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

Openings for Project Positions

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 / shivam@artpark.in with a copy to sushmas@iisc.ac.in