

Nathan David Obeng-Amoako, E.I.T.

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RESEARCH INTERESTS

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- Intelligent Transportation Systems
 - Advanced Traffic Signal Control
 - Machine Learning and Deep Learning
 - Transportation Demand Forecasting
 - Transit Operations and Management
 - Bicycle and Pedestrian Transportation

EDUCATION

Doctor of Philosophy in Civil Engineering (Transportation) Northeastern University, Boston, MA (GPA: 4.00/4.00) Research Advisor: Professor Peter Furth	Sep 2023 – Present
Master of Science in Civil Engineering (Transportation) Northeastern University, Boston, MA (GPA: 4.00/4.00)	Sep 2023 – Apr 2025
Bachelor of Science in Civil Engineering Kwame Nkrumah University of Science and Technology (KNUST), Kumasi Recognition: Best Graduating Student, Class of 2022	Aug 2018 – Sep 2022

RESEARCH EXPERIENCE

Graduate Research Assistant, Northeastern University, Boston, MA • Development of advanced traffic signal controls and simulations • Investigation of barriers to low-stress bicycle network connectivity	Sep 2023 – Present
Research Assistant, Civil Engineering Department, KNUST • Empirical investigation of aggregate retention benefits of waste-modified asphalt • Analysis of mechanical and durability properties of asphalt mixtures	Jan 2022 – Sep 2022

SPONSORED RESEARCH PROJECTS

Project: Bicycle Level of Traffic Stress at Intersections (xLTS) Funding Agency: United States Department of Transportation (USDOT) • Assessing the impact of high-stress crossings on bike network connectivity • Developing algorithms and data structures for traffic stress network analysis	Jun 2024 – Aug 2025
Project: Accessible Bus Stop Design in the Presence of Bike Lanes Funding Agency: Massachusetts Department of Transportation (MassDOT) • Studied bus rider and bicyclist behavior at floating and constrained bus stops • Proposed design improvements to reduce bus-rider-and-bicyclist conflicts	Sep 2023 – Jun 2024

JOURNAL PUBLICATIONS

- 2025 1. Peter Furth, Ray Sacidi-Razavi, **Nathan David Obeng-Amoako** and Milad Tahmasebi. TSP-Friendly Underlying Traffic Signal Control: An Essential Complement of Transit Signal Priority. *Future Transportation* (2025), doi: <https://doi.org/10.3390/futuretransp5040160>
2. Joshua Kofi Asamoah, Blessing Agyei Kyem, **Nathan David Obeng-Amoako**, Armstrong Aboah, SAAM-ReflectNet: Sign-Aware Attention-Based Multitasking Framework for Integrated Traffic Sign Detection and Retroreflectivity Estimation, *Expert Systems With Applications* (2025), doi: <https://doi.org/10.1016/j.eswa.2025.128003>

Submitted and under review:

- 2026 3. Yu-Min (Thomas) Yanga, Dewan Tanvir Ahammed, **Nathan David Obeng-Amoako**, Chengbo Ai, Peter Furth and Eleni Christofa. Community-Engaged Informed Floating Bus Stop Guidelines. *Transportation Research Record*.

CONFERENCE PRESENTATIONS

- 2026 1. Yu-Min (Thomas) Yanga, Dewan Tanvir Ahammed, **Nathan David Obeng-Amoako**, Eleni Christofa, Chengbo Ai, and Peter Furth Community-Engaged Informed Floating Bus Stop Guidelines. *Transportation Research Board Annual Meeting 2026*, Washington, D.C.
- 2025 2. **Nathan David Obeng-Amoako** and Peter Furth. (May 2024). Underlying Traffic Signal Control: The Key to Effective Transit Signal Priority – A Case Study of MBTA Bus Route 39 along South Huntington Avenue, Boston, MA. *2025 MassDOT Transportation Innovation Conference*, Worcester, MA.
3. Yu-Min (Thomas) Yanga, Dewan Tanvir Ahammed, **Nathan David Obeng-Amoako**, Eleni Christofa, Chengbo Ai, and Peter Furth. Design Guidelines for Accessible Floating Bus Stops. *International Conference on Transportation and Development 2025*, ASCE, Glendale, AZ.
- 2024 4. Yu-Min (Thomas) Yanga, Dewan Tanvir Ahammed, **Nathan David Obeng-Amoako**, Eleni Christofa, Chengbo Ai, and Peter Furth. (April 2024). Accessible Bus Stop Design in the Presence of Bike Lanes. Poster. *2024 MassDOT Transportation Innovation Conference*, Worcester, MA.
- 2023 5. **Nathan David Obeng-Amoako**, Arthur Louis Senaya, Bundu Kassim, Francisca Owusu-Ansah, Eugene Damoah, Santus Worclachie, and Kenneth A. Tutu. (April 2023). Modification of Bitumen with Waste Materials for Enhanced Aggregate Retention in Surface-Dressed Roads. Lectern. *3rd IRF Africa Regional Congress & Exhibition*, Accra, Ghana.

RESEARCH REPORTS

- 2024 1. Eleni Christofa, Chengbo Ai, Peter Furth, Yu-Min Yang, Dewan Tanvir Ahammed, and **Nathan David Obeng-Amoako**. (2024). *Accessible Bus Stop Design in the Presence of Bike Lanes*. Massachusetts Department of Transportation (MassDOT), Office of Transportation Planning. Report No. 24-060. Retrieved from <https://rosap.ntl.bts.gov/view/dot/79327>

JOURNAL REVIEWS

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| 1. Transportation Research Record, SAGE Publications | 2024 – Present |
| 2. Transportation Research Interdisciplinary Perspectives, Elsevier | 2025 – Present |
| 3. Expert Systems with Applications, Elsevier | 2025 – Present |

TEACHING EXPERIENCE

Northeastern University, Boston, MA

- Summers of **Program Assistant, Sustainable Transportation Summer School Program**
2024, 2025, Location: Technische Universiteit Delft, The Netherlands
2026
- Facilitate logistical, academic and evaluative support for an intensive 5-week program
 - Assist in teaching Vision Zero safety principles to 25 students
 - Explore strategies for car-free and car-lite zones to enhance active transportation

- Spring 2026 **Graduate Teaching Assistant, Energy Systems: Science, Technology, and Sustainability**
- Provided grading support for coursework on energy technologies and sustainability
 - Led discussions on the principles of energy, work, and thermodynamics

- Spring 2026 **Graduate Teaching Assistant, Transportation Systems Analysis and Planning**
- Supported students during office hours with questions on design software (Synchro)
 - Evaluated assignments on intersection analysis, signal timing, and street design principles

- Fall 2025 **Graduate Teaching Assistant, Highway Design**
- Provided grading support for homework assignments
 - Assisted students during office hours, addressing questions about design principles

- Fall 2025 **Graduate Teaching Assistant, Transportation Systems Analysis and Planning**
- Evaluated coursework and provided constructive feedback on analytical assignments
 - Supported students' understanding of transportation system planning frameworks

- Fall 2023 **Course Instructor, Recitation for Statics and Solid Mechanics**
- Tutored fundamental concepts of Newtonian physics and solid mechanics
 - Evaluated students' test performance and offered comprehensive feedback

Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

- Spring 2022 **Teaching Assistant, Irrigation & Drainage Engineering**
- Activity-oriented instruction of drainage design using *Autodesk Civil 3D®*
 - Development of course outlines and preparation of lecture materials

APPOINTMENTS AND ADVISORY ROLES

- Member, Massachusetts Bicycle and Pedestrian Advisory Board, MassDOT** **Jan 2026 – Present**
- Appointed by Governor Maura T. Healey to advise on state-wide bicycle and pedestrian infrastructure policies and programs
 - Provide guidance on transportation infrastructure, safety, and accessibility initiatives

NOTABLE DISTINCTIONS AND ACHIEVEMENTS

• Grant Recipient, New England African Business Expo, Worcester, MA	May 2025
• Civil and Environmental Engineering Distinguished Fellowship Award, Northeastern Univ	Aug 2023
• Associated Consultants Ltd. Award for Best Graduating Student, KNUST	Jul 2023
• Provost Award for Best & Excellent Students in College of Engineering, KNUST (x4)	2019 – 2022
• Academic Excellence Award, Ghana Engineering Students' Association, Ghana	Sep 2022
• Global Finalist, Unilever Future Leaders League Business Pitch Competition, U.K.	Jul 2022
• Scholar, Tullow Oil Scholarship Scheme, Ghana	Apr 2019
• Semifinalist, National Science and Maths Quiz (NSMQ), Ghana	Jul 2018

RELEVANT SOFTWARE AND SKILLS

• Python, R, MATLAB	machine learning, deep learning, advanced data analysis
• PTV Vissim/Vistro	traffic flow simulations, traffic signal analysis, traffic impact analysis
• Synchro	traffic flow modeling, traffic signal timing optimization
• ArcGIS	Spatial data mapping and analysis for informed decision-making
• Gephi	Network data analysis and visualization
• AutoCAD	precision drafting and technical drawings, 2D and 3D
• HTML/CSS/JavaScript	developing web applications
• Minitab, MS Excel	data visualization, statistical computing, data organization

LEADERSHIP EXPERIENCE

Committee Member, Career Mixer Committee, CEE Dep't, Northeastern Univ.	Sep 2025 – Feb 2026
• Organizing networking events connecting students with industry	
• Coordinating logistics for career dev't workshops and employer engagements	
Executive C'ttee Member, CEE Graduate Student Council, Northeastern Univ.	Feb 2024 – Present
• Brainstorming and implementing strategies to enhance graduate student experience	
• Serving as a liaison between the departmental chair and the graduate student body	
Department Rep., College of Engineering. PhD Council, Northeastern Univ.	Jun 2024 – Aug 2025
• Meeting with advisor to discuss novel ways of improving student experience	
• Organizing weekly coffee hours and semesterly happy hours for PhD students	
Communications Director, Young Professionals and Youth Coalition, Ghana	Jan 2021 – Dec 2021
• Social media management to curate consistent communications content	
• Organization of in-person and virtual engagements with members and partners	
President, Civil Engineering Students' Association, KNUST	Feb 2020 – Sep 2021
• Coordination of fundraising events to secure administrative equipment	
• Establishment of academic support scheme for underachieving students	

PROFESSIONAL AFFILIATIONS

- American Society of Civil Engineers (ASCE) Feb 2025 – Present
- Boston Society of Civil Engineers Section (BSCES) of ASCE Feb 2025 – Present
- New England Intelligent Transportation Society (NEITS) Sep 2023 – Present
- Institute of Transportation Engineers (ITE) Jan 2024 – Present

VOLUNTEER EXPERIENCE & COMMUNITY INVOLVEMENT

- **Judge**, Massachusetts Science and Engineering Fair, Worcester (April 2025)
- **Cycling Activist**, Boston Cycling Union, Boston, MA (Feb 2025 – Present)
- **Executive Vice President**, Student Energy Society, KNUST (Jan 2022 – Oct 2022)
- **Community Outreach Coordinator**, Nat'l Society of Black Engineers, KNUST (Jan 2022 – Sep 2022)
- **Project Coordinator**, Engineers Without Borders, KNUST (Aug 2021 - Jul 2022)

SELECTED NEWS AND PRESS

1. College of Engineering, Northeastern University. (August 2024). “PhD Student Reflects on the Sustainable Transportation Dialogue of Civilizations in Holland.” <https://coe.northeastern.edu/news/a-reflection-on-the-sustainable-transportation-dialogue-of-civilizations-course-in-holland/>

REFERENCES

Available upon request