

# Ouldooz Baghban Karimi

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## Education

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**PhD** Computing Science, Simon Fraser University (SFU), Burnaby, BC, Canada, **A+ CGPA** (2013)  
**Thesis:** Efficient Resource Utilization in Advanced Wireless Networks  
**Advisor:** Jiangchuan Liu

**MSc** Computer Engineering, Iran University of Science and Technology, Tehran, Iran, **A+ CGPA** (2006)  
**Thesis:** Adaptive End-to-End QoS for Multimedia over Heterogeneous Wireless Networks  
**Advisor:** Mahmood Fathy

**BSc** Computer Engineering, University of Tehran, Tehran, Iran (2003)

**Certifications:** PMP: Project Management Professional (2016-Now)  
ISW: Instructional Workshop (2020)

## Experience

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**Lecturer**, School of Computing Science, Simon Fraser University, Surrey, BC, Canada (March 2019 – Now)

- Teaching: Offered **five** advanced undergraduate and **two** graduate courses on data, systems, and networks  
**Undergraduate:** Data Communications and Networking, Networks II, Database Systems I, Database Systems II, Web Systems Architecture  
**Graduate:** Cloud and Network Security, Distributed and Cloud Systems
- Curriculum and Course Development:
  - Contributed to Curriculum Development for Master of Professional Computer Science in Cybersecurity
  - Developed one graduate course (Cloud and Network Security)
  - Updated one graduate (Distributed and Cloud Systems) and one undergraduate course (Web Systems Architecture) to expand background theory and update cloud technology contents.
- Research: Supervised 10+ students in capstone, special research, education, and outreach research projects
- Service: Served as Chair of Computing Science Diversity Committee, and President of Academic women

**Lead Systems Engineer (SE 3)**, Ciena, Remote - Ottawa, ON, Canada (Feb 2017 – March 2019)

- Led a cross-functional team for delivery of service virtualization proof of concept for Vectors 2018 (Solutions included network function virtualization, orchestration, IoT, machine learning at the edge, edge & cloud computing, and SD-WAN)  
**Customer feedback (22 International Telcos): 4.76 out of 5**
- Designed, developed, and presented technical PoCs and solution introductions to North American, South American, Asian, and European telco customers and channel partners in pre-sales technical engagements (Solutions included virtualized edge, distributed network function virtualization, orchestration, wireless, routing, firewall, and SD-WAN)
- Designed and delivered internal engineering trainings, TOIs, workshop, and lab modules  
**Workshop attendee feedback: 4.62 out of 5**

**Software Engineer (SE 2)**, Ciena, Richmond, BC, Canada (August 2015 – Feb 2017)

- Analyzed client requirements and provided feature specifications (FS) and technical designs (TD)
- Designed and implemented (C/C++) variety of feature components for our 8x and 6x software products. (Including IP hardware forwarding, route redistribution, high availability mark & sweep, VS/AGG membership, class of service policies)
- Improved integration process by acting as a liaison among global teams for hardware forwarding feature.

**Software Engineer**, Cyan (acquired by Ciena as BluePlanet), Vancouver, BC, Canada (Dec 2013 – August 2015)

- Designed and implemented data model (MOF) and resource manager (Python) for Z-series products software features (MPLS-TP, EMS)

**Sessional Instructor**, School of Computing Science, Simon Fraser University, Surrey, BC, Canada (Fall 2012)

**R&D Intern**, Tellabs, Richmond, BC, Canada (Oct 2012 – Feb 2013)

I also started **Novel Design** (Tehran, Iran, 2004-2008), and **WiFier Network** (Vancouver, Canada, Oct 2012- Nov 2013). Novel Design grew to have **20+** clients from different sectors, including manufacturing, construction, and health care. I left Novel Design to move to Canada to start my PhD. In WiFier Network, I designed a network for monetization of excess WiFi capacity and proved feasibility with **1.7%** of available resources, developed minimum viable product, and led user behavior analysis, and go to market strategy. I had to leave WiFier early-stage despite investment interests, first place in SEY JumpStart and finalist in SFU SEY startup competitions.

## Leadership & Community Services

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### SCHOOL & FACULTY:

**Chair**, Computing Science Diversity Committee, SFU (June 2019 – Now)

Working towards enhancing diversity and inclusion in School of Computing Science through student affairs, outreach, faculty involvement, and student liaison. Achievements include:

- Designed and established process for annual Student Diversity Survey
- Published CS Diversity Data Dashboard
- Proposed data-driven solutions for increasing the number of women and Indigenous students.
- Initiated SEI Webinars to further faculty involvement in inclusive education conversations.
- Established CS Diversity Award to further student and class involvement on diversity & inclusion in CS

**Judge**, 3-Minute Thesis (3MT), Faculty of Applied Science, SFU (March 2021)

**Co-Director**, Invent the Future (AI4ALL SFU) (April 2019 – August 2020)

**Keynote Speaker**, TryCATCH Tech Outreach Conference, SFU (May 2016)

**President**, Computing Science Graduate Student Society, SFU (Jul 2011 – May 2012)

**President**, Women in Computing Science, SFU (Dec 2010 – Sep 2011)

### UNIVERSITY:

**President**, Academic Women, SFU (June 2021 – Now)

Faculty advocate for equity, diversity, inclusion, and justice (EDIJ)

**AI Mentor**, Make Her Future (August 2020)

**Judge**, Opportunity Fest, Beedie School of Business, SFU (May 2019)

### EXTERNAL:

**Local Arrangements Chair and Treasurer**, ACM MMSys 2023 (May 2022 – June 2023)

**Diversity and Inclusion Chair**, ACM MMSys 2023 (May 2022 – June 2023)

**Session Moderator (Graduate Research Session)**, CAN-CWIC (Oct 2022)

**Open Textbook Reviewer**, BCCampus (April – June 2022)

**Technical Program Committee Member**, ACM SIGCSE TS 2022 (Posters), ACM ITICSE 2022, ACM ITICSE 2023

**Mentor**, ACM SIGCOMM 2020 Mentorship Program, ACM SIGCOMM 2021 Mentorship Program

**Security & Privacy in AI Panelist**, AI4Youth Canada (August 2020)

**Organizer**, TryCATCH 2010 & 2012, WCCCS 2009, ICNP 2011, ACM N2W meeting of SIGCOMM 2011

**Scientific Reviewer**, IEEE GLOBECOM, NOSSDAV, IEEE TNSM, IEEE ICC, IEEE TVT, IEEE JSAC (2009 – 2020)

## Awards & Honors

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Finalist in **SFU Entrepreneur of the year**, Beedi School of Business, Simon Fraser University (2012)

**First place in SFU SEY JumpStart**, Beedi School of Business, Simon Fraser University (2012)

**Graduate Prize in Computing Science**, School of Computing Science, Simon Fraser University (2012)

**Special Entrance Scholarship**, and Four CS & FAS Graduate Fellowships, Simon Fraser University (2008-2012)

## Grants

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**Teaching & Learning Development Grant**, ISTLD, \$5,000, Received (March 2022)

**Healing From Racism Journey Project Grant**, \$2,200, Received (March 2022)

**Student Experiences Initiative**, \$24,000, Received (Nov 2020)

**Teaching & Learning Development Grant**, ISTLD, \$5,000, Received (Oct 2020)

**Startup Grant**, Simon Fraser University, \$10,000, Received (March 2019)

I proposed initial budget and managed AI4All 2019/2020 (\$50,000 USD/Year), Athena Pathways 2020 (\$10,000), and CIFAR AI grants (\$5,000 in 2019 and \$10,000 in 2020) for Invent the Future. I also propose and manage CS Diversity Committee (approx. 15,000/year), and Academic Women (approx. 31,000/year) budgets.

## Teaching Experience

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**Lecturer**, School of Computing Science, Simon Fraser University (March 2019 – Now)

Contributed to Curriculum Development for Master of Professional Computer Science in Cybersecurity

**CMPT 371: Data Communications and Networking**

(Summer 2019, Fall 2019, Fall 2020, Spring 2021, Fall 2022)

**(In-person Offering Student Feedback: 4.29 out of 5)**

**CMPT 471: Networking II** (Fall 2019)

**(In-person Offering Student Feedback: 4.07 out of 5)**

**CMPT 474: Web Systems Architecture** (Spring 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2023)

(In-person Offering Student Feedback: 3.84 out of 5)

Re-designed course to expand background theory and update cloud technology contents.

**CMPT 354: Database Systems I** (Summer 2019, Spring 2020)

(Transition to COVID online offering)

**CMPT 454: Database Systems II** (Summer 2021)

(Online Offering Student Feedback: 3.43 out of 5)

**CMPT 756: Distributed and Cloud Systems** (Fall 2021, Spring 2023)

(In-person Offering Student Feedback: 3.45 out of 5)

Re-designed course to expand background theory and update cloud technology contents.

**CMPT 786: Cloud and Network Security** (Spring 2022)

**(In-person Initial Offering Student Feedback: 4.67 out of 5)**

- Developed new course for Master of Professional Computer Science (MPCS) program.

- Invited a guest speaker (topic: cloud security) and built industry relations with FISpan

**CMPT 494, 495: Capstone Project [Blockchain-based access control]** (Fall 2020, Spring 2021, Spring 2023)

**CMPT 415: Special Research Project [Low-latency cloud & edge applications]** (Spring 2023)

**CMPT 416: Special Research Project [Blockchain-based domain name system]** (Spring 2022)

**Lead Systems Engineer (SE 3)**, Ciena (Feb 2017 – March 2019)

Designed and delivered internal engineering trainings, TOIs, workshop, and lab modules

**(Workshop attendee feedback: 4.62 out of 5)**

**Sessional Instructor**, School of Computing Science, Simon Fraser University (Fall 2012)

CMPT371: Data Communications and Networking

- Designed and delivered course materials (**Student Feedback: 3.08 out of 4**)
- Invited a guest speaker (topic: security) and built industry relations with TELUS

**Teaching Assistant**, School of Computing Science, Simon Fraser University (2008-2013)

CMPT 705: Algorithm Design, CMPT 165: Internet and www, CMPT 150: Computer Architecture & Design

**Lecturer**, University of Applied Science and Technology, Tehran, Iran (2005-2007)

Computer Architecture and Design, Web Development (HTML, CSS, PHP/Python, Javascript), Introduction to Computer Systems

## Student Supervision

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- **MBA Student**  
ISTLD TLDG: Open Textbook: Web and Cloud-Based Distributed Systems (March 2022 – Jan 2023)
- **PhD Archeology Student**  
Healing from Racism Journey Project (April 2022 – June 2022)
- **BSc Computing Science Student**  
CMPT 416: Blockchain-Based Domain Name Services (Jan – April 2022)
- **BSc Computing Science Student**  
Allocadia Undergraduate Small Research Grant: IoT Security Experience (Oct – Dec 2021)
- **MSc Computing Science Student**  
Allocadia Graduate Small Research Grant: IoT Security Experience (Oct – Dec 2021)
- **BSc Computing Science Student**  
Student Experiences Initiative: Diversity Data Dashboard, Survey Analysis, Interviews (Sep 2021 – March 2022)
- **MPCS Data Science Student**  
Student Experiences Initiative: Survey Design (Dec 2020 – July 2021)
- **MSc Education Student**  
ISTLD TLDG: Project-Based Learning of Web Systems Architecture (Dec 2020 – July 2021)
- **BSc Computing Science Student**  
SoSy Capstone Project: Blockchain-Based Access Control (Sep 2020 – April 2021)
- **MSc (project-based) Computing Science Student**  
MSc. co-supervisor: Blockchain-Based IoT Edge Security (2020)
- **Two BSc Computing Science Students**  
Allocadia Undergraduate Small Research Grant: IoT Security Experience (Oct – Dec 2020)

## Publications

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### JOURNAL ARTICLES:

- [J1] **Lightweight User Grouping with Flexible Degrees of Freedom in Virtual MIMO**  
Ouldooz Baghban Karimi, Milad Amir Toutounchian, Jiangchuan Liu, Chonggang Wang  
*IEEE Journal on Selected Areas in Communications (IEEE JSAC)*  
Vol. 31, Issue 10, pp. 2004-2012, Oct 2013
- [J2] **Seamless Wireless Connectivity for Multimedia Services in High-Speed Trains**  
Ouldooz Baghban Karimi, Jiangchuan Liu, Chonggang Wang  
*IEEE Journal on Selected Areas in Communications (IEEE JSAC)*  
Vol. 30, No. 4, May 2012
- [J3] **Multicast with cooperative gateways in multi-channel wireless mesh networks**  
Ouldooz Baghban Karimi, Jiangchuan Liu, Zongpeng Li  
*Elsevier Ad-Hoc Networks*, October 2011
- [J4] **Adaptive end-to-end QoS for multimedia over heterogeneous wireless networks**  
Ouldooz Baghban Karimi, Mahmood Fathy

## **CONFERENCE ARTICLES:**

- [C5] **Specification and Scaffolding in Project-Based Learning of Systems Architecture**  
Ouldooz Baghban Karimi  
Western Canadian Conference on Computing Education (ACM WCCCE 2023)  
Canada, 2023
- [C6] **Motivation and Strategies for Effective Inclusion of Cloud Solution Provider Certifications in Computing Curricula**  
James H. Paterson, Joshua Adams, Derek Foster, Ouldooz Baghban Karimi, Zain Kazmi, Ruth G. Lennon, Sajid Nazir, Lee Stott, Laurie White  
Proceedings of the 2022 Working Group Reports on ACM Conference on Innovation & Technology in Computer Science Education (*ACM ITICSE*)  
Ireland, 2022
- [C7] **Power-Efficient Resource Utilization in Cellular Multimedia Multicast**  
Ouldooz Baghban Karimi, Jiangchuan Liu, Zhi Wang  
IEEE International Conference on Mobile Ad-Hoc & Sensor Networks (IEEE MSN)  
China, 2015
- [C8] **Optimal Collaborative Access Point Association in Wireless Networks**  
Ouldooz Baghban Karimi, Jiangchuan Liu, Jennifer Rexford  
International Conference on Computer Communications (*IEEE INFOCOM*)  
Toronto, Canada, April 2014
- [C9] **Power Efficient High-Quality Multimedia Multicast in LTE Wireless Networks**  
Ouldooz Baghban Karimi, Jiangchuan Liu  
IEEE International Conference on Mobile Adhoc and Sensor Systems (*IEEE MASS*)  
Spain, 2011
- [C10] **The Trajectory Exposure Problem in Location-Aware Mobile Networking**  
Li Ma, Jiangchuan Liu, Limin Sun, Ouldooz Baghban Karimi  
IEEE International Conference on Mobile Adhoc and Sensor Systems (*IEEE MASS*)  
Spain, 2011
- [C11] **Multicast in Multi-Channel Wireless Mesh Networks**  
Ouldooz Baghban Karimi, Jiangchuan Liu, Zongpeng Li  
*IFIP networking* 2010 proceedings  
Chennai, India, 2010
- [C12] **Availability Measurement in Peer-to-Peer Network Management Systems**  
Ouldooz Baghban Karimi, Saleh Yousefi, Mahmood Fathy, Mojtaba Mazoochi  
IEEE International Conference on Digital Information Management  
London, UK, 2008
- [C13] **Availability in Management P2P Networks**  
Ouldooz Baghban Karimi, Saleh Yousefi, Mahmood Fathy  
LNCS proceedings of Asia-Pacific Network Operations and Management  
China, 2008
- [C14] **Adaptive End-to-End QoS for Multimedia over Heterogeneous Wireless Networks**  
Ouldooz Baghban Karimi, Mahmood Fathy  
Computer Society of Iran Computer Conference  
Iran, 2008
- [C15] **Application Level Wireless Multi-level ECN for Video and Real-time Data**  
Ouldooz Baghban Karimi, Mahmood Fathy, Saleh Yousefi

International Conference on Networking, IEEE proceedings  
Mauritius, 2006

- [C16] **Improvements on Active Resource Management for Differentiated Services Domain**  
Ouldooz Baghban Karimi, Shahram Jamali, Mahmood Fathy, Morteza Analouie  
IST2005 proceedings, Iran, 2005
- [C17] **Dynamic Resource Management in Differentiated Services Domain**  
Shahram Jamali, Ouldooz Baghban Karimi, Morteza Analouie, Mahmood Fathy  
Computer Society of Iran Computer Conference proceeding, Iran, 2006 (In Persian)

## **PRESENTATIONS, EXTENDED ABSTRACTS, and POSTERS:**

- [P18] **Effective Use of Open Educational Resources in Computer Science Education: A Query to Inform Open Textbook Development**, Poster, ACM ACM Conference on Innovation & Technology in Computer Science Education (ITiCSE), 2023  
Ifeoma Ibeto, Ouldooz Baghban Karimi
- [P19] **Exploring Computing Science Undergraduate Programs' Admission Procedures with a Diversity and Inclusion Lens**, Working Group Proposal (Extended Abstract), ACM ACM Conference on Innovation & Technology in Computer Science Education (ITiCSE), 2023  
Ouldooz Baghban Karimi, Giulia Toti, Mirela Gutica, Rebecca Robinson, Lisa Zhang, James Paterson, Peggy Lindner, and Michael O'Dea
- [P20] **Specification and Scaffolding in Project-Based Learning of Systems Architecture**, Work in Progress Workshop (Presentation), ACM Conference on International Computing Education Research (ACM ICER), 2022
- [P21] **Embedding Vendor Certifications in the Cloud Computing Curriculum: Scope, Strategy, and Perceptions**, Working Group Proposal (Extended Abstract), ACM ACM Conference on Innovation & Technology in Computer Science Education (ITiCSE), 2022  
James H. Paterson, Joshua Adams, Derek Foster, Ouldooz Baghban Karimi, Zain Kazmi, Ruth G. Lennon, Sajid Nazir, Lee Stott, Laurie White
- [P22] **Project-based Learning of Web Systems Architecture**, Poster, ACM ACM Conference on Innovation & Technology in Computer Science Education (ITiCSE), 2021  
Chris Kerslake, Ouldooz Baghban Karimi
- [P23] **Power Efficient Scalable Video Multicast in LTE Wireless Networks**, Poster, Grace Hopper Celebration of Women in Computing (GHC), 2011  
Ouldooz Baghban Karimi
- [P24] **Seamless Wireless Connectivity in High-Speed Vehicles**, Poster, Grace Hopper Celebration of Women in Computing (GHC), 2011  
Ouldooz Baghban Karimi
- [P25] **Multimedia Transmission in Wireless Networks**, Poster, ACM CRA-W Grad Cohort, Boston, 2011  
Ouldooz Baghban Karimi
- [P26] **Cellular Networks: 1G to 5G**, Poster, TryCATCH, Burnaby, 2011  
Ouldooz Baghban Karimi

## **OPEN EDUCATIONAL RESOURCES (OER):**

- [P27] **Introduction to Data Communication and Networking** (Open Access Video Lectures)  
[https://youtube.com/playlist?list=PLH7gp\\_9vK4arW-AXttB1vcTP4amjA\\_G1V](https://youtube.com/playlist?list=PLH7gp_9vK4arW-AXttB1vcTP4amjA_G1V)  
Ouldooz Baghban Karimi, 2021
- [P28] **Database Systems** (Open Access Video Lectures)  
[https://youtube.com/playlist?list=PLH7gp\\_9vK4aoH4xFYptdUNjW5uLJOfqMG](https://youtube.com/playlist?list=PLH7gp_9vK4aoH4xFYptdUNjW5uLJOfqMG)  
Ouldooz Baghban Karimi, 2021