

MOHAMMAD NOAEEN

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Postdoctoral Fellow, Department of Business Administration, Harvard Business School
Soldiers Field, Boston, MA, USA, 02163

RESEARCH INTERESTS

Intelligent Transportation Systems, Autonomous Machines, Public Health, Social Media Analysis, Machine Learning, Artificial Intelligence, Big Data Analytics.

EDUCATION

Harvard Business School, USA

Jan 2022 - Present

Postdoctoral fellow, Department of Business Administration

Project: Ethics of autonomous machines in transportation and health domains

Supervisor: Dr. Julian De Freitas

University of Toronto, Canada

Mar 2021 - Sep 2021

Postdoctoral fellow, Transportation Engineering

Project: Area-wide congestion management in Toronto with intelligent perimeter control of traffic lights

Supervisors: Drs. Baher Abdulhai and Scott Sanner

University of Calgary, Canada

2014 - 2021

Ph.D., Software Engineering

Thesis: Managing urban traffic networks using data analysis, traffic theory, and deep reinforcement learning

Supervisors: Drs. Behrouz H. Far and Mohsen Ramezani (University of Sydney)

Imam Khomeini International University, Iran

2006 - 2009

M.Sc., Transportation Engineering

Thesis: Traffic flow analysis in signalized intersections using shockwave theory

Supervisor: Dr. Amir Abbas Rassafi

PUBLICATIONS

1. **Mohammad Noaen**, Reza Mohajerpoor, Behrouz H. Far, and Mohsen Ramezani. “Real-time Decentralized Traffic Signal Control for Congested Urban Networks Considering Queue Spill-backs.”, *Journal of Transportation Research Part C: Emerging Technologies* 133, 103407, 2021 [IF = 8.089].
2. **Mohammad Noaen**, Atharva Naik, Liana Goodman, Jared Crebo, Taimoor Abrar, Zahra Shakeri Hossein Abad, Behrouz H. Far, and Ana L. C. Bazzan. “Reinforcement Learning in Urban Network Traffic Signal Control: A Systematic Literature Review.”, *Journal of Expert Systems With Applications*, 2021 [In press, IF = 6.954].
3. **Mohammad Noaen**, Behrouz H. Far, and Mohsen Ramezani. “Bi-modal Perimeter Control: A Hybrid Control Approach Integrating Proportional Integral Controller and Deep Reinforcement Learning.”, *Journal of IEEE Transactions on Intelligent Transportation Systems*, 2021 [Preprint, IF = 6.492].
4. Zahra Shakeri Hossein Abad, Adrienne Kline, Madeena Sultana, **Mohammad Noaen**, Elvira Nurmambetova, Filipe Lucini, Majed Al-Jefri, and Joon Lee. “Digital public health surveillance: a systematic scoping review.”, *NPJ digital medicine* 4, no. 1, 2021: 1-13. [IF = 11.66].

5. **Mohammad Noaen**, and Behrouz H. Far. “The Efficacy of Using Social Media Data for Designing Traffic Management Systems.” The IEEE 28th International Requirements Engineering Conference Workshops (REW), 2020.
6. **Mohammad Noaen**, and Behrouz H. Far. “Social media analysis for traffic management.” Proceedings of the 14th International Conference on Global Software Engineering. IEEE Press, 2019.
7. **Mohammad Noaen**, Zahra Shakeri Hossein Abad, Guenther Ruhe, and Behrouz H. Far (2018). “Transportation Engineering on Social Question and Answer Websites: An Empirical Case Study”. In Highlighting the Importance of Big Data Management and Analysis for Various Applications (pp. 117-139). Springer, Cham.
8. Zahra Shakeri Hossein Abad, **Mohammad Noaen**, Didar Zowghi, Behrouz H. Far, and Ken Barker. “Two Sides of the Same Coin: Software Developers’ Perceptions of Task Switching and Task Interruption.” Proceedings of the 22nd International Conference on Evaluation and Assessment in Software Engineering 2018. ACM, 2018.
9. **Mohammad Noaen**, Behrouz H. Far, Mohsen Ramezani (Winter 2018). “Real-time Signal Control for Urban Networks”. In Canadian Civil Engineer Magazine, Intelligent Transportation Systems (pp. 28-29). Available online at: <https://csce.ca/publications/cce>.
10. **Mohammad Noaen**, Zahra Shakeri Hossein Abad, and Behrouz H. Far (2017). “Let’s Hear It From RETTA: A Requirements Elicitation Tool For Traffic Management Systems”. The 35th IEEE International Conference on Requirements Engineering (RE). IEEE, Lisbon, Portugal, 2017.
11. **Mohammad Noaen**, Amir Abbas Rassafi, and Behrouz H. Far. “Traffic Signal Timing Optimization by Modelling the Lost Time Effect in the Shock Wave Delay Model”. ASCE International Conference on Transportation & Development (ICTD2016), Houston, Texas, US. American Society of Civil Engineers (ASCE), 2016.
12. Zahra Shakeri Hossein Abad, **Mohammad Noaen**, and Guenther Ruhe. “Requirements Engineering Visualization: A Systematic Literature Review”. In Requirements Engineering Conference (RE), 2016 IEEE 24th International (pp.6-15).
13. **Mohammad Noaen**, Amir Abbas Rassafi, and Behrouz H. Far (2016). “Exploring the Residual Queue Length Equation in the Shock Wave Model”. 51st Annual CTRF Conference, Canadian Transportation Research Forum, Toronto, Ontario, Canada, 2016.

TEACHING EXPERIENCE & CERTIFICATES

Laboratory Instructor

- ENGG 225 Fundamentals of Electrical Circuits and Machines *Winter 2020*
Schulich School of Engineering, University of Calgary

Sessional Instructor

- ENGG 233 Computing For Engineers *Fall 2019*
Schulich School of Engineering, University of Calgary

- Road and Building Construction Machineries *Summer 2012*
Department of Civil Engineering, University of Ahrar

Teaching Assistant

Department of Electrical and Computer Engineering, University of Calgary *Fall 2014-2020*

- ENGG-233 Computing for Engineers *Fall 2014, 2016, 2020*

- SENG-637 Dependability and Reliability of Software Systems *Summer 2019, 2020*

- ENEL-645 Data Mining and Knowledge Discovery *Spring 2019*

- ENSF-619.25 Machine Learning for Engineering Students *Winter 2019*

- ENSF-619.30 Software Requirements Analysis and Process Management *Fall 2017, 2018*
- ENSF-480 Principles of Software Design *Fall 2018*
- ENGG-225 Fundamentals of Electrical Circuits and Machines *Winter 2015-2018*
- ENGG-502 Senior Capstone Design Project *Fall 2017, Winter 2018*
- ENEL-500 Computer, Electrical, and Software Engineering Team Design *Winter 2018*
- ENGG-501 Senior Capstone Design Project *Fall 2017*
- ENGG-209 Engineering Economics *Fall 2014, 2015*

Learning Assistant

- Devon Academic Resource Centre, Schulich School of Eng., University of Calgary* *Fall 2015- Winter 2016*
- ENGG-202 Engineering Statics *Winter 2016*
 - ENGG-317 Mechanics of Solids *Winter 2016*
 - ENGG-233 Computing for Engineers *Fall 2015*
 - Math-275 Calculus for Engineers and Scientists *Fall 2015*
 - Math-211 Linear Methods I *Fall 2015*

PROFESSIONAL EXPERIENCE

Research Assistant

- Harvard Business School* *Jan 2022- Present*
- Department of Civil and Mineral Engineering, University of Toronto* *Mar 2021- Sep 2021*
- School of Civil Engineering, Transport Engineering, University of Sydney* *Sep 2021- Dec 2021*
- Department of Electrical and Computer Engineering, University of Calgary* *Sep 2014- Dec 2020*
- Department of Civil Engineering, Imam Khomeini International University* *Sep 2006- Sep 2009*

Supervision and Mentoring

- Department of Electrical and Computer Engineering, University of Calgary*
- Saad Khurshid, "A lane-based traffic signal control strategy for emergency vehicle preemption in a connected vehicle environment" *May 2015- Sep 2015*
 - Atharva Naik, Liana Goodman, Jared Crebo, Taimoor Abrar, "Reinforcement learning in urban network traffic signal control" *Jan 2020- Dec 2020*

Designer and Project Manager

- Sakht-o-Saz Mehr Construction Company, Iran* *Jul 2003- Feb 2013*

Development Skills

Programming and Scripting Languages - Python, R, C++, Java, Processing

Database Tools - NoSQL, SQL

Traffic Simulation - Aimsun

Engineering and Visualization Tools - Tableau, Matlab, Maple, Sap, Safe, AutoCAD

PROFESSIONAL SERVICE

Leadership and Academic Services (Volunteer)

- Selected to serve as the Student Volunteer *Sep 2017*
The 25th IEEE International Requirements Engineering Conference, Lisbon, Portugal
- Member of Computer Science Teaching and Learning (CSTL) Forum *Sep 2016- Aug 2017*
Department of Computer Science, University of Calgary
- Facilitator of the boot camp writing sessions for graduate students *Jun 2016- Jun 2017*
Student Success Centre (SSC), University of Calgary

<i>Member of Graduate Students Association (GSA) award committee Faculty of Graduate Studies, University of Calgary</i>	Sep 2016- Sep 2017
<i>Graduate Student Representative, Schulich Student Activity Fund Committee Schulich School of Engineering, University of Calgary</i>	Oct 2016- Oct 2017
<i>Vice President-Finance of Electrical and Computer Eng. Graduate Students Department of Electrical and Computer Engineering, University of Calgary</i>	Apr 2015- Apr 2016
<i>Graduate Student Representative, Schulich Student Activity Fund Committee Schulich School of Engineering, University of Calgary</i>	Apr 2015- Apr 2016
<i>Event-Based Volunteer, Persian Gulf Club Charity Foundation University of Calgary</i>	Apr 2014- Apr 2016
<i>Member of the Organizing Committee of Intelligent Data Analytic Workshop 2015 Department of Electrical and Computer Engineering, University of Calgary</i>	Mar 2015
<i>Vice President-External, Electrical, and Computer Eng. Graduate Students Department of Electrical and Computer Engineering, University of Calgary</i>	Jan 2015- Apr 2015

Technical Program Committee

<i>IEEE Transactions on Intelligent Transportation Systems (Reviewer)</i>	2018, 2019, 2022
<i>Journal of Traffic and Transportation Engineering (English Edition) (Reviewer)</i>	2022
<i>The IEEE Intelligent Transportation Systems Society Conference (Reviewer)</i>	2022
<i>The 12th International Workshop of Agents in Traffic and Transportation (Committee Member)</i>	2022

HONOURS AND AWARDS

- GSA's Excellence in Teaching Award, University of Calgary, Canada	<i>Apr 2020</i>
- Eberlein Systems Dynamics Graduate Scholarship, Alberta, Canada	<i>Jan 2020</i>
- ECE Research Productivity Award, University of Calgary, Canada	<i>Apr 2016, 2017, 2018</i>
- Eberlein Systems Dynamics Graduate Scholarship, Alberta, Canada	<i>Sep 2018</i>
- IEEE RE'17 Best Tool Demonstration Award, Lisbon, Portugal	<i>Sep 2017</i>
- Vanier Scholarship finalist, University of Calgary, Canada	<i>Sep 2016</i>
- MSc Graduate Excellence Award, University of Calgary, Canada	<i>Apr 2016</i>
- Schulich Student Activities Fund (SSAF) Award, University of Calgary, Canada	<i>Apr 2016</i>
- <i>Ranked Top 2% in the National University-Entrance Exam (MSc), Iran</i>	<i>2006</i>
- <i>Member of the National Organization for Development of Exceptional Talents (NODET), Iran</i>	<i>1994-2001</i>

CITIZENSHIP

- Canadian Permanent Resident
- Iranian