

Ouldooz Baghban Karimi

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Education

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

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

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

Experience

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 **new** graduate course (CMPT 786: Cloud and Network Security).
 - Updated one graduate (Distributed and Cloud Systems) and one undergraduate course (CMPT 474: Web Systems Architecture) to expand background theory and update cloud technology contents.
- Research: Supervised 15+ students in capstone, special research, education, and outreach research projects
- Service: Served as Chair of Computing Science Diversity Committee (2019-2025), and President of Academic women (2021-2024), Chaired multiple PhD and MSc defenses.

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.

Teaching Experience

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, Fall 2023)

(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, Spring 2024)

(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, Spring 2024)

(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 Projects [Blockchains, Edge Computing]

(Fall 2020, Spring 2021, Spring 2023, Fall 2023, Spring 2024)

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

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

- Designed course components and evaluated pedagogical approaches such as Problem-Based and Project-Based Learning, Active Learning, Mastery-Based Grading, and Productive Failure.
- Developed and used Open Educational Resources (OER).
- Designed and delivered online, in-person, blended, and flipped classroom experiences when appropriate to enhance student learning.

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)

Web Development (HTML, CSS, PHP/Python, Javascript)

Computer Architecture and Design

Introduction to Computer Systems

Student Supervision

- **Jennifer Kim, Kerem Sarisen, and Benjamin Djukstein, BSc Computing Science Students**
SoSy Capstone Project: Blockchain-Based Distributed Storage (Jan – August 2023)
- **BSc Computing Science Student**
CMPT 415: Blockchain-Based Distributed Storage (Jan – April 2023)
- **Ifeoma Ibetto, MBA Student**
ISTLD TLDG: Open Textbook: Web and Cloud-Based Distributed Systems (March 2022 – Jan 2023)
- **Elena Sierra-Serrano, PhD Archaeology Student**
Healing from Racism Journey Project (April 2022 – June 2022)
- **Henry Fang, BSc Computing Science Student**
CMPT 416: Blockchain-Based Domain Name Services for Distributed Storage (Jan – April 2022)
- **Susan Wang, BSc Computing Science Student**
Allocadia Undergraduate Small Research Grant: IoT Security Experience (Oct – Dec 2021)
- **Anjali Thomas, MSc Computing Science Student**
Allocadia Graduate Small Research Grant: IoT Security Experience (Oct – Dec 2021)
- **Shravan Gupta, BSc Computing Science Student**
Student Experiences Initiative: Diversity Data Dashboard, Survey Analysis, Interviews (Sep 2021 – March 2022)
- **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 (course-based) Computing Science Student**
MSc. co-supervisor: Blockchain-Based IoT Edge Security (2020)
- **Negar Bagheri Hariri, BSc Engineering Science Student**
Allocadia Undergraduate Small Research Grant: IoT Security Experience (Oct – Dec 2020)
- **Arpit Kaur, BSc Computing Science Student**
Allocadia Undergraduate Small Research Grant: IoT Security Experience (Oct – Dec 2020)

Awards & Honors

Rajan Family Scholar, in Computing Science, Simon Fraser University (\$15,000 CAD/year, Sep 2023 – August 2028)

Google exploreCSR, Google Research (\$24,500 CAD, Oct 2023)

Ciena Silver Spot Award, D19 Leadership at Vectors 2018, Ciena (2018)

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

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 also 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.

Leadership & Community Services

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.
- Measured effectiveness of some of the established efforts and proposed new data-driven solutions for increasing the number of women and Indigenous students.
- Initiated SEI Webinars to further faculty involvement in inclusive education conversations. Invited and hosted 18 expert speakers (July 2021 – March 2024), chaired sessions and facilitated conversations.
- Established CS Diversity Award to further student and class involvement on diversity & inclusion in CS.
- Established outreach collaborations with organizations such as NCWIT AiC and CS-Can CAN-CWIC.
- Collaborated with **Undergraduate Program Committee** and **Graduate Program Committee** on Curriculum and Diversity Issues.

Defense Chair, six MSc and three PhD student defenses (March 2019 – Now)

MSc: Omar Arafa, Pourya Vaziri, Carlos Lee Peng, Parham Yassini, Linfeng Shen, Puria Azadi Moghaddam

PhD: Lei Zhang, Jia Zhao, Si Chen

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

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

- Directed the 2019 operation (co-director on maternity leave) and helped move the 2020 event online.
- Designed effective team support structure for delivery of project element in 2019 and 2020.

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 – June 2023)

- Faculty advocate for equity, diversity, inclusion, and justice (EDIJ): Advocacy and representation to university administration based on collective faculty feedback on issues affecting women and non-binary faculty including but not limited to Teaching Faculty, Collective Agreement, Specialized Hiring Tracks.
- Facilitated faculty conversations through events including Pace Circles, Holiday Socials, International Women's Day events, and Annual General Meetings, and Annual Receptions.
- Initiated programs such as Academic Women Mentorship Program (together with Dr. Maite Taboada) and Academic Women Book Club (together with Dr. Ronda Arab).

AI Mentor, Make Her Future (August 2020)

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

EXTERNAL:

Steering Committee Member, CS-Can | Info-Can CAN-CWIC 2024 (Jan 2024 – Now)

Co-Chair, CS-Can | Info-Can CAN-CWIC 2023 (May 2022 – June 2023)

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

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

Technical Program Committee Member (Reviewer)

ACM SIGCSE TS 2022, and 2023 (Posters)

ACM ITiCSE 2022, 2023, and 2024 (Full Papers)

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

Open Textbook Reviewer, BCCampus (April – June 2022)

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)

Publications

JOURNAL ARTICLES:

- [J1] **Lightweight User Grouping with Flexible Degrees of Freedom in Virtual MIMO**
Ouldooz Baghban Karimi, Milad Amir Toutouchian, Jiangchuan Liu, Chonggang Wang
IEEE Journal on Selected Areas in Communications (IEEE JSAC)
Vol. 31, Issue 10, pp. 2004-2012, Oct 2013
<https://doi.org/10.1109/JSAC.2013.131004>
- [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
<https://doi.org/10.1109/JSAC.2012.120507>
- [J3] **Multicast with cooperative gateways in multi-channel wireless mesh networks**
Ouldooz Baghban Karimi, Jiangchuan Liu, Zongpeng Li
Elsevier Ad-Hoc Networks, October 2011
<https://doi.org/10.1016/j.adhoc.2011.10.002>
- [J4] **Adaptive end-to-end QoS for multimedia over heterogeneous wireless networks**
Ouldooz Baghban Karimi, Mahmood Fathy
Elsevier Journal of Computers and Electrical Engineering
Vol. 36, Issue. 1, pp. 45-55, 2010
<https://doi.org/10.1016/j.compeleceng.2009.04.006>

CONFERENCE ARTICLES:

- [C5] **Enhancing Diversity and Inclusion in Computer Science Undergraduate Programs: The Role of Admissions**, Ouldooz Baghban Karimi, Giulia Toti, Mirela Gutica, Rebecca Robinson, Lisa Zhang, James Paterson, Peggy Lindner, and Michael O'Dea
Proceedings of the 2023 Working Group Reports on ACM Conference on Innovation & Technology in Computer Science Education (*ACM ITICSE*)
pp. 1-29, Finland, December 2023
<https://doi.org/10.1145/3623762.3633496>
- [C6] **Specification and Scaffolding in Project-Based Learning of Systems Architecture**
Ouldooz Baghban Karimi
Western Canadian Conference on Computing Education (ACM WCCCE)
No. 8, pp. 1-7, Canada, May 2023
<https://doi.org/10.1145/3593342.3593354>
- [C7] **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*)
pp. 235–260, Ireland, Dec 2022
<https://doi.org/10.1145/3571785.3574128>
- [C8] **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)
pp. 134-143, China, 2015
<https://doi.org/10.1109/MSN.2015.27>
- [C9] **Optimal Collaborative Access Point Association in Wireless Networks**
Ouldooz Baghban Karimi, Jiangchuan Liu, Jennifer Rexford
International Conference on Computer Communications (*IEEE INFOCOM*)
pp. 1141-1149, Toronto, Canada, April 2014
<https://doi.org/10.1109/INFOCOM.2014.6848045>
- [C10] **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*)
pp. 161 – 163, Spain, 2011
<https://doi.org/10.1109/MASS.2011.132>
- [C11] **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*)
pp. 7-12, Spain, 2011
<https://doi.org/10.1109/MASS.2011.12>
- [C12] **Multicast in Multi-Channel Wireless Mesh Networks**
Ouldooz Baghban Karimi, Jiangchuan Liu, Zongpeng Li
IFIP networking 2010 proceedings
pp. 148–159, Chennai, India, 2010
https://doi.org/10.1007/978-3-642-12963-6_12
- [C13] **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 (ICDIM)
pp. 745-750, London, UK, 2008
<https://doi.org/10.1109/ICDIM.2008.4746765>
- [C14] **Availability in Peer to Peer Management Networks**
Ouldooz Baghban Karimi, Saleh Yousefi, Mahmood Fathy
LNCS proceedings of Asia-Pacific Network Operations and Management (APNOMS)
pp. 552–555, China, 2008
https://doi.org/10.1007/978-3-540-88623-5_74
- [C15] **Adaptive End-to-End QoS for Multimedia over Heterogeneous Wireless Networks**
Ouldooz Baghban Karimi, Mahmood Fathy
Computer Society of Iran Computer Conference
Iran, 2008
- [C16] **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
p. 137, Mauritius, 2006
<https://doi.org/10.1109/ICNICONSMCL.2006.59>
- [C17] **Improvements on Active Resource Management for Differentiated Services Domain**
Ouldooz Baghban Karimi, Shahram Jamali, Mahmood Fathy, Morteza Analouie
pp. 527-531, IST2005 proceedings, Iran, 2005

- [C18] **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)

POSTERS and WORK IN PROGRESS:

- [P19] **Effective Use of Open Educational Resources in Computer Science Education: A Query to Inform Open Textbook Development**, Proceedings of the ACM Conference on Innovation & Technology in Computer Science Education (ITiCSE), V.2, p. 666, 2023 (Poster)
Ifeoma Ibeto, Ouldooz Baghban Karimi
<https://doi.org/10.1145/3587103.3594167>
- [P20] **Exploring Computing Science Undergraduate Programs' Admission Procedures with a Diversity and Inclusion Lens**, ACM Conference on Innovation & Technology in Computer Science Education (ITiCSE), pp. 563-564, 2023 (Extended Abstract: Proposal and Conference Presentation)
Ouldooz Baghban Karimi, Giulia Toti, Mirela Gutica, Rebecca Robinson, Lisa Zhang, James Paterson, Peggy Lindner, and Michael O'Dea
<https://doi.org/10.1145/3587103.3594208>
- [P21] **Specification and Scaffolding in Project-Based Learning of Systems Architecture**, ACM Conference on International Computing Education Research (ACM ICER), 2022, Work in Progress Workshop (Presentation)
- [P22] **Embedding Vendor Certifications in the Cloud Computing Curriculum: Scope, Strategy, and Perceptions**, ACM Conference on Innovation & Technology in Computer Science Education (ITiCSE), pp. 578 -579, 2022 (Extended Abstract: Proposal and Conference Presentation)
James H. Paterson, Joshua Adams, Derek Foster, Ouldooz Baghban Karimi, Zain Kazmi, Ruth G. Lennon, Sajid Nazir, Lee Stott, Laurie White
<https://doi.org/10.1145/3502717.3532165>
- [P23] **Project-based Learning of Web Systems Architecture**, ACM ACM Conference on Innovation & Technology in Computer Science Education (ITiCSE), p. 656, 2021 (Poster)
Chris Kerslake, Ouldooz Baghban Karimi
<https://doi.org/10.1145/3456565.3460067>
- [P24] **Power Efficient Scalable Video Multicast in LTE Wireless Networks**, Grace Hopper Celebration of Women in Computing (GHC), 2011 (Poster)
Ouldooz Baghban Karimi
- [P25] **Seamless Wireless Connectivity in High-Speed Vehicles**, Grace Hopper Celebration of Women in Computing (GHC), 2011 (Poster)
Ouldooz Baghban Karimi
- [P26] **Multimedia Transmission in Wireless Networks**, ACM CRA-W Grad Cohort, Boston, 2011 (Poster)
Ouldooz Baghban Karimi

Invited Talks, Panels, Reports, and Outreach Presentations:

- [T27] **Computer Science Research: Areas, Methodologies, and Resources**
Ouldooz Baghban Karimi
Research Session, CAN-CWIC, Toronto, Oct 2023
- [T28] **Equity, Diversity and Inclusion at ACM MMSys 2023**
Ouldooz Baghban Karimi, Katrien De Moor, Mohamed Hefeeda, Shervin Shirmohammadi, 2023
ACM SIGMM Records, Nov 2023
<https://records.sigmm.org/2023/11/05/equity-diversity-and-inclusion-at-acm-mmsys-2023/>

[T29] **Building Capacity for Anti-Racist Pedagogy at SFU**

Panelists: Ouldooz Baghban Karimi, Genevieve LeBaron, Nicky Didicher, Mark Lechner, Anushay Malik, Panel led by: Bee Brigidi and Sarah Ford
Symposium on Teaching and Learning, Vancouver, May 2023

[T30] **Keynote Speech**

Ouldooz Baghban Karimi
TryCATCH Outreach Conference, Burnaby, 2016

[T31] **Cellular Networks: 1G to 5G**

Ouldooz Baghban Karimi
TryCATCH Outreach Conference, Burnaby, 2011

Open Educational Resources (OER)

[O32] **Introduction to Data Communication and Networking** (Open Access Video Lectures)

https://youtube.com/playlist?list=PLH7gp_9vK4arW-AXttB1vcTP4amjA_G1V
Ouldooz Baghban Karimi, 2021

[O33] **Database Systems** (Open Access Video Lectures)

https://youtube.com/playlist?list=PLH7gp_9vK4aoH4xFYptdUNjW5uLJOfqMG
Ouldooz Baghban Karimi, 2021

Professional Memberships

Institute of Electrical and Electronics Engineers (IEEE), Professional Member

Association for Computing Machinery (ACM), Professional Member

Project Management Institute (PMI), Professional Member