

RITESH KUMAR SINGH, PhD

📍 Antwerp, Belgium

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☎ +32 467662262

✉ ritesh.ksingh27@gmail.com

🌐 [singhriteshk](#)

🎓 [Scholar profile](#)

CURRENT POSITION

Since May 2022

Principal Investigator: Perceptive Radio Systems (PRS) program at IDLab, IMEC — Principal research fellow at University of Antwerp, Belgium

- Principal Investigator at IDLab, IMEC-UA, driving portfolio on sustainable, AIoT, Zero energy devices, and low-power system technologies within PRS program.
- Leading and mentoring a multidisciplinary team on hardware–software co-design for energy-neutral edge AI systems, integrating embedded architectures, TinyML, and secure communication stacks.
- Coordinating Horizon Europe and national R&I projects focused on low-power devices, secure edge intelligence, and energy-aware intermittent computing.
- Currently, coordinating projects such as Horizon EU 6G flagship project AMBIENT-6G, HEU OpenSwarm, and Task Lead in the BEL6GICA 6G landscape project, HEXA-X-II, WP lead in the ICON project CORRELATE, and promoter in the University IoF PoC project, driving close collaboration with industry partners and supporting technology validation and knowledge transfer.
- Research interests include future wireless networks and connected applications, with a focus on intermittent computing, low-power communication, energy-neutral/zero-energy IoT devices, and data-driven situational awareness.
- Primary liaison for the DASH7 Alliance enrollment and collaboration, strengthening industry partnerships and technology adoption.
- Managing a research team of PhD researchers and developers, overseeing technical milestones, deliverables, and long-term research strategy in secure and sustainable edge computing.
- Authoring competitive project proposals (e.g., EU SNS, EU COST Action, FWO SBO and Strategic projects, ICON, etc.), building external networks, and fostering academia-industry collaboration to expand imec's innovation and market impact.
- Board Member of the Research, IR, and Faculty Doctoral Committee at the University of Antwerp, contributing to doctoral evaluation, policy development, budget, spin-off assessment, and research governance.
- Currently, supervising & PhD Jury/IDC member of several students, primarily on the design of ambiently powered intelligent systems with a real-world deployment focus.
- Teaching undergraduate and graduate courses in Computer Networks, Mobile Communication, and Low Power IoT, integrating system-level architecture concepts, embedded computing principles, and energy-aware design methodologies.
- Other services such as recruitment, conference/workshop organization (such as EN-IoT, Demo and T&V Chair at IEEE Future Networks, IEEE COMSNETS, etc.), invited talks, and serving as a reviewer for research proposals, TPCs, and journals.

PATENT AND COMPANY REGISTRATION

PATENT-2015 (LG)	Glass Side Bar as Wearable Device (<i>Registration No. 00185GD15199</i>)
CR-2014 (LG)	User Configurable Curvature for IOT Flexible Devices
CR-2013 (LG)	Q-memo Scribbling space enhancement
CR-2013 (LG-IISC)	Erasing the scribbles on the digital image (<i>IISC,India</i>)

PAST APPOINTMENTS

Apr 2018 - June 2022	PhD Researcher at imec- IDLab University of Antwerp, Belgium Conducted research on energy-efficient embedded system architectures for large-scale IoT deployments across precision agriculture, smart water grids, and 5G smart city infrastructures. Designed and evaluated low-power communication stacks (LoRaWAN, Sigfox, NB-IoT, LTE) with system-level energy modeling and performance optimization for constrained edge devices. Developed architecture-aware optimization strategies to extend device lifetime under strict energy budgets. Implemented and experimentally validated embedded prototypes, including energy profiling and cross-layer performance analysis.
Nov 2018 - June 2019	Team lead at HCL Technologies, IoT Works, Noida India Initiated the establishment of an IoT lab for client demos, RFPs and pre-sales, concurrently directing a team of seven experts specializing in IoT networking. Successfully architected customized IoT solutions for clients like Volvo and BD.
Apr 2017 - Apr 2018	Researcher at IMEC:DistriNet-KU Leuven, Belgium Led work on mobile sensing services for geospatial IoT applications with Nokia Bell Labs and Belgium Post. Responsible for teaching bachelor's courses and labs.
Feb 2016 - Apr 2017	Researcher at TCS Research Lab, Bangalore, India Development of IoT solutions for digital farming deployed across tea farms in India.
Nov 2012-Feb 2016	LG Research Lab Bangalore, India and Seoul, South Korea Developed wireless communication modules for LG's WebOS wearable watches, phones, and smart TVs. Innovation team representative in the connectivity division.

EDUCATION

APRIL 2018 - 2022	PhD - imec, IDLab - University of Antwerp, Belgium Research topic: "Building Energy Efficient IoT Applications using LP-WAN". Supervisors: Prof. Maarten Weyn and Dr. Rafael Berkvens
JUNE 2010 - 2012	Master of Technology in Information technology, IIIT, Allahabad India Major: Wireless Communication and Computing. Thesis (Best Thesis Award): "Lifetime Enhancement and Analysis of Wireless Sensor Networks". Supervisor: Prof. Shirshu Varma. GPA: 8.8/10
JULY 2006 - 2010	Bachelors in Computer Science and Engineering, HCST, Agra India — Major: Computer Science Final project: "Mobile app for tracking personal health". Supervisor: Prof. Vikrant Tyagi. First Class
FALL 2005 - 2006	Higher Secondary Exam St. Methodist - Indian Certificate of Secondary Education, India Major: Mathematics and Computer Science with Physics and Chemistry as ancillary subjects. First Class

INTERNSHIPS

Summer 2012	Research Intern at Verimag Lab, Grenoble, France Analysis and development of BIP framework for synchronization among heterogeneous devices.
Summer (2008 & 2009)	Industrial internship at Tata Consultancy Services Delhi, India Project development for clients like Asian paints and Indian army.

AWARDS AND ACHIEVEMENTS

DASH7 ALLIANCE:	Protocol Action Member, actively fostering industry and research collaboration within the alliance.
ORGANIZING CONFERENCE:	Organized workshop IEEE EN-IoT and conferences such as IEEE COM-SNETS, IEEE Future Networks, etc .
UNIVERSITY OF ANTWERP:	Member of faculty research board 2022, 2026.
JOURNALS:	Several research and journal papers.
LGE:	LG President Award for Innovative Employee of the Year -2013.
LGE:	First design patent from LG Research Lab - India.
IIIT:	Best Master's Thesis Award - 2012.
MICROSOFT:	Code - Vita, 13th Rank in All India Coding Competition - 2014.
VERIMAG:	Appreciation Letter from the Turing Award winner Prof. J Sifakis.
COURSE:	Several Antwerp Doctoral School and Coursera courses.
CERTIFICATION:	Scrum master, Google Project Management Professional certificate, following training on PRINCE-2.

INTERESTS AND HOBBIES

Photography, Traveling, and Cartoon Sketching