

Ashwin Sathishkumar

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EDUCATION

TECHNISCHE UNIVERSITÄT WIEN

PhD in Information & Communication Technology
Jan 2026 - Present

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

Integrated M.Sc Mathematics + B.E. Electronics and Instrumentation
Aug 2020 - Jun 2025 | Grade: 8.50 / 10

EXPERIENCE

PHD RESEARCHER

Silicon Austria Labs GmbH Jan 2026 - Present

Marie Skłodowska-Curie Actions (MSCA) Doctoral Candidate:
Intelligent Sensing and Communication as Training Network for
Perceptive Mobile Networks in 6G (ISAC-NEWTON).

VISITING STUDENT

TU Braunschweig Jan - May 2025

Master's thesis (Supervised by Prof. Thomas Kürner) – 'Development and Implementation of a Simulation Concept for Multi-User RIS-aided Communication'.

VISITING STUDENT

Hochschule Offenburg Jul - Dec 2024

Bachelor's thesis (Supervised by Prof. Axel Sikora) – 'Conceptualization and Implementation of 5G Use-cases in a Virtual Network'.

RESEARCH INTERN

CSIR-CSIO Chandigarh May - Jul 2022

Worked on hyperbolic geometry for recommendation algorithms at the Centre for Intelligent Sensors and Systems (ISenS).

PUBLICATIONS

1. G. Jensen, **A. S. Kumar**, C. Herold, Q. Luo, T. Kürner "Concept and Evaluation of a Multi-User RIS Model for Indoor Scenarios at 300 GHz," Accepted at 20th European Conference on Antennas and Propagation (EuCAP), 2026.

2. **A. S. Kumar** and S. Joshi, "LiDAR-Enabled Spatial Awareness for Beamforming in IRS-Assisted Wireless Communication System," IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), Guwahati, India, 2024, pp. 1-6, doi: 10.1109/ANTS63515.2024.10898544

3. **A. Sathish Kumar**, D. Mahanta, P. Arora, "High-resolution aluminum-based plasmonic devices using metamaterials for cancer cell detection," Proc. SPIE PC12990, Metamaterials XIV (6 June 2024); <https://doi.org/10.1117/12.3021474>

RESEARCH

MULTI-USER RIS OPTIMIZATION | MATLAB, C# Master's Thesis

- Designed a multi-user reconfigurable intelligent surface (RIS) framework at 300 GHz in the SiMoNe ray tracer using constrained optimization for enhanced directive gains. Implemented a codebook-based bilinear interpolation method for path gain estimation.

VIRTUAL 5G TESTBEDS | FLASK, DOCKER

Bachelor's Thesis

- Developed a containerized 5G testbed using Open5GS and UERANSIM with REST API for slice control. Demonstrated eMBB 4K streaming (4.19 Mbps throughput), URLLC remote surgery (9.32ms latency), and mMTC sensor network (6 UEs, 165 Kbps throughput).

LIDAR-ENABLED RIS SYSTEMS | PYTHON

Semester project

- Developed spatially-aware beamforming model integrating LiDAR with RIS systems, achieving ~ 11% signal rate improvement. Demonstrated grouped RIS array superiority over full-CSI models with 10x faster phase shift optimization convergence.

AWARDS

Baden Württemberg Stipendium

BW-Stiftung, Germany Aug 2024

SSD Surge Hackathon Winner

Micron Technology, Hyderabad Mar 2024

INSPIRE Scholarship

Dept. of Science & Technology, India Jun 2021

CERTIFICATIONS

1. Industrial IoT & 5G (2024)

5 ECTS credits | Hochschule Offenburg

2. 5G Technology (2023)

DADB (German Academy of Digital Education) & BITS Pilani

3. Applied Deep Learning (2022)

Hewlett Packard Enterprise (HPE)

SKILLS

MATLAB • Python • C • C# • TensorFlow • Flask • Linux • Wireshark