

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 – Present

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 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:

- 2025 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/Teaching 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 2024 **Graduate Teaching Assistant, 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

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/>

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, Gephi** Mapping and analyzing spatial/network data for informed decision making
- **AutoCAD** precision drafting and technical drawings, 2D and 3D
- **HTML/CSS/JavaScript** developing web applications
- **Minitab, MS Excel** data visualization, statistical computing, data organization

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

LEADERSHIP EXPERIENCE

Committee Member, Career Mixer Committee, CEE Dep't, Northeastern Univ. Sep 2025 – Present

- 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

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)

REFERENCES

Available upon request