

Pradeeban Kathiravelu

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Academics

- Assistant Professor of Computer Science, University of Alaska Anchorage (UAA), Anchorage, AK, USA [Aug 2023 –].
- Postdoctoral Researcher, Emory University, Atlanta, GA, USA [Aug 2019 – Aug 2023].
 - Developed distributed computing frameworks to efficiently transfer and execute healthcare network flows, such as radiology image streams and neuromodulation control systems.
- Erasmus Mundus Joint Doctorate in Distributed Computing (EMJD-DC), Ph.D. [Sep 2014 – Aug 2019].
 - INESC-ID Lisboa / Instituto Superior Técnico (IST) – Universidade de Lisboa (ULisboa), Portugal and Université catholique de Louvain (UCLouvain), Belgium. Degree Average: **18/20**.
 - Thesis: **Software-Defined Systems for Network-Aware Service Composition and Workflow Placement**. Classification: **Pass with Distinction**. Advisors: Prof. Luís Veiga, IST and Prof. Peter Van Roy, UCLouvain.
- Erasmus Mundus European Master in Distributed Computing (EMDC), MSc. [Sep 2012 – Sep 2014].
 - KTH Royal Institute of Technology, Sweden and IST – ULisboa, Portugal. Degree average: **17/20**.
 - Master thesis at INESC-ID – **An Elastic Middleware Platform for Concurrent and Distributed Cloud and MapReduce Simulations**. Using in-memory data grids. Advisor: Prof. Luís Veiga.
- Honours Degree of Bachelor of the Science of Engineering, BSc (Engg). [July 2006 – Sep 2010].
 - Computer Science & Engineering. University of Moratuwa, Sri Lanka. First Class. GPA: **3.80/4.20**.

Research Projects

- Spring 2026 Community Engaged Student Assistants (CESAs). \$1000. “VolunteerAnchorage.org: Strengthening Civic Engagement Through a Community Volunteer Platform.” Community Partner: Anchorage Young Cancer Coalition.
- Faculty Initiative Fund 2025, University of Alaska (\$29,980): Integrated Community Health Metrics Framework for Behavioral Health to Complement Healthcare Practice in Alaska. [Role: PI].
- GenCyber 2025 (\$90k): Pacific Northwest GenCyber Camp Coalition 2025 – Student Camp at University of Alaska Anchorage. [Role: PI / Program Director at the University of Alaska Anchorage. Lead Institute: Boise State University].
- Community Engaged Faculty Minigrant (\$1000): A data federation approach to Analyze Behavioral Health and Supplement Healthcare Practice with Community Health Metrics in Alaska [2023 – 2024].
- Spring 2024 Community Engaged Student Assistants (CESAs). \$1000 X 2. “Integrated Community Health Metrics Framework for Behavioral Health to Supplement Healthcare Practice in Alaska.” Community Partner: CHOICES Inc.
- Georgia CTSA Informatics Grant, 2020. \$15,150. PI: Prof. Judy Gichoya, Emory Radiology [July 2020 – June 2021].
 - Real Time Inference Pipeline (RTIP) for Artificial Intelligence (AI) clinical validation. [Role: Co-PI].

Research Visits

- Juraj Dobrila University of Pula, Croatia [May – July 2026].
 - Built distributed computing frameworks for the Human-Centered System Design for Equitable and Sustainable Digital Societies (EQUISYS) Project. PI: Prof. Tihana Galinac Grbac. Funded by: NextGenerationEU.
- Emory University, Atlanta, GA, USA [March – Oct 2016].
 - Developed Bindaas data access federation middleware for the Cancer Imaging Archive (TCIA).
 - PI: Prof. Ashish Sharma. Funded by: NCI U01 [1U01CA187013-01].
- King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia [Oct – Dec 2017].
 - Researched and developed a cloud-assisted overlay for a decentralized virtual Network-as-a-Service.
 - PI: Prof. Marco Canini. Funded by: ENDEAVOUR H2020 Project.
- University of Rijeka, Croatia. [July 2015].
 - Researched and developed a reliable QoS-aware service composition framework for Internet of Services.
 - PI: Prof. Tihana Galinac Grbac. Funded by: ACROSS / COST Action IC1304.

Teaching

- University of Alaska Anchorage.
 - CSCE A360 Database Systems [Fall semesters since 2025].
 - CSCE A662 Advanced Data Mining [Spring semesters since 2026].

- o CSCE A462 Data Mining [Spring semesters since 2025].
- o CSCE A690 Advanced Distributed Computing [Fall semesters since 2026].
- o CSCE A490 Distributed Computing [Fall semesters since 2024].
- o CSCE A498 Individual Research [Spring, Summer, and Fall semesters since 2024].
- o CSCE A465 Computer and Network Security [Spring semesters since 2024].
- o CSCE A365 Computer Networks [Fall semesters since 2023].

Software Engineering Experience

- Software Engineer (Part-Time), Uniplaces, Portugal [Jan – Feb 2014].
 - o Developed Robin, an open source proxy for A/B testing, using NodeJs.
- Software Engineer, WSO2, Sri Lanka, the Open Source Middleware Company [Sep 2010 – July 2012].
 - o Developed Stratos Cloud Platform and WSO2 Load Balancer for load balancing and auto-scaling.
- Intern Software Engineer, WSO2. Developed an event monitoring web application [Oct 2008 – May 2009].
- Google Summer of Code (GSoC) – Contributor, 4 years.
 - o Department of Biomedical Informatics, Emory University School of Medicine (Emory BMI) [2015 and 2014].
 - [2015] Developed *Data Café*, a data integration framework for heterogeneous biomedical research data.
 - [2014] Developed *MEDIator*, a data federation and sharing platform for medical image archives.
 - o OMII-UK [2010] – Developed alternative presentation layers for OGSA-DAI *Open Grid Services Architecture - Data Access and Integration*, using Apache CXF.
 - o AbiWord [2009] – Ported AbiWord Windows API (C++) to Unicode.

Selected Journal Publications

- Namir, I., Hussain, M. A., Ramanna, S., Liu, Q., and Kathiravelu, P. **Satellite Image Processing in the Circumpolar North: Understanding Climate Crisis by Predicting Sea Ice Extent in the Arctic.** In *Remote Sensing Applications: Society and Environment (RSASE)*. (IF: 4.5, Q1). November 2025. Elsevier. <https://doi.org/10.1016/j.rsase.2025.101797>
- Kathiravelu, P., Arnold, M., Vijay, S., Jagwani, R., Goyal, P., Goel, A.K., Li, N., Horn, C., Pan, T., Kothare, M. V., and Mahmoudi, B. **Distributed Executions with CONTROL-CORE: Integrated Development Environment (IDE) for Closed-loop Neuromodulation Control Systems.** In *Cluster Computing – The Journal of Networks Software Tools and Applications (CLUSTER)*. (IF: 2.7, Q1). 28, 697. September 2025. Springer. <https://doi.org/10.1007/s10586-025-05476-w>
- Zhang, X., Wang, Y., Slawson, D., Williams, M., Boeckmann, R., and Kathiravelu, P. **A Serious Game for Dena'ina Language and Heritage.** In *IEEE Computer*. (IF: 2.256, Q1). Special Issue on Computing in Game, Film & Interactive Experience Technologies. 58(9), 22-30. August 2025. <https://doi.org/10.1109/MC.2025.3566359>
- Kollander, M., Hollowood, R., Williams, M., and Kathiravelu, P. **An Interactive Native History Web Map for Epidemic Diseases in Alaska.** In *IEEE Computer*. (IF: 2.256, Q1). 58(8), 77-85. July 2025. <https://doi.org/10.1109/MC.2025.3563833>.
- Caballero, E. S., Ramirez, J., Alisetti, S. V., Almario, S., and Kathiravelu, P. **Network Measurements for Telehealth Optimizations. Understanding Internet Paths in Remote Regions.** In *Cluster Computing – The Journal of Networks Software Tools and Applications (CLUSTER)*. (IF: 2.7, Q1). June 2025, Volume 28, Issue 6, Springer. <https://doi.org/10.1007/s10586-024-05069-z>
- Kathiravelu, P., Fonović, D., Grbac, T. G., Zaiman, Z., Veiga, L., Gichoya, J., Purkayastha, S., and Mahmoudi, B. **The Telehealth Dilemma – Healthcare Deserts Meet Internet's Remote Regions.** In *IEEE Computer*. Special Issue on Computing in Telemedicine. (IF: 2.256, Q1). 56(9), 39-49. August 2023. <https://doi.org/10.1109/MC.2023.3252945>.
- Kathiravelu, P., Li, N., Singi, N., Bhimireddy, A., Birmingham, R., Gichoya, J., Trivedi, H., Safdar, N., Sharma, A., and Sharma, P. **Visualizing Scanner Utilization from MRI Metadata and Clinical Data.** In *IEEE Computer*. (IF: 2.256, Q1). 56(8), 68-76. August 2023. <https://doi.org/10.1109/MC.2022.3228107>.
- Kathiravelu, P., Arnold, M., Fleischer, J., Yao, Y., Awasthi, S., Goel, A. K., Branen, A., Sarikhani, P., Kumar, G., Kothare, M. V., and Mahmoudi, B. **CONTROL-CORE: A Framework for Simulation and Design of Closed-Loop Peripheral Neuromodulation Control Systems.** In *IEEE Access*. (IF: 3.745, Q1). 10, 36268-36285. March 2022. <https://doi.org/10.1109/ACCESS.2022.3161471>

- **Kathiravelu, P., Zaiman, Z., Gichoya, J., Veiga, L., and Banerjee, I. Towards an Internet-Scale Overlay Network for Latency-Aware Decentralized Workflows at the Edge.** In *Computer Networks (COMNET)*. (IF: 4.474, Q1). 203, 108654. February 2022. <https://doi.org/10.1016/j.comnet.2021.108654>
- **Kathiravelu, P., Sarikhani, P., Gu, P., and Mahmoudi, B. Software-Defined Workflows for Distributed Interoperable Closed-Loop Neuromodulation Control Systems.** In *IEEE Access*. (IF: 3.745, Q1). 9, 131733-131745. September 2021. <https://doi.org/10.1109/ACCESS.2021.3113892>
- **Kathiravelu, P., Sharma, P., Sharma, A., Banerjee, I., Trivedi, T., Purkayastha, S., Sinha, P., Cadrin-Chenevert, A., Safdar, N., and Gichoya, J. A DICOM Framework for Machine Learning Pipelines against Real-Time Radiology Images.** In *Journal of Digital Imaging (JDI)*. 34(4), 1005-1013. (IF: 4.903, Q1). August 2021. <https://doi.org/10.1007/s10278-021-00491-w>
- **Kathiravelu, P., Sharma, A., and Sharma, P. Understanding Scanner Utilization with Real-Time DICOM Metadata Extraction.** In *IEEE Access*. (IF: 3.745, Q1). Vol. 9, pp. 10621 – 10633. January 2021. <https://doi.org/10.1109/ACCESS.2021.3050467>
- **Sharma, A., Tarbox, L., Kurc, T., Bona, J., Smith, K., Kathiravelu, P., Bremer, E., Saltz, J., and Prior, F. PRISM: A Platform for Imaging In Precision Medicine.** In *JCO Clinical Cancer Informatics*. 4, 491-499. June 2020. ASCO. <https://ascopubs.org/doi/full/10.1200/CCI.20.00001>
- **Kathiravelu, P., Van Roy, P., and Veiga, L. SD-CPS: Software-Defined Cyber-Physical Systems. Taming the Challenges of CPS with Workflows at the Edge.** In *Cluster Computing – The Journal of Networks Software Tools and Applications (CLUSTER)*. (IF: 2.040, Q2). September 2019, Volume 22, Issue 3, pp 661–677. Springer. <https://doi.org/10.1007/s10586-018-2874-8>
- **Kathiravelu, P., Sharma, A., Galhardas, H., Van Roy, P., and Veiga, L. On-Demand Big Data Integration: A Hybrid ETL Approach for Reproducible Scientific Research.** In *Distributed and Parallel Databases (DAPD)*. (IF: 1.179, Q2). 37(2), 273 – 295. May 2019. Springer. <https://doi.org/10.1007/s10619-018-7248-y>
- **Prior, F., Almeida, J., Kathiravelu, P., Kurc, T., Smith, K., Fitzgerald, T.J., and Saltz, J. Open access image repositories: high-quality data to enable machine learning research.** In *Clinical Radiology*. (IF: 2.282, Q1). 75(1), 7-12. Apr. 2019. Elsevier. <https://doi.org/10.1016/j.crad.2019.04.002>
- **Kathiravelu, P., Van Roy, P., and Veiga, L. Interoperable and Network-Aware Service Workflows for Big Data Executions at Internet Scale.** In *Concurrency and Computation: Practice and Experience (CCPE)*. (IF: 1.114, Q2). 32(21), e5212. Feb. 2019. Wiley. <https://doi.org/10.1002/cpe.5212>
- **Kathiravelu, P., Van Roy, P., and Veiga, L. Composing Network Service Chains at the Edge: A Resilient and Adaptive Software-Defined Approach.** In *Transactions on Emerging Telecommunications Technologies (ETT)*. (IF: 1.535, Q2). 29(11):e3489. Aug. 2018. Wiley. <https://doi.org/10.1002/ett.3489>

Selected Conference Publications

- **Abdullah, M. F., Kwon, J., Bagwan, Gupta, I., Moxley, D., and Kathiravelu, P. A Data Framework for Behavioral Health with Digitized Drawings and Photographs.** In the 20th Annual IEEE International Systems Conference (SysCon). Accepted. 8 pages. April 2026.
- **Kathiravelu, P. and Moxley, D. Peer Learning through Distributed Computing Research for Diverse Undergraduate Students.** IEEE International Conference on Performance, Computing and Communications (IPCCC). (CORE Rank C). pp. 1-6. November 2025. <https://doi.org/10.1109/IPCCC66453.2025.11304655>
- **Daramola, K., Murphy, R., and Kathiravelu, P. L4S Bandwidth Orchestration Architecture: A Case for Network Optimization for Healthcare.** IEEE Canadian Conference on Electrical and Computer Engineering (CCECE). (CORE Rank C). pp. 1-5. May 2025. <https://doi.org/10.1109/CCECE64018.2025.11364476>
- **Schroder, M., Brown, B., Mondina, B., and Kathiravelu, P. A Performance Study on Low Earth Orbit Satellite Networks with Inter Satellite Links.** In the 19th Annual IEEE International Systems Conference (SysCon). pp. 1-8. April 2025. <https://doi.org/10.1109/SysCon64521.2025.11014873>
- **Kathiravelu, P. and Moxley, D. Telehealth in the Circumpolar North: A Perspective of Access and Connectivity.** IEEE Canadian Conference on Electrical and Computer Engineering (CCECE). (CORE Rank C). pp. 780-786. August 2024. <https://doi.org/10.1109/CCECE59415.2024.10667263>
- **Singi, N., Sharma, P., Singh, R., and Kathiravelu, P. Classifying and Quantifying MRI Image Quality from DICOM Data at the Edge.** IEEE Canadian Conference on Electrical and Computer Engineering (CCECE). (CORE Rank C). pp. 667-673. August 2024. <https://doi.org/10.1109/CCECE59415.2024.10667219>

- Bamber, M., Kollander, M., Brooks, A., Pollard, J., and **Kathiravelu, P.** **Understanding the Internet Backbone in the Circumpolar North with Looking Glass.** IEEE Canadian Conference on Electrical and Computer Engineering (CCECE). **(CORE Rank C)**. August 2024, pp. 307-311. <https://doi.org/10.1109/CCECE59415.2024.10667228>
- Seto, Y., Kageyama, H., and **Kathiravelu, P.** **Rural Alaska Towards Internet Access and Equity.** IEEE Canadian Conference on Electrical and Computer Engineering (CCECE). **(CORE Rank C)**. August 2024, pp. 910-914. <https://doi.org/10.1109/CCECE59415.2024.10667227>
- **Kathiravelu, P.** and Moxley, D. **Peer Learning in Diverse Undergraduate Population in Networking and Distributed Computing Research.** International Conference on Active Learning in Engineering Education (PAEE/ALE). July 2024, pp. 359–367. <https://doi.org/10.5281/zenodo.14062601>
- **Kathiravelu, P.**, Bhimireddy, A., and Gichoya, J. **Network Measurements and Optimizations for Telehealth in Internet's Remote Regions.** In *the Tenth IEEE International Conference on Software Defined Systems (SDS-2023)*. pp. 39-46, October 2023. <https://doi.org/10.1109/SDS59856.2023.10329044>.
- Hamadache, S., Benkhelifa, E., Kholidy, H., **Kathiravelu, P.**, and Gupta, B.B. **Leveraging SDN for Real World Windfarm Process Automation Architectures.** In *the Tenth IEEE International Conference on Software Defined Systems (SDS-2023)*. pp. 115-120, October 2023. <https://doi.org/10.1109/SDS59856.2023.10329205>.
- **Kathiravelu, P.**, Benkhelifa, E., Zaiman, Z., Wang, M., Correa, R., Veiga, V., Banerjee, I., Trivedi, T., Purkayastha, S., Gichoya, J., and Mahmoudi, B. **Networking Research Innovations for Telesurgery: A Systematic Review.** In *the Ninth IEEE International Conference on Software Defined Systems (SDS-2022)*. pp. 1-8, December 2022. <https://doi.org/10.1109/SDS57574.2022.10062924>
- **Kathiravelu, P.** and Sharma, A. **Uniform Interfaces for Healthcare Data Access Federation.** In *the International Conference on Modern Network Technologies (MoNeTec 2022)*. pp. 1-6, October 2022. <https://doi.org/10.1109/MoNeTec55448.2022.9960754>
- Amrollahi, F., Shashikumar, S.P., **Kathiravelu, P.**, Sharma, A., and Nemati, S. **AIDEx - An Open-source Platform for Real-Time Forecasting Sepsis and A Case Study on Taking ML Algorithms to Production.** In *the 42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'20)*. **(CORE Rank C)**. pp. 5610-5614. July 2020. <https://ieeexplore.ieee.org/document/9175947>
- **Kathiravelu, P.**, Van Roy, P., Veiga, L., and Benkhelifa, E. **Latency-Sensitive Web Service Workflows: A Case for a Software-Defined Internet.** In *the Seventh IEEE International Conference on Software Defined Systems (SDS-2020)*. pp. 115-122. June 2020. <https://ieeexplore.ieee.org/document/9143882>
- **Kathiravelu, P.**, Saghar, Y.N., Aggarwal, T., and Sharma, A. **Data Services with Bindaas: RESTful Interfaces for Diverse Data Sources.** In *the IEEE International Conference on Big Data (BigData'19)*. **(CORE Rank B)**. pp. 457 – 462. Dec. 2019. <https://doi.org/10.1109/BigData47090.2019.9005714>
- Marcos, P., Chiesa, M., Muller, L., **Kathiravelu, P.**, Dietzel, C., Canini, M., and Barcellos, M. **Dynam-IX: a Dynamic Interconnection eXchange.** In *the 14th International Conference on emerging Networking EXperiments and Technologies (CoNEXT '18)*. **(CORE Rank A)**. pp. 228-240. Dec. 2018. ACM (Acceptance Rate: 17.2%). <https://ieeexplore.ieee.org/document/8697019>
- **Kathiravelu, P.**, Chiesa, M., Marcos, P., Canini, M., and Veiga, L. **Moving Bits with a Fleet of Shared Virtual Routers.** In *IFIP Networking 2018*. **(CORE Rank A)**. May 2018 (Acceptance Rate: 24%). pp. 370 – 378. <https://doi.org/10.23919/IFIPNetworking.2018.8697019>
- **Kathiravelu, P.**, Van Roy, P., and Veiga, L. **Software-Defined Data Services: Interoperable and Network-Aware Big Data Executions.** In *The Fifth IEEE International Conference on Software Defined Systems (SDS-2018)*. April 2018. **Best Paper Award**. pp. 145 – 152. <https://doi.org/10.1109/SDS.2018.8370436>
- **Kathiravelu, P.** and Veiga, L. **SD-CPS: Taming the Challenges of Cyber-Physical Systems with a Software-Defined Approach.** In *The Fourth IEEE International Conference on Software Defined Systems (SDS-2017)*. May 2017. pp. 6 – 13. <https://doi.org/10.1109/SDS.2017.7939133>
- **Kathiravelu, P.** and Veiga, L. **SDN Middlebox Architecture for Resilient Transfers.** In *15th IFIP/IEEE International Symposium on Integrated Network Management (IM 2017)*. **(CORE Rank A)**. May 2017. pp. 560 – 563. <https://doi.org/10.23919/INM.2017.7987329>
- **Kathiravelu, P.** and Veiga, L. **Software-Defined Simulations for Continuous Development of Cloud and Data Center Networks.** In *24th International Conference on Cooperative Information Systems (CoopIS 2016)*. **(CORE Rank**

- A). *On the Move to Meaningful Internet Systems: OTM 2016 Conferences*, pp. 3 – 23. Springer International Publishing, Oct. 2016. https://doi.org/10.1007/978-3-319-48472-3_1
- Caixinha, D., Kathiravelu, P. and Veiga, L. **ViTeNA: An SDN-Based Virtual Network Embedding Algorithm for Multi-Tenant Data Centers**. In *15th IEEE International Symposium on Network Computing and Applications (NCA 2016)*. (CORE Rank A). Oct. 2016. pp. 140 – 147. <https://doi.org/10.1109/NCA.2016.7778608>
 - Kathiravelu, P., Grbac, T.G., and Veiga, L. **Building Blocks of Mayan: Componentizing the eScience Workflows Through Software-Defined Service Composition**. In *23rd IEEE International Conference on Web Services (ICWS 2016)*. (CORE Rank A). June 2016. pp. 372 – 379. (Awarded a travel grant). <https://doi.org/10.1109/ICWS.2016.55>
 - Kathiravelu, P. and Veiga, L. **SENDIM for Incremental Development of Cloud Networks: Simulation, Emulation & Deployment Integration Middleware**. In *IEEE International Conference on Cloud Engineering (IC2E 2016)*. Apr. 2016. pp. 143 – 146. (Awarded a travel grant). <https://doi.org/10.1109/IC2E.2016.22>
 - Kathiravelu, P. and Veiga, L. **CHIEF: Controller Farm for Clouds of Software-Defined Community Networks**. In *3rd IEEE International Symposium on Software Defined Systems (SDS-2016)*. Apr. 2016. pp. 1 – 6. <https://doi.org/10.1109/IC2EW.2016.8>
 - Kathiravelu, P., Galhardas, H., and Veiga, L. **∂udu Multi-Tenanted Framework: Distributed Near Duplicate Detection for Big Data**. In *23rd International Conference on Cooperative Information Systems (CoopIS 2015)*, (CORE Rank A) (Acceptance Rate: 20%). *On the Move to Meaningful Internet Systems: OTM 2015 Conferences*, pp. 237-256. Springer International Publishing, Oct. 2015. https://doi.org/10.1007/978-3-319-26148-5_14
 - Kathiravelu, P. and Veiga, L. **An Adaptive Distributed Simulator for Cloud and MapReduce Algorithms and Architectures**. In *IEEE/ACM 7th International Conference on Utility and Cloud Computing (UCC 2014)*. pp. 79 – 88. Dec. 2014. IEEE (Acceptance Rate: 19%). <https://doi.org/10.1109/UCC.2014.16>
 - Kathiravelu, P. and Veiga, L. **Concurrent and Distributed CloudSim Simulations**. In *IEEE 22nd International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS'14)*, (CORE Rank A). pp. 490 – 493. Sep. 2014. IEEE. <https://doi.org/10.1109/MASCOTS.2014.70>
 - Buddhika De Alwis, Supun Malinga, Kathiravelu Pradeeban, Denis Weerasiri, and Shehan Perera. **Horizontal Format Data Mining with Extended Bitmaps**. In *2010 International Conference on Soft Computing and Pattern Recognition (SoCPaR 2010)*. pp. 220 – 223, Dec. 2010. IEEE. <https://doi.org/10.1109/SOCPAR.2010.5686156>
 - Buddhika De Alwis, Supun Malinga, Kathiravelu Pradeeban, Denis Weerasiri, Srinath Perera, and Vishaka Nanayakkara. **Mooshabaya: mashup generator for Xbaya**. In *8th International Workshop on Middleware for Grids, Clouds and e-Science (MGC '10)*. (CORE Rank C), co-located with ACM/USENIX/IFIP Middleware 2010. Article 8, 6 pg. Nov. 2010. ACM. <https://doi.acm.org/10.1145/1890799.1890807>

The full publications list can be found at <https://scholar.google.com/citations?user=k1PYH8sAAAAJ&hl=en>

Books

- Kathiravelu, P. and Sarker, M.O.F. **Python Network Programming Cookbook, Second Edition**. ISBN: 978-1-78646-399-9. Aug. 2017. Packt. <https://www.packtpub.com/networking-and-servers/python-network-programming-cookbook-second-edition>.
- Ratan, A., Chou, E., Kathiravelu, P., and Sarker, M.O.F. **Python Network Programming: Conquer all your networking challenges with the powerful Python language**. ISBN: 978-1788835466. Jan. 2019. Packt. <https://www.amazon.com/Python-Network-Programming-networking-challenges/dp/1788835468>

Book Chapters

- Kathiravelu, P. and Veiga, L. **SDN helps other Vs in Big Data**. Chapter of *Big Data and Software Defined Networks*. pp. 253 – 273. March 2018. IET. ISBN: 978-1-78561-304-3. <https://www.theiet.org/resources/books/computing/bigdata.cfm>
- Cardellini, V., Grbac, T.G., Kessler, A., Kathiravelu, P., Lo Presti, F., Marotta, A., Nardelli, M. and Veiga, L. **Integrating SDN and NFV with QoS-aware service composition**. Chapter of *Autonomous Control for a Reliable Internet of Services: Methods, Models, Approaches, Techniques, Algorithms and Tools*. Springer. May 2018. pp. 212 – 240. https://link.springer.com/chapter/10.1007/978-3-319-90415-3_9

Selected Talks

- Invited Lecture at the MIPRO 2026 - 49th ICT and Electronics Convention, Opatija, Croatia. May 2026.
 - **Distributed Computing for the Extremes: What We Learned in the Circumpolar North.**

- Keynote speaker at the International Science and Technology Conference on Modern Network Technologies. *MoNeTec*. Presented virtually.
 - **When Healthcare Deserts Meet the Internet's Remote Regions: Can Network Innovations Help Telehealth?** October 2022.
 - **A Software-Defined Internet for Latency-Sensitive Web Service Workflows.** October 2020.
- **Messaging4Transport – An AMQP Northbound (and more) for MD-SAL.**
OpenDaylight Summit 2015 (Santa Clara, USA, July 2015).

Services

- Ph.D. Thesis Committee Member.
 - Advisory Committee Member for a Ph.D. thesis, Virginia Tech, titled, “Advancing Blockchain-Oriented Software Engineering: Empirical Investigations and AI-Augmented Tooling for Secure Development” by Shawal Khalid, to be defended in 2026.
 - Outside Examiner for a Ph.D. thesis, Doctorate of Nursing Practice in Nursing Science, University of Alaska Anchorage [2025], titled, “Assessing Readiness for Point-of-Care ultrasound Implementation in a Neonatal Intensive Care Unit” by Stacy Lynn Brunquist.
 - Referee for a Ph.D. thesis, UPC, Barcelona, Spain [2020], titled, “Edge Computing infrastructure for 5G networks: a placement optimization solution” by Alejandro Santoyo-González, defended with a Cum Laude.
- Faculty Senate role(s): General Education Council (GEC): Non-GER [2026 – 2028].
- IEEE Alaska: UAA Student Branch Faculty Advisor [2024 Jan –].
- Faculty Advisor, UAA College of Engineering CS Club [2023 August –].
- Faculty representative for the CoEngineering, UAA Center for Advancing Faculty Excellence (CAFE) Advisory Council [2024 Jan –]. High-Impact Practices of collaborative learning experiences and course-based undergraduate research.
- Faculty representative for the CoEngineering, UAA University Technology Council (UTC) [2024 April – 2025 Jan].
- Editorial Board Member: Cluster Computing, Springer journal [2023 –].
- Publications Chair and TPC Member, QUICK Workshop in conjunction with IEEE CCGrid 2025.
- ConocoPhillips Arctic Science and Engineering Endowment Award – Reviewer (2023 – 2025, Awarded \$500 each).
- Search Committee (2023 – 2024), Term Assistant Professor of Computer Science & Engineering, UAA.
- Technical Program Chair, IEEE Intl' Conference on Software Defined Systems (SDS) [2021, 2023 – 2025].
- Technical Program Committee (TPC) Member.
 - IEEE International Symposium on Systems Engineering (ISSE) [2026].
 - International Conference on Distributed Applications and Interoperable Systems (DAIS) [2024 –].
 - Global Congress on Emerging Technologies [2024 – 2025].
 - IEEE International Conference on Omni-Layer Intelligent Systems (COINS) [2024].
 - Intl. Science and Technology Conference, Modern Networking Technologies (MoNeTeC) – [2018 – 2024].
 - Portuguese National Conference on Informatics, INForum. Tópico Aberto em Áreas Emergentes, Multidisciplinares e Interdisciplinares [2023].
 - IEEE International Conference on Software Defined Systems (SDS) [2019 –].
 - IEEE International Conference on Fog and Mobile Edge Computing (FMEC) [2021].
- Proctored 6 teams in 2023, 12 teams in 2024, and 8 teams in 2025 for IEEE Xtreme Competitions at UAA.
- Reviewer. Grant Proposals for the National Science Center, Poland [2019 and 2024].
- Guest Editor, Special Issue, MDPI Electronics 2021.
 - “Services Computing and Software-Defined Systems for Future Internet.”
- Review Editor: Frontiers in High Performance Computing - High Performance Big Data Systems [2022].
- Editorial Board Member: MDPI Electronics [2020 – 2022].
- Reviewer Board Member: MDPI Future Internet [2020 – 2022] and MDPI Computers [2020 – 2022].
- Reviewer.
 - IEEE SoftCOM [2026]

- o IEEE International Symposium on Systems Engineering (ISSE) [2026].
- o IEEE Open Journal of the Communications Society [2026].
- o Elsevier Computer Networks (COMNET) [2017 –].
- o IEEE Computer [2021 –].
- o IEEE Access [2019 –].
- o Cluster Computing (CLUSTER) [2018 –].
- o Transactions on Cloud Computing [2022 –].
- o ICT Express [2025].
- o Computers & Security [2025].
- o IEEE Power Engineering Letters [2025].
- o Health Policy and Technology – Elsevier Journal [2025].
- o Transactions on Services Computing (TSC) [2020 – 2025].
- o International Journal of Communication Systems (IJCS), Wiley Journal [2018 – 2025].
- o Software: Practice and Experience (SPE), Wiley [2018 – 2025]: Distinguished Referee [2018].
- o IEEE SysCon [2025].
- o AI Open [2025]
- o ACM Transactions on Privacy and Security [2024].
- o Global Security: Health, Science and Policy [2024].
- o IEEE Open Journal of the Computer Society (OJCS) [2024].
- o IEEE Transactions on Machine Learning in Communications and Networking [2024].
- o IEEE Internet of Things Magazine [2023].
- o Springer Scientific Reports [2024] and BMC Medical Informatics and Decision Making [2024 – 2025].
- o IEEE Transactions on Consumer Electronics [2022].
- o Frontiers in: Digital Health Health Informatics [2023], High-Performance Computing [2023], and Neuroinformatics [2022].
- o MiddleWEdge 2nd Intl. Workshop on Middleware for the Edge, co-located with ACM Middleware [2023].
- o Journal of Open Source Software (JOSS) [2023 – 2024], New Review of Information Networking [2023].
- o Big Data [2023]. Elsevier SoftwareX [2022 – 2023].
- o IEEE Industrial Electronics Magazine [2022] and IEEE Vehicular Technology Magazine [2022].
- o Wiley Strategic Management Journal [2022].
- o MDPI: Algorithms [2022], Electronics [2019 – 2022], Applied Sciences [2019 – 2022], and Sensors [2020 – 2023].
- o IEEE Transactions on Parallel and Distributed Systems [2022].
- o IET Networks [2022] and IET Communications [2022].
- o International Journal of Public Administration [2022].
- o ACM Transactions on Intelligent Systems and Technology (TIST) [2021].
- o Arabian Journal for Science and Engineering (AJSE) [2020 – 2021].
- o Journal of Control and Decision [2021]. Remote Sensing Letters [2021].
- o International Journal of Distributed Sensor Networks (IJDSN) [2020].
- o AMIA 2020 Informatics Summit. WIREs Computational Statistics [2020]. Scientometrics [2020].
- o IEEE Transactions on Neural Networks and Learning Systems (TNNLS) [2019 – 2020].
- o Transactions on Emerging Telecommunications Technologies (ETT) [2018 – 2020].
- o Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences [2019].
- o Pacific Symposium of Biocomputing [2019].
- o IEEE Transactions on Industrial Informatics (TII) [2019].
- o ACM Transactions on Internet Technology (TOIT) [2019].
- o IEEE Transactions on Industrial Electronics (TIE) [2018].

- o OpenDaylight Cookbook (ISBN: 978-1-78646-230-5. June 2017), Packt.
- o Learning OpenDaylight (ISBN: 978-1-78217-452-3. May 2017), Packt.
- o Practical Network Automation (ISBN: 978-1-78829-946-6. December 2017), Packt.
- Reader for an MSc thesis, UCLouvain [2017].
- Program representative, Erasmus Mundus Association [EMJD-DC – 2016 and 2017; EMDC – 2013, 2017, and 2018].
- Student volunteer, organizing team of ICWS/SCC/CLOUD/MS/SERVICES 2016 conferences.

Mentoring

- Google Summer of Code (GSoC) – Organization Administrator [2019 –].
 - o Incubated two new GSoC mentoring organizations: Alaska [2024] and caMicroscope [2020]
 - o Led the application process and onboarded new org admins and mentors to GSoC mentoring organizations.
 - Alaska [2024 –] and Emory BMI [2019 – 2023].
- Google Summer of Code – Mentor.
 - o Alaska [2026] – Mentoring the projects “Telehealth Effectiveness and Necessity Tracker for Alaska (TENEt)” and “Dynamic DICOM Endpoints for Diomedé.”
 - o Alaska [2025] – Mentored the projects “Beehive: Health Metrics Framework for Behavioral Health in Alaska,” “DREAMS: Time and Ordering in Beehive,” and “AWANTA: A Virtual Router based on RIPE Atlas Internet Measurements.”
 - o Alaska [2024] – Mentored the projects “Telehealth over L4S” and “AWANTA: A Virtual Router based on RIPE Atlas Internet Measurements.”
 - Represented Alaska at the GSoC mentor summit, Sunnyvale, CA and led an unconference session on the topic, “Universities as mentoring organizations.”
 - o Emory BMI [2023] – Mentored the CONTROL-CORE projects “A contribute action to concore studies,” “An Integrated CONTROL-CORE experience,” and “A real-time computing support for concore.”
 - Represented Emory BMI at the GSoC mentor summit, Sunnyvale, CA and led two unconference sessions on the topics, “Universities as mentoring organizations” and “First time? How do we create and foster new GSoC mentoring organizations.”
 - o Emory BMI [2022] – Mentored the projects “A server environment for the concore framework” and “Better representations of scanner utilization from DICOM metadata.”
 - o Emory BMI [2021] – Mentored the projects “A frontend for LoopSim framework to model workflows with closed loops” and “A frontend for Niffler DICOM framework for machine learning pipelines and processing workflows”.
 - o Emory BMI [2019] – Mentored the project “Security enhancements to Bindaas data integration middleware.”
 - Represented Emory BMI at the GSoC mentor summit, Munich, Germany and led two unconference sessions on the topics, “Universities as mentoring organizations” and “The great proposals.”
 - o Emory BMI [2016] – Mentored the project “Near Duplicate Detection in Medical Image Archives.”
 - o AbiWord [2013] – Mentored the Project “AbiWord Dialog Improvements.”
 - o AbiWord [2011] – Mentored the project “Implement Hyphenation for AbiWord using Enchant.”
 - Represented AbiWord at the GSoC mentor summit, Googleplex, Mountain View, CA and led an unconference session on the topic, “Community Matters.”
- Alaskan Season of Code, a volunteer-based remote internship – Organization Administrator and Mentor.
 - o [2024] Mentored Mohamed Abdullah on the project, “Beehive: A Data Federation Approach to Analyze Behavioral Health and Complement Healthcare Practice with Community Health Metrics in Alaska.”
- KTH Alumni Mentor Programme. Mentoring an MSc student from KTH [2023 – 2024].
- Mentoring at the Department of Computer Science and Engineering, University of Moratuwa.
 - o *Big Brother Big Sister Mentoring* [2014 – 2017] – Mentored 2 undergraduate students.
- Google Code-in, Haiku Operating System [2011 and 2012] – Mentored high school students.

Selected Awards

- 2025 UAA Honors College 49th State Faculty Fellow. (\$500). Presented “Data Mining in the Circumpolar North.”

- NSF Travel Award (\$1,840) for the 2025 Natural Hazards Engineering Research Infrastructure (NHERI) Summer Institute for Early-Career Faculty.
- Annual Fund for Excellence (\$2,000): Approaches to Democratize Internet Access for Telehealth Equity in the Circumpolar North [2024].
- Elizabeth Tower Endowment Faculty Award for Research, Study, or Presentation in or about Canada, 2024 (\$3,600).
- United Academics (UNAC) Faculty Development Award, 2024 (\$2,500), 2025 (\$2,500), and 2026 (\$2,500).
- Best Paper Award, *IEEE International Conference on Software Defined Systems* (SDS) 2018. Barcelona, Spain.
- Portuguese National Research Grant (Bolsa de Mestre), funded by FCT (Fundação para a Ciência e Tecnologia), the Portuguese Science Foundation / MCTES [2018 Jan – 2018 July].
- Erasmus Mundus Grants by European Education and Culture Executive Agency, EACEA.
 - Ph.D. 2014 Sep – 2017 Aug.
 - MSc. 2012 Sep – 2014 Aug.
- Travel grant for ACRO 2017, International Summer School on Latency Control for Internet of Services.

Training

- 2026 NAIRR Pilot Classroom Expansion Conference for Minority Serving Institutions, Portland, OR. Travel Award: \$810.
- 2025 Educator Workshop: Teaching Computation with MATLAB (and GenAI). Carleton College, Northfield, MN. Travel Award: \$1,200.
- CITI Basic/Refresher Course in Human Subjects Research, Group 1: SBER HSR Basic Course, UAA. 2024.
- National Effective Teaching Institute NETI-1 Course Design & Student Engagement Workshop, 2024
- Emory University School of Medicine, Office of Postdoctoral Education Management Certificate. Fall 2020.

Research Interests

- Distributed Computing, Software-Defined Systems, Big data Integration, Internet Measurements, Service-Oriented Architecture, Telehealth, Peer-learning in Distributed Computing.