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## Highlights

- Recipient of prestigious NSERC Alexander Graham Bell Canada Graduate Scholarships - Doctoral (CGSD)
- Recognized for research funding achievements at York University [[News](#)]
- First prize winner, TELUS/Juniper SDN programming challenge
- Nominated for York University Governor General's Gold Medal
- Lassonde School of Engineering Award (L'OSCAR)
- IEEE Women in Engineering (WIE) executive committee member at York University chapter
- Recipient of Ontario Graduate Scholarship (OGS) (Declined in favour of CGS D)
- Nominated for Department Best Thesis Award
- Student Travel Grant in International Conference on Network and Service Management (CNSM)
- Recipient of Ontario Graduate Scholarship (OGS)
- Extensive hands-on experience with cutting-edge computation and communication technologies
- Strong track record in student supervision and leadership
- Top Vanier Scholarship nominee in Computer Science and Engineering at York University for the national competition
- Ryerson Graduate Award for Productivity and Success in Computer Science
- Ryerson Graduate Award for Academic Excellency
- Publications in top-tier conferences and journals in the area of network and service management and autonomic computing [[Google scholar](#)]
- Applied research and strong tie to various industry sectors
- Extensive hands-on and programming experience
- A<sup>+</sup> GPA in both PhD and MSc

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## Positions

- 2023 – now **Postdoctoral Fellow**, *Department of Electrical and Computer Engineering, University of Toronto*, Toronto, Canada.
- 2021 – 2022 **Family Emergency Leave**.
- 2019 – 2020 **Postdoctoral Fellow**, *Department of Electrical and Computer Engineering, University of Toronto*, Toronto, Canada.

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## Education

- 2014 – 2019 **PhD in Computer Science**, *York University*, Toronto, Canada, Thesis: Engineering Self-Adaptive Applications on Software-Defined Infrastructure, GPA: A<sup>+</sup>.  
Maternity leave (June 2018 – September 2019).
- 2011 – 2013 **M.Sc. in Computer Science**, *Ryerson University*, Toronto, Canada, Thesis: An Intrusion Detection System for Smart Grid Neighbourhood Area Network, GPA: A<sup>+</sup>.
- 2004 – 2008 **B.Sc. in Computer Engineering**, *Shahed University*, Tehran, Iran, Thesis: Intelligent Transportation Systems, Bus Rapid Transport (BRT) Modeling, Thesis Grade: 19.86/20.
- 2000 – 2004 **Diploma in Math and Physics**, *National Organization for Development of Exceptional Talents (NODET)*, Iran, GPA: A<sup>+</sup>.

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## Research Interests

- Software-defined Networks
- Data-driven Software Management
- Knowledge Representation
- Cyber Security
- Cloud Computing
- Applied Machine Learning

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## Publications

### Peer Reviewed Journals

- Hongxiang Geng, **Nasim Beigi-Mohammadi**, and Alberto Leon-Garcia, *Application of Statistical Modeling and Deep Learning to Predict Travel Time Using Cellular Activity Data*, submitted to IEEE Transactions on Intelligent Transportation Systems, August 2023.
- Dilli Sharma, **Nasim Beigi-Mohammadi**, and Alberto Leon-Garcia, *Leveraging Statistical and Machine Learning Models for Predicting Fire and Emergency Events in the City of Edmonton*, submitted to IEEE Transactions on Emerging Topics in Computational Intelligence, August 2023.
- Kristina Dzeparoska, **Nasim Beigi-Mohammadi**, Ali Tizghadam, and Alberto Leon-Garcia, *Towards a Self-Driving Management System for the Automated Realization of Intents*, IEEE Access, 2021
- **Nasim Beigi-Mohammadi**, Mark Shtern, and Marin Litoiu, *Adaptive Load Management of Web Applications on Software Defined Infrastructure*, IEEE Transaction on Network and Service Management, October 2019 (**Imapct Factor: 4.68**).
- Hamzeh Khazaei, Marios Fokaefs, Saeed Zareian, **Nasim Beigi-Mohammadi**, Brian Ramprasad, Mark Shtern, Purwa Gaikwad and Marin Litoiu, *How Do I Choose the Right NoSQL Solution? A Comprehensive Theoretical and Experimental Study*, Journal of Big Data and Information Analytics (BDIA), December 2015.

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- **Nasim Beigi-Mohammadi**, Jelena Misic, Vojislav B. Misic and Hamzeh Khazaei, *A Framework for Intrusion Detection System in Advanced Metering Infrastructure*, Wiley Journal of Security and Communication Networks 2012.
- **Nasim Beigi-Mohammadi**, Hamzeh Khazaei, Jelena Misic, Vojislav B. Misic, *On Intrusion Detection in a Neighbourhood Area Network in the Smart Grid*, Journal of Information Technology and Applications(JITA), Vol. 2, No. 1, June 2012.

#### Peer Reviewed Conferences

- **Nasim Beigi-Mohammadi**, Marin Litoiu, Mahsa Taba, Ladan Tahvildari, Marios Fokaefs, Ettore Merlo, Vio Onut, *A DevOps Framework for Quality-Driven Self-Protection in Web Software Systems*, International Conference on Software Engineering and Computer Science, October 2018.
- **Nasim Beigi-Mohammadi**, Mark Shtern, Marin Litoiu, *A Model-based Application Autonomic Manager with Fine Granular Bandwidth Control*, IEEE International Conference on Network and Service Management (CNSM), November 2017.
- **Nasim Beigi-Mohammadi**, Hamzeh Khazaei, Mark Shtern, Cornel Barna, and Marin Litoiu, *Implementation of Self-Managing Applications on Cloud Using Overlay Networks*, IEEE International Symposium on Integrated Network Management (IM), May 2017.
- **Nasim Beigi-Mohammadi**, Hamzeh Khazaei, Mark Shtern, Cornel Barna, and Marin Litoiu, *An Adaptive Service Management of Cloud Applications Using Overlay Networks*, IEEE International Symposium on Integrated Network Management (IM), May 2017( **Acceptance rate: 16%\***).
- **Nasim Beigi-Mohammadi**, and Marin Litoiu. *Engineering Self-Adaptive Applications on Cloud with Software Defined Networks*, 2017 IEEE International Conference on Cloud Engineering (IC2E) Doctoral Symposium, April 2017.
- **Nasim Beigi-Mohammadi**, Cornel Barna, Mark Shtern, Hamzeh Khazaei, and Marin Litoiu. *CAAMP: Completely Automated DDoS Attack Mitigation Platform in Hybrid Clouds*, IEEE International Conference on Network and Service Management (CNSM), October 2016 (**Acceptance rate: 14.65%**).
- Hamzeh Khazaei, Cornel Barna, **Nasim Beigi-Mohammadi** and Marin Litoiu, *Provisioning Performance of Cloud Microservices Platforms*, 8th IEEE International Conference on Cloud Computing Technology and Science (CloudCom), December 2016 (**Acceptance rate: 22%**).
- **Nasim Beigi-Mohammadi**, Hamzeh Khazaei, Mark Shtern, Cornel Barna and Marin Litoiu. *On Efficiency and Scalability of Software Defined Infrastructure for Adaptive Applications*, The 13th IEEE International Conference on Autonomic Computing (ICAC), July 2016 (**Acceptance rate: 25%**).
- **Nasim Beigi-Mohammadi**, Jelena Misic, Hamzeh Khazaei, and Vojislav B. Misic, *An Intrusion Detection System for Smart Grid Neighborhood Area Network*, IEEE ICC, June 2014.
- Hamzeh Khazaei, Jelena Misic, Vojislav B. Misic, and **Nasim Beigi-Mohammadi**, *Modeling the Performance of Heterogeneous IaaS Cloud Centers*, 3rd international workshop on Data Center Performance, July 2013.

\* The acceptance rates that are known are provided here.

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- Hamzeh Khazaei, Jelena Misic, Vojislav B. Misic and **Nasim Beigi-Mohammadi**, *Availability Analysis of Cloud Computing Centers*, IEEE Globecom 2012.

#### Books and Book Chapters

- **Nasim Beigi-Mohammadi**, *Smart Meter Networks: Intrusion Detection System by Design*, LAP Lambert Academic Publishing, 2014, ISBN-10: 365954082X ([Book](#)).
- **Nasim Beigi-Mohammadi**, Jelena Misic, Vojislav B. Misic, and Hamzeh Khazaei, *Intrusion Detection System for Machine-to-Machine Communication in Smart Grid*, Book Chapter in Machine-to-Machine Communications: Architectures, Technology, Standards, and Applications, CRC Press, 2014, ([Book Chapter](#)).

#### Technical Reports

- K. Chadha, T. Kuga, B. Guan, W. Jin, **Nasim Beigi-Mohammadi**, Y. He, J. Misic, and L. Guan, *Secure and Reliable Data Communications for Smart Grid*, Toronto Hydro-Electric System LTD-Center for Urban Energy, Ryerson University, 2012.

#### Demos and Posters

- **Nasim Beigi-Mohammadi**, Mark Shtern, Marin Litoiu, Joe Wigglesworth, and Radu Mateescu, A Machine Learning Based Application Autonomic Management System on Software Defined Networks, IBM CASCON Exhibition, November 2017.
- **Nasim Beigi-Mohammadi**, Cornel Barna, Mark Shtern, Marin Litoiu, Joe Wigglesworth, and Radu Mateescu, CAAMP: Completely Automated DDoS Attack Mitigation Platform in Hybrid Clouds, IBM CASCON Technology Showcase, October 2016.
- **Nasim Beigi-Mohammadi**, Mark Shtern, Cornel Barna, Marin Litoiu, Overload Management for Busy Multi-tier Web Applications Using Software Defined Networking, SAVI AGM, July 2016.
- **Nasim Beigi-Mohammadi**, Cornel Barna, Mark Shtern, Marin Litoiu, OpenFlow-enabled DDoS Attack Mitigation on Hybrid Cloud, demonstrated and presented in SAVI AGM, July 2015.

## Teaching

### Instructor

Winter 2018 Introduction to Foundations of Computing II (CMPUT 175), Department of Computing Science, University of Alberta

### Teaching Assistants

Fall 2016 Computational Thinking Through Mechatronics (EECS1011), York University  
 Fall 2015 Computer Use Fundamentals (EECS 1520), York University  
 Fall 2014 User Interfaces (EECS 3461), York University  
 Fall 2012 Introduction to Data Communications (CPS706), Ryerson University  
 Spring 2012 Digital Computation and Programming (CPS125), Ryerson University  
 Fall 2011 Computer Organization (CPS213), Ryerson University

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## Industry Projects

- 2023–2024 SafeCity: Applications of statistical modeling and artificial intelligence for improved quality of response in Edmonton Fire and Rescue Services (EFRS), EFRS, Telus Mobility, and University of Toronto, Toronto, Canada
- July 2015 Secure Enterprise Customer Virtual Service Management using Contrail SDN and OpenStack, TELUS Center, Toronto, Canada
- 2011 – 2013 Secure and Reliable Data Communications for Smart Grid, Toronto Hydro-Electric System Limited (THESL), Toronto, Canada
- Fall 2011 Network Integration for M2M Communication in Industrial Process Control, More Automation Solutions Inc., Toronto, Canada

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## Student Mentorship

- UofT Dilli Sharma (Postdoc)
- UofT Hongxiang Geng (MSc)
- UofT Shawn Zhai (B.Eng)
- UofT Kristina Dzevaroska (PhD)
- York University Yar Rouf (MSc)
- York University Ali Zargar Shabestari (MSc)

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## Skills and Tool Set

- Data Science: ElasticSearch, Scikit-learn, Stardog, Protege
- Cloud computing: Kubernetes, Docker, OpenStack, Amazon Web Services (AWS)
- SAP S/4HANA Cloud
- Programming Languages: Python, Java, C, C++
- Data Communication and Security Standards and Packages: OpenFlow, P4, Open Virtual Switch (OVS), Ryu SDN Framework, Mininet, IEEE 802.11(i), 802.16e, 802.15.4/Zigbee, 802.11s, IP Security (IPSec), PKI, Wireshark
- Simulation: OPNET, Artifex

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## Professional and Voluntary Services

- August 2023 PC Member in the 3rd Workshop on Software Techniques for Engineering Cyber-Physical Systems
- November 2019 PC Member in the Eighth International Workshop on Load Testing and Benchmarking of Software Systems, Co-located with ICPE 2020
- June 2019 Peer Reviewer of IEEE Transaction on Network and Service Management (TNSM)
- May 2017 Peer Reviewer of International Journal of Network Management
- Member of Executive Committee of the York University IEEE Women in Engineering (WIE) chapter
- January 2017 Organizer of Lassonde Graduate Studies Open House, York University

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- 2017 Peer Reviewer of IEEE Cloud Computing
  - PC Member in International Workshop on Security, Privacy and Reliability of Smart Buildings
  - Peer Reviewer, Springer EURASIP Journal on Wireless Communications and Networking, Springer
- 2012 – 2013 Peer Reviewer, Journal of Information Security and Applications, Elsevier
  - Peer Reviewer of Wiley communication and security journal
  - Peer Reviewer, International Conference on Distributed Computing Systems (ICDCS), Cloud Computing track

## Oral Presentations and Demonstrations

- 2019 Self-adaptive Systems, Ontario Tech University, Faculty of Business and Information Technology, Faculty Seminar, Oshawa, Canada
- 2017 Demonstration of Adaptive Service Management using Overlay Networks, IEEE IM 2017 Demonstration, Lisbon, Portugal
- 2017 A Machine Learning Based Application Autonomic Management System on Software Defined Networks, Demonstration in IBM CASCON Technology Showcase
- 2016 CAAMP: Completely Automated DDoS Attack Mitigation Platform in Hybrid Clouds, Demonstration in IBM CASCON Technology Showcase
- 2015 Customer Service Management Portal Utilizing Contrail SDN/NFV and OpenStack Orchestration, TELUS/Juniper Networks SDN Workshop and Competition, Toronto, Canada
- 2015 Demonstration of An OpenFlow-enabled DDoS Mitigation Platform on Hybrid Clouds, SAVI Annual General Meeting and Workshop, Toronto, Canada
- 2014 Prevention and Mitigation of Security Attacks Using Scalable Module-based Virtual Machines, demonstration in SAVI Design Camp, Toronto, Canada
- 2013 Cyber Security Considerations in Toronto Hydro Smart Grid Project. Ryerson Centre for Urban Energy- Projects Closing Remarks Session with Ontario Minister of Energy, Toronto, Canada
- 2012 Secure Machine-to-Machine Communication in Wireless Networks. Ryerson University Seminar on Advanced Computer Science Studies, Toronto, Canada

## Course Work

### York University

- Engineering Self-Adaptive Systems: A<sup>+</sup>
- Quantitative System Performance: A<sup>+</sup>
- High-Performance Computer Networks: A
- Wireless Communications: Design and principles: A<sup>+</sup>
- Advanced topics in Information Security: A<sup>+</sup>

### Ryerson University

- Secure Computing: A<sup>+</sup>
- Soft Computing and Machine Intel.: A<sup>+</sup>

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- Sensor Networks (Directed studies): A<sup>+</sup>
- Computer Networks: A<sup>+</sup>
- Visualization: A<sup>+</sup>