Indian Institute of Science
Department of Electrical Communication Engineering
and
Robert Bosch Centre for Cyber Physical Systems
Project Title: Control Of and Control Over Wireless Networks
<u>**Openings for Project Positions**</u>

Project objectives

Research in and development of mechanisms for Quality of Service (QoS) in dense wireless networks, particularly for industrial automation and smart factory deployments. We focus on centralized control & coordination over Wi-Fi to reliably control and manage delay sensitive applications like swarms of mobile robots, uplink cameras, etc. in real-time. Immediate tasks include designing and implementing scalable MAC scheduling frameworks with seamless QoS guarantees across heterogeneous Wi-Fi deployments, and algorithms for network-aware control and application adaptation. Our approach combines algorithm design, simulation-driven evaluation, implementation of the algorithms on embedded platforms, extensive over-the-air experimentation on lab test beds, theoretical analysis of performance, stability, and latency bounds.

Expectations from the Project Engineers

Graduate or post-graduate degree in ECE (Electrical Communication Engineering, or Electrical and Computer Engineering), or Computer Science. Preference will be given to applicants with the following knowledge and experience.

• Wireless communications and networking
  ➢ Familiarity with the concepts, protocols, and standards, via coursework or project work
  ➢ Interest in analytical understanding of algorithms and their analysis
  ➢ Exposure to basic concepts in machine learning and reinforcement learning
  ➢ The ability to read and understand research articles and standard documents
• Experience in using Matlab, along with familiarity in C/C++/Python
• Working knowledge of the Linux OS and networking software

Advantages of working in a short-term contract position in IISc?

• Opportunity to work on the frontiers of technology, with state-of-the-art equipment, and acquire industry-relevant skills
• Opportunity to work with leading researchers from IISc
• Combination of systems research, software development, and experimentation
• Opportunities to participate in various lectures and workshops in IISc
• Potential for academic publications, enhancing higher study prospects

Application process:

A CV, of no more than two pages, including educational qualifications with **GPA/CPA/percentage** (as applicable), **relevant courses taken,** and **relevant projects done**, list of publications and patents (if any) career objectives, name, address, phone number, and email address,
should be sent to: anandsvr@iisc.ac.in / shivamv@iisc.ac.in with a copy to sushmas@iisc.ac.in