

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) Sep 2023 – Present

Northeastern University, Boston, MA (GPA: 4.00/4.00)

Research Advisor: Professor Peter Furth

Master of Science in Civil Engineering (Transportation)

Sep 2023 – Apr 2025

Northeastern University, Boston, MA (GPA: 4.00/4.00)

Bachelor of Science in Civil Engineering

Aug 2018 – Sep 2022

Kwame Nkrumah University of Science and Technology (KNUST), Kumasi

Recognition: Best Graduating Student, Class of 2022

RESEARCH EXPERIENCE

Graduate Research Assistant, Northeastern University, Boston, MA Sep 2023 – Present

- Development of advanced traffic signal controls and simulations
- Investigation of barriers to low-stress bicycle network connectivity

Research Assistant, Civil Engineering Department, KNUST

Jan 2022 – Sep 2022

- Empirical investigation of aggregate retention benefits of waste-modified asphalt
- Analysis of mechanical and durability properties of asphalt mixtures

SPONSORED RESEARCH PROJECTS

Project: Bicycle Level of Traffic Stress at Intersections (xLTS) Jun 2024 – Aug 2025

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

Project: Accessible Bus Stop Design in the Presence of Bike Lanes

Sep 2023 – Jun 2024

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

JOURNAL PUBLICATIONS

- 2025 1. Peter Furth, Ray Saeidi-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

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| Summers of 2024, 2025, 2026 | Program Assistant, Sustainable Transportation Summer School Program Location: Technische Universiteit Delft, The Netherlands <ul style="list-style-type: none">Facilitate logistical, academic and evaluative support for an intensive 5-week programAssist in teaching Vision Zero safety principles to 25 studentsExplore strategies for car-free and car-lite zones to enhance active transportation |
| Spring 2026 | Graduate Teaching Assistant, Energy Systems: Science, Technology, and Sustainability <ul style="list-style-type: none">Provided grading support for coursework on energy technologies and sustainabilityLed discussions on the principles of energy, work, and thermodynamics |
| Spring 2026 | Graduate Teaching Assistant, Transportation Systems Analysis and Planning <ul style="list-style-type: none">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 <ul style="list-style-type: none">Provided grading support for homework assignmentsAssisted students during office hours, addressing questions about design principles |
| Fall 2025 | Graduate Teaching Assistant, Transportation Systems Analysis and Planning <ul style="list-style-type: none">Evaluated coursework and provided constructive feedback on analytical assignmentsSupported students' understanding of transportation system planning frameworks |
| Fall 2023 | Course Instructor, Recitation for Statics and Solid Mechanics <ul style="list-style-type: none">Tutored fundamental concepts of Newtonian physics and solid mechanicsEvaluated students' test performance and offered comprehensive feedback |

Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

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| Spring 2022 | Teaching Assistant, Irrigation & Drainage Engineering <ul style="list-style-type: none">Activity-oriented instruction of drainage design using <i>Autodesk Civil 3D</i>®Development of course outlines and preparation of lecture materials |
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APPOINTMENTS AND ADVISORY ROLES

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| Member, Massachusetts Bicycle and Pedestrian Advisory Board, MassDOT | Jan 2026 – Present |
| <ul style="list-style-type: none">Appointed by Governor Maura T. Healey to advise on state-wide bicycle and pedestrian infrastructure policies and programsProvide guidance on transportation infrastructure, safety, and accessibility initiatives | |

NOTABLE DISTINCTIONS AND ACHIEVEMENTS

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| • 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

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| • 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

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| Committee Member, Career Mixer Committee, CEE Dep't, Northeastern Univ. | Sep 2025 – Feb 2026 |
| <ul style="list-style-type: none">• 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 |
| <ul style="list-style-type: none">• 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 |
| <ul style="list-style-type: none">• 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 |
| <ul style="list-style-type: none">• 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 |
| <ul style="list-style-type: none">• Coordination of fundraising events to secure administrative equipment• Establishment of academic support scheme for underachieving students | |

PROFESSIONAL AFFILIATIONS

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| • 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