Hyun Kim

hk385@njit.edu 201-615-1867 Newark, NJ

Education

New Jersey Institute of Technology ***2022 - On going***
Major: PhD in Transportation Engineering
Anticipated graduation date: May 2026
GPA: 3.81

New Jersey Institute of Technology **2018 - 2021**
Major: Bachelor of Science in Civil and Environmental Engineering
GPA: 3.31

Experiences

Research Assistant of Transportation Engineering (NJIT) **July 2019 - On going**

- Assisted in developing a regional bicycle travel demand model for NJTPA.
- Presented “”On the Road to Inclusion: Exploring Equity in Autonomous Public Transportation” and “Application of Classification and Hybrid LSTM-GRU Models for Truck Parking Availability Prediction” at the annual Transportation Research Board conference in January, 2025. Both are under review for publication.
- Developed a Waze data filtration model and its ConOps for the 2024 Transportation Technology Tournament.
- Geocoded New Jersey highway detour plans using ArcGIS for the New Jersey Interactive Diversion Route Portal.
- Modeled I-80 and other roadways around it in New Jersey using VISSIM, contributing to a research paper titled “Collective Assessments of Active Traffic Management Strategies Using a Large-Scaled Microsimulation Testbed.”

  Mirbakhsh, A., Lee , J. ., Jagirdar, R. ., Kim, H. ., & Besenski , D. . (2023). Collective assessments of active traffic management strategies in an extensive microsimulation testbed . *Engineering Applications*, *2*(2), 146–153. Retrieved from https://publish.mersin.edu.tr/index.php/enap/article/view/929

President of the NJIT ITE Student Chapter **January 2022 - On going**

- Initiate, organize, and manage NJIT ITE student chapter events

Additional Information

- Skills: Python, R, Java, PTV Vissim, MATsim, ArcGIS, Linux, Civil 3D, and Matlab

ABOLFAZL AFSHARI

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RESEARCH INTERESTS

- Application of Artificial Intelligence (AI) in Transportation Engineering
- Traffic Simulation and Modeling
- Digital Twin Technology in Transportation Engineering
- Road Infrastructure Optimization
- Intersection Mobility Assessment
- Pedestrian Behavior Analysis

EDUCATION

Sep. 2022 - Present — **PhD in Transportation Engineering**
New Jersey Institute of Technology
Newark, NJ, United States

EXPERIENCE

Sep. 2022 – Now — **Teaching Assistant**
New Jersey Institute of Technology, Newark, NJ, United States

Assisted in a range of teaching duties across multiple courses. For Transportation Engineering, responsibilities included grading, teaching VISSIM, and proctoring examinations. In Dynamics, focused on grading and providing student support during regular office hours. Acted as the primary instructor for the Soil Mechanics Lab, encompassing all teaching, grading, and lab management responsibilities. For Reinforced Concrete Design, duties involved grading and proctoring examinations. Additionally, represented and presented the Intelligent Transportation Research Center (ITSRC) lab during career days and other events, showcasing its capabilities and research opportunities.

May. 2023 – Sep. 2023

May. 2024 - Sep. 2024 — **Research Assistant**
New Jersey Institute of Technology, Newark, NJ, United States

Supported professor in various research projects, including those funded by NJDOT and FHWA. Responsibilities encompassed conducting literature reviews, data collection and analysis, and installing sensors. Actively involved in testing and refining developed systems and projects, as well as assisting in coding and technical aspects to ensure project success.

Mar. 2019 – Aug. 2022 **Transportation Engineer**
Sepehran Dezh Pars Traffic & Transportation Consulting Engineers, Mashhad, Iran

Researching to analyze traffic issues and recommend solutions for enhanced traffic flow and safety, while preparing comprehensive reports on traffic operations, including accidents, safety measures, and network analysis. Additionally, evaluating transportation systems, traffic control, and lighting to assess the need for modifications or expansions.

Jan. 2019 – Aug. 2022 **Teaching Assistant**
Eqbal Lahoori Institute of Higher Education, Mashhad, Iran

Assistant of Road Construction Projects including teaching some parts of Road Construction, Principles of Traffic Engineering, Transportation Engineering, and Road Pavement courses. Coordinate grading.

Sep. 2015 – Sep. 2019 **Technical High School Teacher**
Moud Technical High School, Mashhad, Iran

Taught Mathematics, English, Structures Drawing, Architecture Drawing, and AutoCAD, the high school courses averaging 30 students per semester—developed quizzes, exams, and homework.

PUBLICATIONS

Journal Papers

- Afshari, A., Lee, J., Besenski, D., and Spasovic, L. "Calibrating Microsimulation Models Using Connected Vehicle Data: A New Approach to Improved Accuracy," Journal of Applied Sciences, Volume 15, Issue 3, February 2025, Page 1496, DOI: 10.3390/app15031496
- Afshari, A., Ayati, E., Barakchi, M., "Evaluating the effects of external factors on pedestrian violations at signalized intersections (a case study of Mashhad, Iran)", IATSS Research, Volume 45, Issue 2, July 2021, Pages 234-240, DOI: 10.1016/j.iatssr.2020.10.004.
- Afshari, A., Ayati, E., "Evaluating the Effects of Geometric Design and Traffic Condition on Pedestrian Violations at Signalized Intersections", Quarterly Journal of Transportation Engineering (JTE), Volume 11, Issue 2 - Serial Number 43- winter 2020 - Pages 401-424. (In Persian - with English abstract)
- Afshari, A., Lee, J., Besenski, D., and Spasovic, L. "A Digital Twin Platform for Real-Time Intersection Traffic Monitoring and Performance Evaluation", Journal of Infrastructures, Under Review.

Conference Papers

- Afshari, A., Lee, J., Besenski, D., and Spasovic, L. "A Novel Approach to Calibrating Microsimulation Models: Harnessing Connected Vehicle Trajectories for Enhanced Simulation Accuracy", Proceedings of the 104th Transportation Research Board Annual Meeting, Washington D.C. US. January 2025.
- Afshari, A., Lee, J., and Besenski, D. "Development of Intersection Performance Assessment Platform Utilizing Digital Twin Technology and Microscopic Simulation Software", Proceedings of the 103rd Transportation Research Board Annual Meeting, Washington D.C. US. January 2024.
- Afshari, A., "The Effect of Double Stops on Emissions from Vehicles in Urban Streets (Case Study: Dastgheyb Street, Mashhad)", The 16th International Conference on Traffic and Transportation Engineering, Tehran, Iran, 2017.

- Afshari, A., Ayati, E., “Reviewing the Factors Affecting Pedestrian Violation in Signalized Intersection”, The 1st National Conference on Applied Researches in Sciences and Engineering, Mashhad, Iran, 2017.
- Afshari, A., “The Effect of Parking Near the Intersection on Fuel Consumption of Vehicles by Aimsun Software (Case Study: Artesh Intersection, Birjand)”, The International Conference on Civil Engineering, Architecture & Cityscape, Istanbul, Turkey, 2016.
- Afshari, A., “The Optimum Geometric Design for Intersections with Many Left Turns by Aimsun Software (Case Study: Artesh Intersection, Birjand)”, The 3rd International Conference on Civil Engineering, Architecture & Urbanism, Kuala Lumpur, Malaysia, 2016.

PRESENTATIONS

- “Enhancing Vulnerable Road User Safety in Urban Streets Using LiDAR and Crossing Warning System”, NJDOT 26th Annual Research Showcase, Oct. 23, 2024.
- “Enhancing VRU Safety in Urban Streets Using LiDAR and Crossing Warning System”, ITSNJ Annual Meeting 2024, Oct. 9, 2024.
- “Evaluating the Performance of Lidar Sensors in Traffic Detection During Adverse Weather Conditions”, ITSNJ Annual Meeting 2024, Oct. 9, 2024.
- “Calibration of Microscopic Traffic Simulation Model Using High-Resolution CV Trajectory Data”, Virginia and Washington DC Joint SimCap Meeting at TRB 103rd Annual Meeting, Jan. 09, 2024.
- “Optimizing Road Infrastructure: A Conceptual Simulation-based Study of Dynamic Transit Lanes for Connected Private Vehicles”, NJDOT 25th Annual Research Showcase, Oct. 25, 2023.
- “Development of Intersection Mobility Assessment Platform Utilizing Digital Twin Technology”, ITSNJ Annual Meeting 2023 - Oct. 19, 2023.

HONORS AND AWARDS

ITSNJ Outstanding Graduate Award. Recognized for academic excellence and contributions to the field of Intelligent Transportation Systems. The Intelligent Transportation Society of New Jersey Scholarship Committee, 2024.

The Best Poster Award. Evaluating the Performance of Lidar Sensors in Traffic Detection During Adverse Weather Conditions (2024). ITSNJ Annual Meeting 2024 - Oct. 9, 2024.

PEER REVIEWS

Transportation Research Part F: Traffic Psychology and Behaviour. (4 reviews)

IATSS. (3 reviews)

IET Intelligent Transport Systems. (5 reviews)

JIYEON BAN

CONTACT

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COMMUNICATION

As a senior manager, I have honed my communication skills through years of experience in verbal and written communication with contract partner, and team members.

LEADERSHIP

I have experience in providing guidance and support to staff, setting performance expectations and providing feedback, and addressing issues as they arise.

EDUCATION

New Jersey Institute of Technology, NJ, US

Master of Science in Transportation Program

January 2024 - December 2025(Expected)

Hanyang University, South Korea

Bachelor of Science in Transportation System Engineering

March 2007 - August 2011

EXPERIENCE

Senior Manager, Korea Expressway Corporation

January 2019 - December 2023

- Managed Section Speed Enforcement System and Variable Speed Limit System.
- Led various highway traffic management initiatives.
- Contributed to the enhancement of traffic safety measures

Assistant Manager, Korea Expressway Corporation

September 2011 - December 2018

- Monitored the Management of Transportation Data Reliability.
- Conducted Traffic Surveys and implemented C-ITS Pilot Projects.

Mohammad Javad Bazdar

LinkedIn: Mohammad Javad Bazdar mb999@njit.edu

EDUCATION

New Jersey Institute of Technology, NEWARK, UNITED STATES (Expected: May 2028)
Doctor of Philosophy (PhD) in Transportation Engineering

TARBIAT MODARES UNIVERSITY, TEHRAN, IRAN (July 2018)
Master of Engineering in Transportation Engineering
Master's Thesis: Evaluation of the influence of CCTV camera installation on intercity roads (case study: freeway)

SHAHID BAHONAR UNIVERSITY, KERMAN, IRAN (February 2015)
Bachelor of Civil Engineering

RESEARCH INTERESTS

Application of artificial intelligence methods in traffic incident detection and predicting traffic conditions.

Application of generative AI in transportation for predictive modeling, scenario generation, and system optimization..

Innovative approaches to travel demand modeling for motorized and non-motorized systems.

Traffic flow simulation with connected and autonomous vehicles (CAVs).

WORK AND RESEARCH EXPERIENCE

Research Experience

Intelligent Transportation Systems Resource Center, NJIT, Newark, United States (August 2023- Present)

Development of Predictive Models for Truck Parking Occupancy Using Machine Learning models.

- Cleaned and processed raw parking sensor data to generate two years of high-resolution parking occupancy data at one-minute intervals, enabling detailed analysis and modeling.
- Developed and implemented advanced machine learning and time series models, including ARIMA, SARIMA, SARIMAX, LSTM, GRU, SVM, and KNN, to predict parking occupancy rate.

Traffic crash severity prediction using synthesized crash description narratives and large language model.

- Processed and cleaned 10 years of crash data, including crash time, date, geographic location, and environmental conditions, to prepare for advanced analysis and modeling.
- Developed a crash severity prediction model using synthetic text narratives as input to a pre-trained BERT (Bidirectional Encoder Representations from Transformers) framework.

Department of Transportation Planning, Tarbiat Modares University, Tehran, Iran (September 2018- May 2023)

Safety state analysis of inner-city roads.

- Processing and cleaning data by integrating weather, accident, traffic, and calendar data, handling missing values and outliers.

- Develop classification models (Decision Tree, Random Forest, XGBoost) and evaluate their performance based on accuracy, recall, precision, and F-score.

Speed and safety effect of speed cameras on highway corridors.

- Analyzed data from 200+ detectors and 100+ fixed cameras over five years, establishing empirical relationships between traffic accidents and highway geometric variables using advanced statistical methods.
- Conducted collision analysis using the Empirical Bayes (EB) method and employed time-series cross-sectional and interrupted time-series analyses to evaluate safety interventions.

Analysis of the impact of automated vehicles on the capacity of the Tehran highway network.

- Examining the impacts of AVs on individual types of basic, merge, diverge, and weaving segments of the freeway network.
- Deploying microscopic traffic flow simulation to model the altered driving behavior of AVs.
- Using a wide range of simulation scenarios, with the help of microscopic traffic flow simulation VISSIM.

Teaching Experience

Department of Civil *Engineering*, NJIT, Newark, United States (August 2023- present)

Teaching Assistant.

- Teaching Assistant for Strength of Materials, Reinforced Concrete Design, Fundamental Engineering, and Sustainable Civil Engineering Materials.
- Conducted lab sessions, graded assignments, and provided academic support to students.

PUBLICATIONS

- "Application of Classification and Hybrid LSTM-GRU Models for Truck Parking Availability Prediction," Transportation Research Record (Under Revision).
- "Traffic crash severity prediction using synthesized crash description narratives and large language model (LLM)," ITSNJ Annual Meeting, Princeton, NJ, USA, October 9, 2024.

SKILLS

Language

- **English**: Fluent (**IELTS**, Overall:7), **(GRE**, Overall:328, Quantitive:166, Verbal:162)
- **Persian**: Native

Computer / Technical Skills

- **Transportation Modeling:** CUBE Voyager, SUMO, PTV VISSIM
- **Programming:** Advanced in Python (Certified), R, MATLAB, C++, Visual Basic for Application (VBA)
- **Design and Analysis:** AutoCAD, ETABS, SAP
- **Web Development:** CSS, HTML, JavaScript, WordPress

NURI PARK

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RESEARCH INTERESTS

Traffic Safety, Transportation Engineering, Traffic Simulations, Data Science in Transportation Systems, Intelligent Traffic Systems, Artificial Intelligence

EXPERIENCE

Department of Smart City Engineering, Hanyang University | Ansan, South Korea
Research Assistant | 2021 – 2024

- (2024) Developing a drowsiness index to prevent highway drowsy driving
- (2024) Research service to advance speed management policy to revitalize pedestrian traffic
- (2023) Bucheon City Intelligent Traffic System Smart Intersection Reliability Evaluation Analysis
- (2023) Speed management policy development research service
- (2022 - 2024) Development of autonomous vehicle driving support technology through infrastructure guidance
- (2021 - 2024) Development of traffic operation management plan in mixed flow condition for potential hazardous arterials under autonomous vehicle environment
- (2022) Advancement of safety monitoring system of autonomous vehicle control center
- (2021 - 2022) Real-time monitoring of traffic safety with big data and development of analysis technology
- (2022) Development of big data-based traffic safety analysis and management technology
- (2021 - 2022) Port resource risk prediction and smart safety management technology development
- (2022) Utilization of autonomous driving simulation for driving safety evaluation of autonomous vehicles
- [BK21FOUR] Fostering Creative and Innovative Talents Leading the Global Smart City and Research & Development

Department of Innovation Center for Engineering Education, Hanyang University | Ansan, South Korea
Scholarship Assistant | 2021 – 2021

- Scholarship Assistant in Innovation Center for Engineering Education

EDUCATION

- **Prescribed study student of Transportation Engineering** 2024.10 – Present
  New Jersey Institute of Technology, United State

- **Ph.D. student of Smart City Engineering** 2023.03 – Present
  Hanyang University, South Korea

- **Master of Smart City Engineering** 2021.03 – 2023.02
  Hanyang University, South Korea
  *(*Thesis: Assessment of Crash Risk Situations Using Bayesian Inference and Machine Learning Techniques*)

- **Bachelor of Transportation and Logistics Engineering** 2016.03 – 2020.08
  Hanyang University, South Korea

SKILLS

- Computer Skills: R, Python, MATLAB, QGIS
- Simulation Skills: SUMO, VISSIM, TransCAD, SCANeR, MORAI-sim, MATLAB RoadRunner

Yuyue Zhang

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EDUCATION

New jersey institute of technology — New jersey, USA
Doctoral of Transportation Engineering; GPA:4.0/4.0 — *Sep.2024 ~ now*

Waseda University — Tokyo, Japan
Master of Civil Engineering; GPA: 3.22/4.00 — *Sep.2018 ~ Jun. 2020*

Institute of Disaster Prevention — Hebei, China
Bachelor of Exploration technology and engineering; GPA: 3.97/4.00 — *Sep.2014 ~ Jul. 2018*

WORK EXPERIENCE

FUJITSU LIMITED — Tokyo, Japan
System engineer — *Apr. 2021 – Present*

- Serving as a pivotal team member r responsible for managing an annual budget of 2.1 million USD for a project adopted by various banking institutions ranging from local community banks to larger corporate entities.
- Orchestrated product version upgrades and ensured successful product release utilizing the Waterfall Development methodology, while harnessing C programming, Linux& GitHub.
- Identified and rectified product inefficiencies, leading to 3.1 million USD boost in revenue and superior user experience.
- Championed the onboarding process and training of international team members, promoting synergy and improved project efficiency.
- Providing technical support to clients and team members, as well as conducting product maintenance.

RESEARCH EXPERIENCE

Waseda University — Tokyo, Japan
Researched New Possibilities of Steel Fiber Reinforced Concrete (SFRC) — *Sep.2018 ~ Jun. 2020*

- Successfully introduced advanced precast concrete pile techniques into large-scale concrete pile construction for real engineering projects, showcasing their practical viability and substantial impact.
- Developed proficiency in centrifugal molding techniques for precast concrete piles, resulting in the production of dense, high-strength piles by expelling water and air from the concrete.
- Explored innovative approaches to reduce the amount of shear reinforcement steel required for precast piles, contributing to cost-effective and earthquake-resistant construction.
- Worked on SFRC projects, addressing challenges related to variations in steel fiber distribution and orientation due to casting methods and fluidity differences.
- Enhanced SFRC pile shear strength predictions using X-ray photography for precise steel fiber data integration, improving structural design and safety.

Institute of Disaster Prevention — Hebei, China
Researched Frost-Thaw Deformation Patterns in Wind-Blown Sand Modified Soil Subgrades — *Sep.2017 ~ Jul. 2018*

- Contributed to research and soil modification for five distinct sections of the project in Inner Mongolia.
- Investigated temperature deformation patterns in field-modified soil subgrades while validating indoor research findings.
- Utilized data from 25 sensors and six months of humidity and temperature data, integrated with cloud computing, to assess the deformation and cracking resistance of various material mixtures.
- Ranked the effectiveness of five different material mixtures, resulting in the proposal of an optimized mixture for the project.

SKILLS &CERTIFICATIONS

- Technical Skills: Vissim, C, JAVA Linux, Git, azure 900, MATLAB, HTML, Diana limited analyzing software, waterfall development methodology, Agile, image processing, CAD systems, Microsoft Office Suite, WinMerge, Winscp
- Certification: Azure 900; Fujitsu Certified Associate Agile; Fujitsu Certified Professional Agile; Level 1 of MS Office
- Language Proficiency: Chinese (native), Japanese (fluent, JLPT N1), and English (fluent, TOEFL 106, TOEIC 890)
- Administrative Skills: Collaboration ability, Superior Customer Service, Project Management, Strategic Negotiation