

# 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, Diversity and Inclusion Chair, and Treasurer**, ACM MMSys 2023 (May 2022 – Now)

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

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

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

## 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 [Class Sizes: 119, 17, 115, 137, 125]

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

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

**CMPT 471**: Networking II [Class Size: 20]

(Fall 2019)

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

**CMPT 474**: Web Systems Architecture [Class Sizes: 65, 49, 72, 21]

(Spring 2020, Fall 2020, Spring 2021, Fall 2021)

(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 [Class Sizes: 117-198]

(Summer 2019, Spring 2020)

(Transition to COVID online offering)

**CMPT 454**: Database Systems II [Class Size: 84]

(Summer 2021)

(Online Offering Student Feedback: 3.43 out of 5)

**CMPT 756**: Distributed and Cloud Systems [Class Size: 12]

(Fall 2021)

(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 [Class Size: 10]

(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)

**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 (2005-2008)

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

## **Student Supervision**

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- **MSc Computing Science Student**  
MSc Thesis Committee (Starting Fall 2022)
- **MSc of Computing Science Student**  
MSc Thesis Committee (Starting Summer 2022)
- **MBA Student**  
ISTLD TLDG: Open Textbook: Web and Cloud-Based Distributed Systems (March 2022 – Now)
- **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  
*Elsevier Journal of Computers and Electrical Engineering*  
 Vol. 36, Issue. 1, pp. 45-55, 2010

#### CONFERENCE ARTICLES:

- [C5] **Embedding Vendor Certifications in the Cloud Computing Curriculum: Scope, Strategy, and Perceptions**  
 James H. Paterson, Joshua Adams, Derek Foster, Ouldooz Baghban Karimi, Zain Kazmi, Ruth G. Lennon, Sajid Nazir, Lee Stott, Laurie White (Working Group Report)  
 ACM Conference on Innovation & Technology in Computer Science Education (*ACM ITICSE*)  
 Ireland, To Appear Dec 2022
- [C6] **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
- [C7] **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
- [C8] **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
- [C9] **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
- [C10] **Multicast in Multi-Channel Wireless Mesh Networks**  
 Ouldooz Baghban Karimi, Jiangchuan Liu, Zongpeng Li  
*IFIP networking* 2010 proceedings  
 Chennai, India, 2010
- [C11] **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
- [C12] **Availability in Management P2P Networks**  
 Ouldooz Baghban Karimi, Saleh Yousefi, Mahmood Fathy  
 LNCS proceedings of Asia-Pacific Network Operations and Management  
 China, 2008
- [C13] **Adaptive End-to-End QoS for Multimedia over Heterogeneous Wireless Networks**  
 Ouldooz Baghban Karimi, Mahmood Fathy  
 Computer Society of Iran Computer Conference  
 Iran, 2008

- [C14] **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
- [C15] **Improvements on Active Resource Management for Differentiated Services Domain**  
Ouldooz Baghban Karimi, Shahram Jamali, Mahmood Fathy, Morteza Analouie  
IST2005 proceedings, Iran, 2005
- [C16] **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:**

- [P17] **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
- [P18] **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
- [P19] **Project-based Learning of Web Systems Architecture**, Poster, ACM ACM Conference on Innovation & Technology in Computer Science Education (ITicSE), 2021  
Chris Kerlake, Ouldooz Baghban Karimi
- [P20] **Power Efficient Scalable Video Multicast in LTE Wireless Networks**, Poster, Grace Hopper Celebration of Women in Computing (GHC), 2011  
Ouldooz Baghban Karimi
- [P21] **Seamless Wireless Connectivity in High-Speed Vehicles**, Poster, Grace Hopper Celebration of Women in Computing (GHC), 2011  
Ouldooz Baghban Karimi
- [P22] **Multimedia Transmission in Wireless Networks**, Poster, ACM CRA-W Grad Cohort, Boston, 2011  
Ouldooz Baghban Karimi
- [P23] **Cellular Networks: 1G to 5G**, Poster, TryCATCH, Burnaby, 2011  
Ouldooz Baghban Karimi

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

- [P24] **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
- [P25] **Database Systems** (Open Access Video Lectures)  
[https://youtube.com/playlist?list=PLH7gp\\_9vK4aoH4xFYptdUNjW5uLJOfqMG](https://youtube.com/playlist?list=PLH7gp_9vK4aoH4xFYptdUNjW5uLJOfqMG)  
Ouldooz Baghban Karimi, 2021