LAKSH BHATIA

London, United Kingdom
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Linkedin ◇ Google Scholar

EDUCATION

Imperial College London *2018 - 2022*
Doctor of Philosophy (PhD) in Computing
Thesis title: Distributed scheduling algorithms for LoRa-based wide area cyber-physical systems

Aalto University, Helsinki *2016 - 2017*
M.Sc.(Tech) Major in Embedded Systems and Minor in Innovation and Entrepreneurship

Technische Universität Berlin *2015 - 2016*
M.Sc.(Tech) Major in Embedded Systems and Minor in Innovation and Entrepreneurship

Birla Institute of Technology and Science, Pilani *2011 - 2015*
B.E.(Hons.) Electrical & Electronics Engineering

PROFESSIONAL EXPERIENCE

Research & Innovation Staff Engineer Oct 2024 - Present
InterDigital, Inc

- IP and technology generation for Integrated Sensing and Communication (ISAC) in 6G and beyond cellular networks
- Delegate for Work Item #4 in the ETSI ISAC ISG, contributing to pre-standards activities
- Participating in 3GPP SA1/SA2/SA3/SA6 activities relating to ISAC
- Active participant and collaborator in EU SNS JU projects, including MultiX and Predict-6G
- Publishing research in top-tier conferences; actively engaged in the dissemination of ISAC advancements to the broader scientific and industrial communities.
- Filed 10+ patents, 3 as first author, 4 publications in top-tier conferences
- Awarded the London Employee of the Quarter Q2'25

Senior Firmware Engineer Mar 2024 - Oct 2024
Zelp Ltd

- Product design and Proof of Concept development for solutions to monitor and reduce emissions from cattle in the dairy and beef industry
- End-to-end IoT solution using NRF53, Quantum Leaps (QP), InfluxDB, Grafana

Senior Systems Engineer Nov 2021 - Dec 2023
Advanced Algorithms and Innovation Cambridge
Qualcomm Technologies Ltd

- Developed innovative IoT solutions for Electronic Shelf Labels (ESLs), asset tracking and indoor localization using BLE and WiFi, showcasing them to major retailers.
- Conducted evaluations of BLE tags and UWB technology for precise indoor localization, providing valuable insights and recommendations.
- Development and deployment of 10000+ IoT systems with AWS and QCC710 devices, deployed by major retailers worldwide.

- Designed PoCs for indoor SLAM and navigation using TurtleBot, LIDAR, and ROS2, enhancing navigation and automation for warehouse environments.
- Filed 4 patents to enhance the usability of ESLs, contributing to innovative retail display solutions.

Research Assistant Oct 2017 - Nov 2021
Adaptive Emergent Systems Engineering Group
Imperial College London

- Architected reliable wireless systems for IIoT, Robotics, Mobile, and Cyber-Physical applications, meeting industrial partner needs, including IBM, NEC, and Tate museums.
- Developed robust communication systems with expertise in LPWANs, LoRa, NB-IoT, 802.15.4/Zigbee, and BLE using Contiki-NG and FreeRTOS.
- Engineered dependable distributed UAV swarm systems, utilizing Crazyflies, UWB technology, and advanced communication protocols.
- Published 12 articles in renowned international conferences and journals

TECHNICAL STRENGTHS

Programming Languages	C, C++, Python
Tools	Omnet++, GNU Radio, Robot Operating System (ROS2)
OS	Zephyr, Arduino, FreeRTOS, Contiki-NG, Unix, Linux, QP
Microcontrollers	ARM Cortex-M (NRF52/NRF53, STM32), Raspberry Pi, QRB5165
Radios	B5G/6G, WiFi, LoRaWAN, 802.15.4/Zigbee, UWB, BLE
Robots	Crazyflies, DJI Matrice 100, Turtlebot
CAD	KiCad, Eagle

SELECTED PUBLICATIONS

1. Sebastian Robitzsch and Laksh Bhatia and Konstantinos G. Filis and Neda Petreska and Michael Bahr and Pablo Picazo Martinez and Xi Li. Architecture Considerations for ISAC in 6G. Short-paper to appear in IEEE CSCN 2025, 2025
2. Laksh Bhatia, Po-Yu Chen, Michael Breza, Cong Zhao, and Julie A McCann. IRONWAN: Increasing Reliability of Overlapping Networks in LoRaWAN. *IEEE Internet of Things Journal*, 9(13):10763–10776, 2021
3. Laksh Bhatia, Ivana Tomic, Anqi Fu, Michael Breza, and Julie A McCann. Control communication co-design for wide area cyber-physical systems. *ACM Trans. Cyber-Physical Systems*, 2020
4. Mohammad Heggo, Laksh Bhatia, and Julie A McCann. RFTacho: Non-intrusive RF monitoring of rotating machines. In *2022 21st ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)*, pages 403–414. IEEE, 2022
5. Laksh Bhatia, Michael Breza, Ramona Marfievici, and Julie A. McCann. Loed: The lorawan at the edge dataset: Dataset. In *Proceedings of the Third Workshop on Data: Acquisition To Analysis*, DATA '20, page 7–8, New York, NY, USA, 2020. Association for Computing Machinery

SELECTED PROJECTS

UAV/Drone swarms

- Designed drone swarms using Crazyflies, synchronous transmissions on BLE, and Ultra Wide Band for distance estimation
- Successful design, fabrication and bring-up of dual-radio PCBs with NRF52840 and DWM1000 using KiCad and tested a swarm of 10 drones