforts in developing an Open-source simulation framework for transportation-focused applications. Using the Arizona State University Tempe Campus as an example. Mr. Carlino will demonstrate a smart community-oriented Digital Twin prototype, namely [A/B street](#), for metropolitan planning organizations to fully utilize available simulation platforms through open-source ecosystems. Dr. Simon Zhou will talk about open standard of general model network specifications (GMNS), managed by Volpe/FHWA, for creating and sharing of macro, meso and microscopic transportation networks and related sensor data.

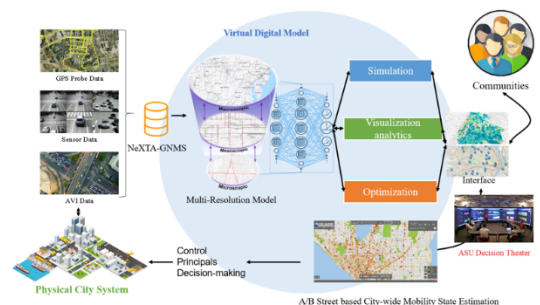


Figure 1. Open-source enterprise-grade multi-resolution framework for evaluation, while the open-street map-based publicly-accessible nation-wide driving network has 20 M nodes produced by ASU super-computing center using 2 TB memory. ASU Decision Theater (dt.asu.edu) organizes researchers, policymakers, and the business community to understand better and explore solutions to complex issues facing society. Using data analytics and high-performance computing to drive software-integrated models, DT works with transdisciplinary partners to streamline big data and transform it into novel, interactive data visualizations.

This seminar has been converted to a webinar and is now webcast live to a worldwide audience using Zoom. Recordings of all sem(web)inars may be accessed by semester at <https://www.tomnet-utc.org/seminars.html>.