Diego A. Temkin

SM in Transportation student at MIT, researching how students ride transit

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Education

SM in Transportation (Networks and Systems) — Cambridge, MA
Massachusetts Institute of Technology — Sep 2026 – May 2028

SB in Computer Science and Engineering and in Planning — Cambridge, MA
Massachusetts Institute of Technology — Jun 2022 – May 2026

- Thesis: A Co-Design Framework for School Bus Network Redesign (advisor: Jim Aloisi)
- GPA: 4.5/5.0
- Coursework: Distributed Computer Systems Engineering, Design and Analysis of Algorithms, Transportation Planning and Policy, Modeling Pedestrian Activities

Experience

MIT JTL-Transit Lab — Cambridge, MA
Graduate Research Assistant — Aug 2026 – present

Research on how K-12 students use public transit, with the Chicago Transit Authority.

MIT Laboratory for Information and Decision Systems — Cambridge, MA
CEE Research and Innovation Scholar, Advanced Undergraduate Research Program — Aug 2025 – May 2026

- Developed a general-purpose bus network redesign framework using monotone co-design theory and mixed-integer linear programming to jointly optimize cost, coverage, and equity objectives while satisfying fleet, labor, and policy constraints.
- Built integrated data pipelines combining OpenStreetMap networks, estimated travel times, origin-destination demand, and American Community Survey demographic data to generate transparent Pareto frontiers for multi-objective transit planning tradeoff analysis.
- Applied the framework to a real-world school bus network in Framingham, MA to evaluate the existing routing system, generate alternative designs, and demonstrate structurally achievable improvements in efficiency, coverage, and accessibility.

Washington Metropolitan Area Transit Authority — Washington, DC
Junior Associate Engineer, Reliability Engineering and Asset Management — Jun 2025 – Aug 2025

- Supported data governance efforts in a centralized transit asset management database to streamline analysis for more than 500,000 assets and work orders.
- Integrated information from multiple sources to create a comprehensive asset management dashboard, enabling real-time monitoring and decision-making.
- Designed and deployed a department-wide web application to spatially identify choke points in asset rehabilitation efforts, used to enhance data-driven prioritization of financial resources.

U.S. DOT Volpe National Transportation Systems Center — Cambridge, MA
Student Trainee, Innovative Research Design and Deployment Division — Jun 2024 – May 2025

- Created analysis and validation pipelines for the cross-agency Work Zone Data Exchange (WZDx) project, used by more than 27 states, to facilitate open standard development.
- Documented and developed tools for working with the General Modeling Network Specification (GMNS), making it easier to model real-world transportation networks.

- Supported the interdepartmental U.S. DOT AI Working Group, enhancing the ability for key stakeholders to engage with modern technological developments.

MIT Department of Urban Studies and Planning Cambridge, MA
Data Science and GIS Researcher Jun 2023 – Jun 2024

- Analyzed research data on nature-based solutions for urban infrastructure and developed a digital platform that can be used in community outreach to implement priorities.
- Integrated spatial data analysis and GIS software in Python to create an online prototype for digital mapping and deployed a final iteration using a React front-end.
- Configured Linux server infrastructure to host and manage web production, enabling widespread usage.

MIT Plasma Science and Fusion Center Cambridge, MA
Machine Learning and Plasma Science Researcher Feb 2023 – Jun 2023

- Created a digital adaptation of the long-standing Alcator C-Mod tokamak experiment, which was operated for 25 years and took 50,000 shots of plasma experiments.
- Constructed a generative surrogate model that can predict and categorize plasma current state, in order to evaluate the model's applicability to future experiments as a fast predictor of performance.
- Practiced machine learning applications in plasma science and contributed to this field through hands-on research and experimentation.

Publications

A Co-Design Framework for School Bus Network Redesign: Applying Category Theory to Routing, Resources, and Equity May 2026
Bachelor's thesis, Massachusetts Institute of Technology
dspace.mit.edu/handle/1721.1/176348

NbS and Policy Communication 2025
Cong Cong and **Diego Temkin**
Chapter in Nature-Based Solutions in Supporting Sustainable Development Goals: Theory and Practice, Elsevier
doi.org/10.1016/B978-0-443-21782-1.00008-7

Presentations

Urban Bus Network Co-Design: A Structural Framework for Evaluation and Redesign Jun 2026
Diego Temkin, Riccardo Fiorista, and Gioele Zardini
Conference presentation, 10th International Symposium on the Use of Public Transit Automated Data for Planning, Operations, and Management (TransitData 2026), Toronto, ON, Canada
easychair.org/smart-program/TD-2026/2026-06-24.html

Using Category Theory to Create a Generalizable Framework for Bus Network Redesigns Incorporating Equitable Factors Dec 2025
Poster presentation, MIT EECS SuperUROP Poster Showcase, Cambridge, MA
superurop.mit.edu/scholars/diego-alejandro-temkin

Honors

MIT Karl Taylor Compton Prize 2026
MIT DUSP Outstanding Undergraduate Thesis 2026
HSF Scholar, Hispanic Scholarship Fund 2022
QuestBridge National College Match Scholar 2021
National Hispanic Scholar, College Board 2021
National Rural and Small Town Scholar, College Board 2021
AP Scholar with Distinction, College Board 2021

Leadership

MIT Student Information Processing Board Cambridge, MA
Student Developer, Member-at-Large Feb 2025 – present

Lead development of web applications for students, built with React, Svelte, and Node.js and used daily by thousands of students.

MIT Dormitory Council Cambridge, MA
President May 2025 – May 2026

Advocated for more than 3,500 undergraduate students residing in university housing to administrators. Engaged with various stakeholders across the Institute to advance policy issues and pilot programs relevant to student life, managing and allocating a budget of more than $75,000.

Skills

Programming Languages: Python, TypeScript, Java, C, C#, SQL, RISC-V Assembly, Go, Dafny
Methods: Optimization, Pareto-front analysis, Applied category theory, GIS, Machine learning
Tools: React, Svelte, Node.js, Docker, Linux, PostgreSQL, QGIS, Gurobi
Spoken Languages: English (Native), Spanish (Native)
Interests: Software development, Data science, Transportation operations and planning