Gopika Premsankar

gpremsan.github.io

Education

2015 – 2020 **Doctor of Science (Tech.)**, Department of Computer Science, *Aalto University*, Finland

Supervisor: Prof. Mario Di Francesco, *advisor:* Prof. Tarik Taleb

Title: Scalable networked systems: analysis and optimization

2013 – 2015 **Master of Science (Tech.) with distinction**, Department of Computer Science, *Aalto University*, Finland

Graduated with distinction

Thesis: Design and implementation of a distributed MME on OpenStack

2006 – 2010 **Bachelor of Technology**, Department of Electrical and Electronics Engineering, *National Institute of Technology Karnataka*, Surathkal, India

Professional Experience

Feb '21 – **Postdoctoral researcher**, *Ivey, University of Western Ontario*, London, ON Canada, Project: Energy-efficient edge computing.
Supervisor: Prof. Bissan Ghaddar

Apr '20 – Jan '21 **Postdoctoral researcher**, *Aalto University*, Espoo, Finland, Project: Modeling LoRa networks.
Supervisor: Prof. Mario Di Francesco

Sep – Dec '19 **Research intern**, *Nokia Bell Labs*, Dublin, Ireland.
Project: Data-driven approach to improve energy efficiency of cellular base stations
Supervisor: Diego Lugones

Jun – Sep '19 **Visiting PhD student**, *Duke University*, Durham, NC, USA.
Project: Investigation of networking challenges for augmented reality applications
Host: Prof. Maria Gorlatova

May '18 **Visiting PhD student**, *National Chiao Tung University*, Hsinchu, Taiwan.
Two week visit to exchange ideas related to edge computing and Internet of Things
Host: Prof. Yu-Chee Tseng

May – Sep '16 **Research intern**, *IBM Research*, Dublin, Ireland.
Project: Edge computing for vehicular applications in smart cities
Host: Prof. Bissan Ghaddar

2011 – 2013 **Software engineer**, *Cisco Systems India Private Limited*, Bangalore, India.
Test engineer for mobile packet core network elements
Developed deep understanding of LTE networks and telecommunications industry

2010 – 2011 **Associate software engineer**, *Accenture*, Bangalore, India.
Application developer in pharmaceutical and life sciences division

Research funding

Feb '21 – Jan '22 **Scalable and Energy-efficient Networked Systems at the Edge**, postdoc pooli (Finnish Cultural Foundation), Principal investigator, Award amount: 52,000 EUR

The project establishes energy-efficiency as a fundamental metric in designing and deploying applications in edge data centers. The goal is to devise new optimization models to allocate resources in data centers such that energy consumed is minimized.

Publications

Journals

[J3] G. Premsankar, B. Ghaddar, M. Slabicki, and M. Di Francesco. Optimal configuration of LoRa networks in smart cities. In: *IEEE Transactions on Industrial Informatics* (2020). DOI: 10.1109/TII.2020.2967123. **Impact factor: 7.377**.

[J2] B. Jedari, G. Premsankar, G. Illahi, M. Di Francesco, A. Mehrabi, and A. Ylä-Jääski. Video Caching, Analytics and Delivery at the Wireless Edge: A Survey and Future Directions. In: *IEEE Communications Surveys & Tutorials* (2020). In press. **Impact factor: 23.7**.

[J1] G. Premsankar, M. Di Francesco, and T. Taleb. Edge computing for the Internet of Things: A case study. In: *IEEE Internet of Things Journal* 5.2 (2018), pp. 1275–1284. DOI: 10.1109/JIOT.2018.2805263. **Impact factor: 9.515**.

Book chapter

[B1] G. Premsankar and M. Di Francesco. Advances in Cloud Computing, Wireless Communications and the Internet of Things. In: *Analytics for the Sharing Economy: Mathematics, Engineering and Business Perspectives*. Springer, 2020, pp. 71–94. DOI: 10.1007/978-3-030-35032-1_6.

Conferences

[C7] V. Toro-Betancur, G. Premsankar, M. Slabicki, and M. Di Francesco. Modeling communication reliability in LoRa networks with device-level accuracy. In: Accepted, IEEE International Conference on Computer Communications (INFOCOM) 2021.

[C6] G. Premsankar, B. Ghaddar, M. Di Francesco, and R. Verago. Efficient placement of edge computing devices for vehicular applications in smart cities. In: *NOMS 2018-2018 IEEE/IFIP Network Operations and Management Symposium*. IEEE. 2018, pp. 1–9. DOI: 10.1109/NOMS.2018.8406256. **Best student paper award**.

[C5] S. K. Mohanty, G. Premsankar, and M. Di Francesco. An Evaluation of Open Source Serverless Computing Frameworks. In: *CloudCom*. 2018, pp. 115–120. DOI: 10.1109/CloudCom2018.2018.00033.

[C4] M. Slabicki, G. Premsankar, and M. Di Francesco. Adaptive configuration of LoRa networks for dense IoT deployments. In: *NOMS 2018-2018 IEEE/IFIP Network Operations and Management Symposium*. IEEE. 2018, pp. 1–9. DOI: 10.1109/NOMS.2018.8406255.

[C3] S. Bayhan, G. Premsankar, M. Di Francesco, and J. Kangasharju. Mobile content offloading in database-assisted white space networks. In: *International Conference on Cognitive Radio Oriented Wireless Networks*. Springer. 2016, pp. 129–141. DOI: 10.1007/978-3-319-40352-6_11.

[C2] G. Premsankar, K. Ahokas, and S. Luukkainen. Design and implementation of a distributed mobility management entity on OpenStack. In: *2015 IEEE 7th International Conference on Cloud Computing Technology and Science (CloudCom)*. IEEE. 2015, pp. 487–490. DOI: 10.1109/CloudCom.2015.54. Short paper.

[C1] J. Costa-Requena, J. L. Santos, V. F. Guasch, K. Ahokas, G. Premsankar, S. Luukkainen, O. L. Pérez, M. U. Itzazelaia, I. Ahmad, M. Liyanage, et al. SDN and NFV integration in generalized mobile network architecture. In: *2015 European conference on networks and communications (EuCNC)*. IEEE. 2015, pp. 154–158. DOI: 10.1109/EuCNC.2015.7194059.

Awards and Honours

Aug '19 Travel grant for NeTS Early Career Workshop, National Science Foundation, VA, USA

Spring '19 Aalto Foundation travel grant for research visit to Duke University

Apr '18 Best student paper award, IEEE/IFIP NOMS 2018

Apr '18 Student travel grant, IEEE/IFIP NOMS 2018, Apr 23-27, 2018, Taipei, Taiwan

Nov '15 Student travel grant, IEEE CloudCom, Nov 30-Dec 3, 2015, Vancouver, Canada

2013 – 2015 Aalto University Category B Scholarship for Master's study programme

2012, 2013 Two Cisco Achievement Program awards for excellent work

2010, 2011 Quarterly awards for "Excellence as a Business Operator" at Accenture

2006 – 2010 Scholarship for Bachelor's study programme, Scholarship Programme for Diaspora Children (Ministry of Overseas Indian Affairs, Government of India)

Teaching

Teaching assistant

Fall '20 CS-E4190: Cloud Software and Systems

Fall '17, '18 CS-E4100: Mobile Cloud Computing

Spring '17 CS-E4002: The Internet of Things: Selected Themes

Fall '14, '15, '16 CS-E4005 Methods and Tools for Network Systems

Master's thesis advisor

2018 – 2020 Advised 6 M.Sc. thesis students

Software skills

Programming: Python, C, C++, UNIX shell scripting

Software: CPLEX, MATLAB, OpenStack, Git, OMNeT++

OS: Linux, MacOS

Academic service

Program committee

Computer Systems Engineering (CSE) track committee member for Grace Hopper Conference for Women in Computing 2019

Shadow PC member for EuroSys 2018

Reviewer

Journals: IEEE Transactions on Mobile Computing, IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Internet of Things Journal, Elsevier Pervasive and Mobile Computing, Springer Wireless Networks

Conferences: IEEE ICDCS 2021, IEEE WoWMoM (2019, 2020), IEEE Sarnoff 2019, IEEE SMARTCOMP 2017, IEEE PerCom (2016, 2021)

Additional activities

2019 – now	Website redesign co-chair, board member, N2Women
Ongoing	Contributor and maintainer of open source simulator, Framework for LoRa (FLoRa) for end-to-end simulations of LoRa networks
Ongoing	Active volunteer in codebar, Women for Women Workshops and Django Girls, Helsinki with the goal to improve representation of underrepresented groups in technology