

Project description: Protocol Design for Cognitive Wireless Networks

It has been recently recognized that spectrum is poorly utilized. While techniques like MIMO aim at improving spectrum efficiency, techniques like dynamic spectrum access lead to improved spectrum utilization. Our goal is to design protocols for dynamic spectrum access in cognitive wireless networks.

In particular, this project deals with development of protocols for cognitive wireless (ad hoc) networks that operate on secondary spectrum sharing basis in licensed spectrum. The objective is to design sensing and spectrum access policies at a cognitive terminal, for two scenarios: (i) assuming no cooperation among cognitive terminals and (ii) assuming limited cooperation among cognitive terminals.

Expected background

- Wireless communications and networks
- Stochastic processes and decision theory (e.g., Dynamic programming, Markov decision processes)
- Game theory
- Statistical signal processing
- Strong communication (written and verbal) skills in English

Project duration: 9-12 months, leading to a Masters thesis

Project location: Philips Research, High Tech Campus, Eindhoven, The Netherlands

To apply, send curriculum vita, grades, and relevant project reports/publications to Ashish Pandharipande, ashish.p@philips.com