

Bowen Yang

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EDUCATION

- **University of Nebraska–Lincoln** Lincoln, NE
Doctor of Philosophy in Civil Engineering; GPA: 3.98/4.00
Advisor: Joshua Steelman, PhD, PE
Expected Aug 2023
- **Pennsylvania State University Park** State College, PA
Master of Science in Civil Engineering; GPA: 3.54/4.00
Advisor: Jeffrey Laman, PhD, PE
May 2018

PROGRAMMING SKILLS

- **Languages:** Python, JavaScript, MATLAB, HTML, CSS, Java, R, C, C++
- **Technologies:** Machine Learning, Web development, Mathcad, Microsoft Word, Excel

RELEVANT COURSEWORK

- **Artificial Intelligence:** Practical Machine Learning
- **Programming:** C Language Programming, Fortran Language Programming
- **Mathematics:** Advanced Mathematics, Linear Algebra, Probability and Statistics, Statistical Methods in Research
- **Analysis:** Structural Analysis, Structural Analysis by Matrix, Computational Problem Solving in Civil Engineering
- **Online Certificates:** JavaScript Algorithms and Data Structures, (New) Responsive Web Design, Operating Systems, Discrete Mathematics Generality, Institute for International Teaching Assistants

RESEARCH EXPERIENCE

- **University of Nebraska-Lincoln** Lincoln, NE
Doctoral Dissertation; Truck Platoon Performance Evaluation for Girder Bridges May 2022 - Present
 - Develop analytical numerical frameworks for the evaluation of monotonic and arbitrary cyclic loading and unloading of prestressed concrete girder bridges
 - Utilize MATLAB to perform a nonlinear analysis of prestressed concrete girder response due to cyclic loadings
 - Provide the number of stress cycles per truck platoon with varying headways, number of trucks, gross weights, and types of vehicles
- **University of Nebraska-Lincoln** Lincoln, NE
Research Assistant; Truck Platoon Effects on Girder Bridges Phase II Aug 2021 - Present
 - Calibrate live load factors for truck platoons at the Service limit states to calculate bridge load ratings
 - Formulate an equation to calculate truck platoon Coefficients of Variation (CoV), considering truck weight, dynamic effects, and girder distributions
 - Develop operational strategies for truck platoons on the bridge Service limit states using MATLAB based on available statistical parameters
- **University of Nebraska-Lincoln** Lincoln, NE
Research Assistant; Outdoor Laboratory and Testbed for Bridge Health Aug 2021 - May 2022
 - Cooperated with an industry company to conduct 120 diagnostic load tests on three out-of-service bridges
 - Analyzed transducer data and visualized it using MATLAB to determine dynamic effects and girder distributions
 - Created 2D and 3D finite element bridge models to verify the obtained transducer data
- **University of Nebraska-Lincoln** Lincoln, NE
Research Assistant; Truck Platoon Effects on Girder Bridges Phase I Aug 2019 - Jan 2022
 - Implemented MATLAB codes for calculating maximum truck platoon effects on one- and two- span girder bridges
 - Conducted reliability analysis by using Monte Carlo Simulation (MCS) for truck platoons on girder bridges
 - Established safe headway guidance for platoon trucks with varying weights and CoVs to maintain the required bridge safety index

TEACHING AND MENTORING EXPERIENCE

- **University of Nebraska-Lincoln** Lincoln, NE
Teaching Assistant for CIVE 441 - Steel Design I Jan 2021 - Present
 - Provide project solutions in Mathcad with narrative descriptions of the engineering concepts underlying them
 - Serve as a supporting instructor and answer student questions on an as-needed basis during regularly scheduled office hours (2 hours/week) or through email
- **University of Nebraska-Lincoln** Lincoln, NE
Student Research Mentor for National Science Foundation Program Summers 2021 - 2022
 - Created MATLAB codes to assist students in analyzing rural steel bridges subjected to emergency vehicles
 - Simulated steel bridge interface shear forces based on available statistical parameters using MATLAB
 - Assisted undergraduate students in developing their summer research posters

COURSE PROJECTS

- **University of Nebraska-Lincoln** Lincoln, NE
ENGR 891 - Practical Machine Learning Jan 2021 - May 2021
 - Solved supervised machine learning problems involving structured and unstructured data using python packages such as **numpy**, **pandas**, **seaborn**, **matplotlib**, **sklearn**, **keras** and **tensorflow**
- **University of Nebraska-Lincoln** Lincoln, NE
CIVE 881 - Computational Problem Solving in Civil Engineering Aug 2019 - Dec 2019
 - Utilized MATLAB codes to solve ordinary differential equations and implement numerical methods
 - Applied numerical methods (such as Euler's Forward Method and Centered Difference Method) to predict the displacement of a one-story building

PUBLICATIONS AND TECHNICAL REPORTS

- Wood, R. L., Nasimi, M., **Yang, B.**, Wittich, C. E., Steelman, J. S., Puckett, J. A., ... & Mohammadi, M. E. (2022). Outdoor Laboratory and Testbed for Bridge Health (No. M107)
- **Yang, B.**, Steelman, J. S., Puckett, J. A., & Linzell, D. G. (2021). Safe Platooning Headways on Girder Bridges. Transportation Research Record: Journal of Transportation Research Board
- Steelman, J. S., Puckett, J. A., Linzell, D. G., & **Yang, B.** (2021). Truck Platooning Effects on Girder Bridges (No. SPR-1 (20) M030)

CONFERENCE PAPER AND PRESENTATION

- **Yang, B.**, Steelman, J. S., Puckett, J. A., & Linzell, D. G. (2023). A Reliability-Based Service III Operational Evaluation for Prestressed Girder Bridges Under Platoon Loads. Transportation Research Board Conference (accepted)
- **Yang, B.**, Steelman, J. S., Puckett, J. A., & Linzell, D. G. (2023). A Reliability-based Evaluation of Truck Platoon-loaded Steel Bridges for Strength and Service. TRB AKB20 Committee Nugget Meeting (selected)
- **Yang, B.**, Steelman, J. S., Puckett, J. A., & Linzell, D. G. (2021). Safe Platooning Headways on Girder Bridges. International Bridge Conference

HONORS AND AWARDS

- John W. Hossack Engineering Fund Scholarship, UNL Accepted July 2022
- Robert A. and Becky Reisdorff Student Support Fellowship, UNL Accepted Aug 2021
- Milton E. Mohr Fellowship, UNL Accepted May 2021
- Member of Chi Epsilon Chapter, UNL Oct 2020 - Present
- Robert A. and Becky Reisdorff Student Support Fellowship, UNL Accepted Aug 2020