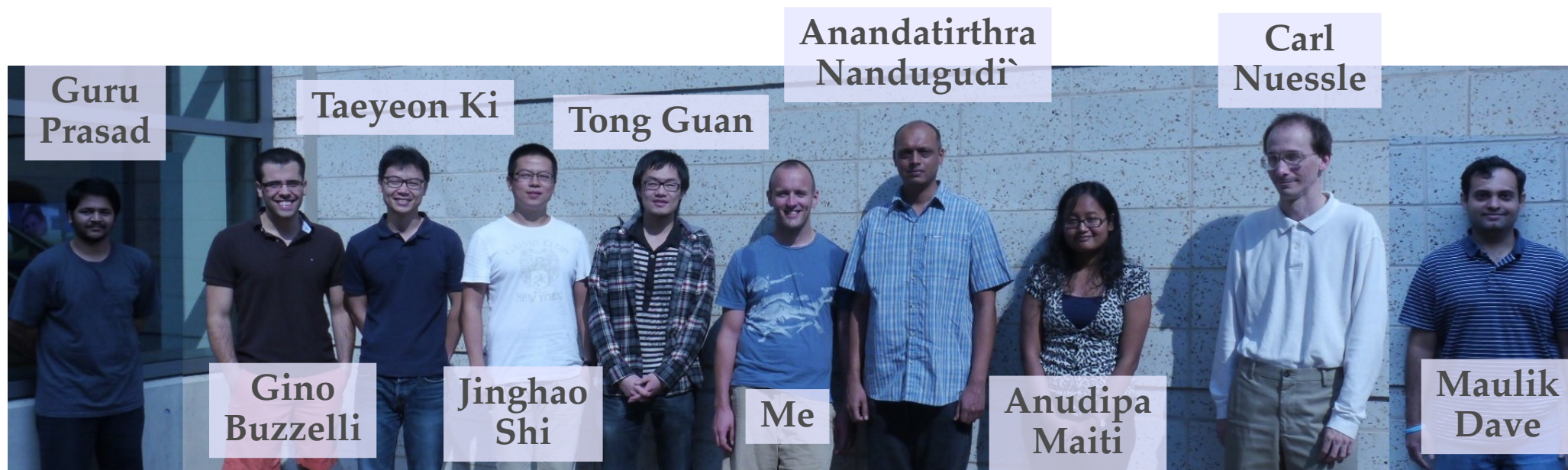


blue: A Systems Research Group





<http://www.phone-lab.org>

What is PhoneLab?

- PhoneLab is an public smartphone testbed located at UB.
 - public: anyone can use PhoneLab
 - testbed: PhoneLab allows researchers to run a wide variety of new experiments

PhoneLab: Platform Modifications

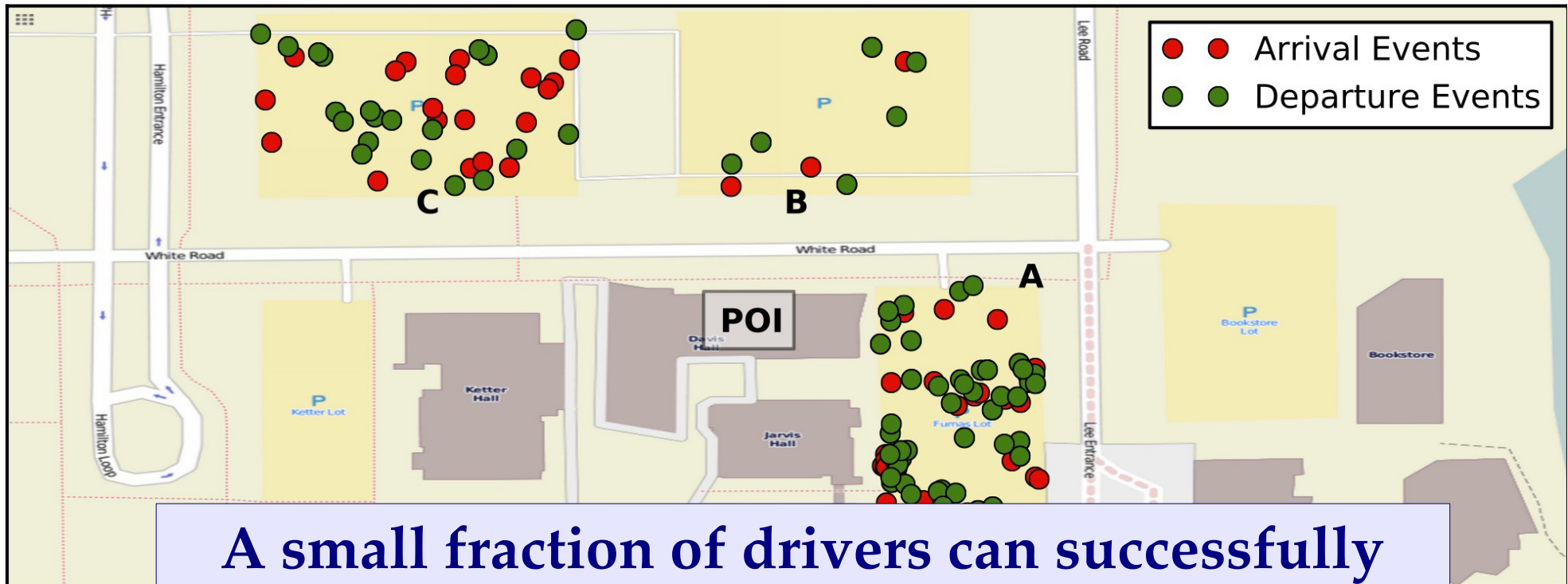
- **Open-source platform allows you to change anything!**
- Incredibly powerful capability...
- ... but difficult to support safely for public use.
- This is a goal for this year.

What We Do with PhoneLab

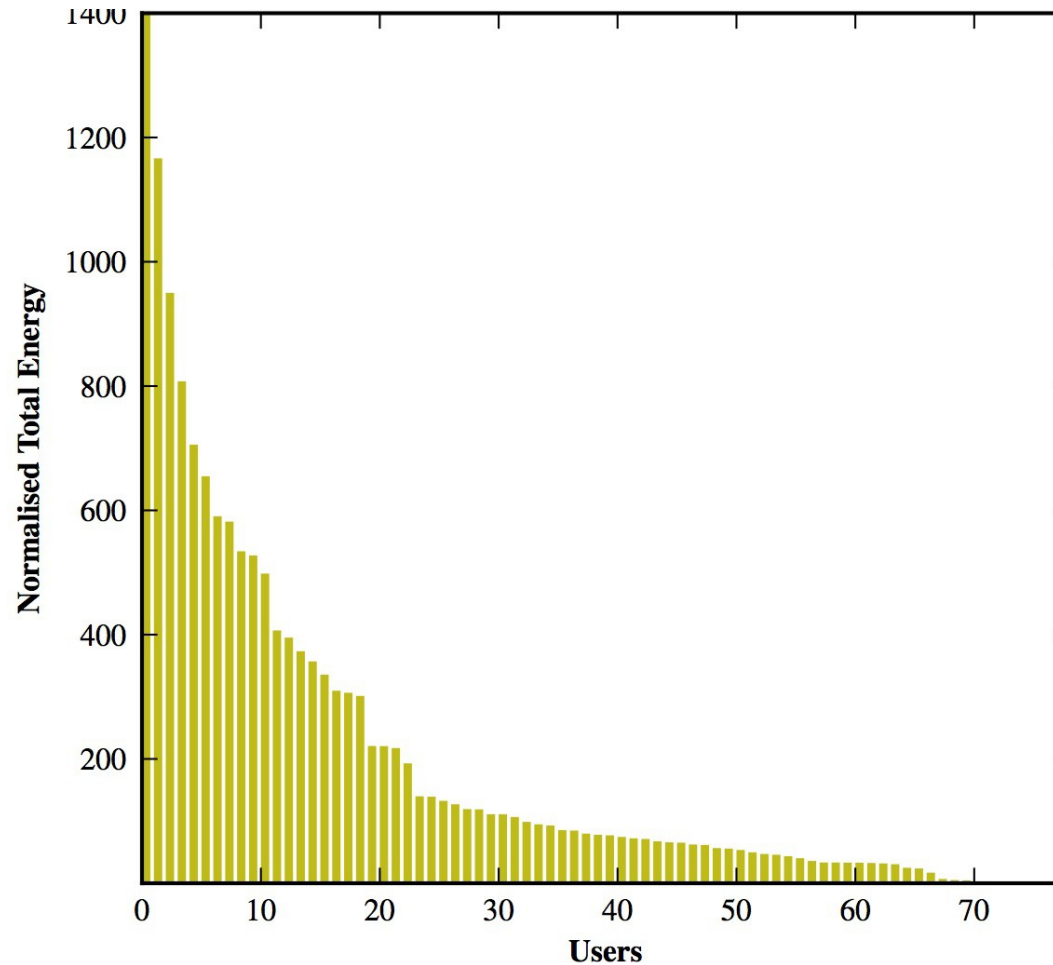
- Exploiting *density*
 - Monitoring parking lots
 - Observing infrastructure wireless networks
- Exploiting *platform updates*
 - Enabling more flexible energy management
 - Building personal storage clouds
 - Novel approaches to privacy

PocketParker

Anandatirtha Nandugudi, Taeyeon Ki and Carl Nuessle



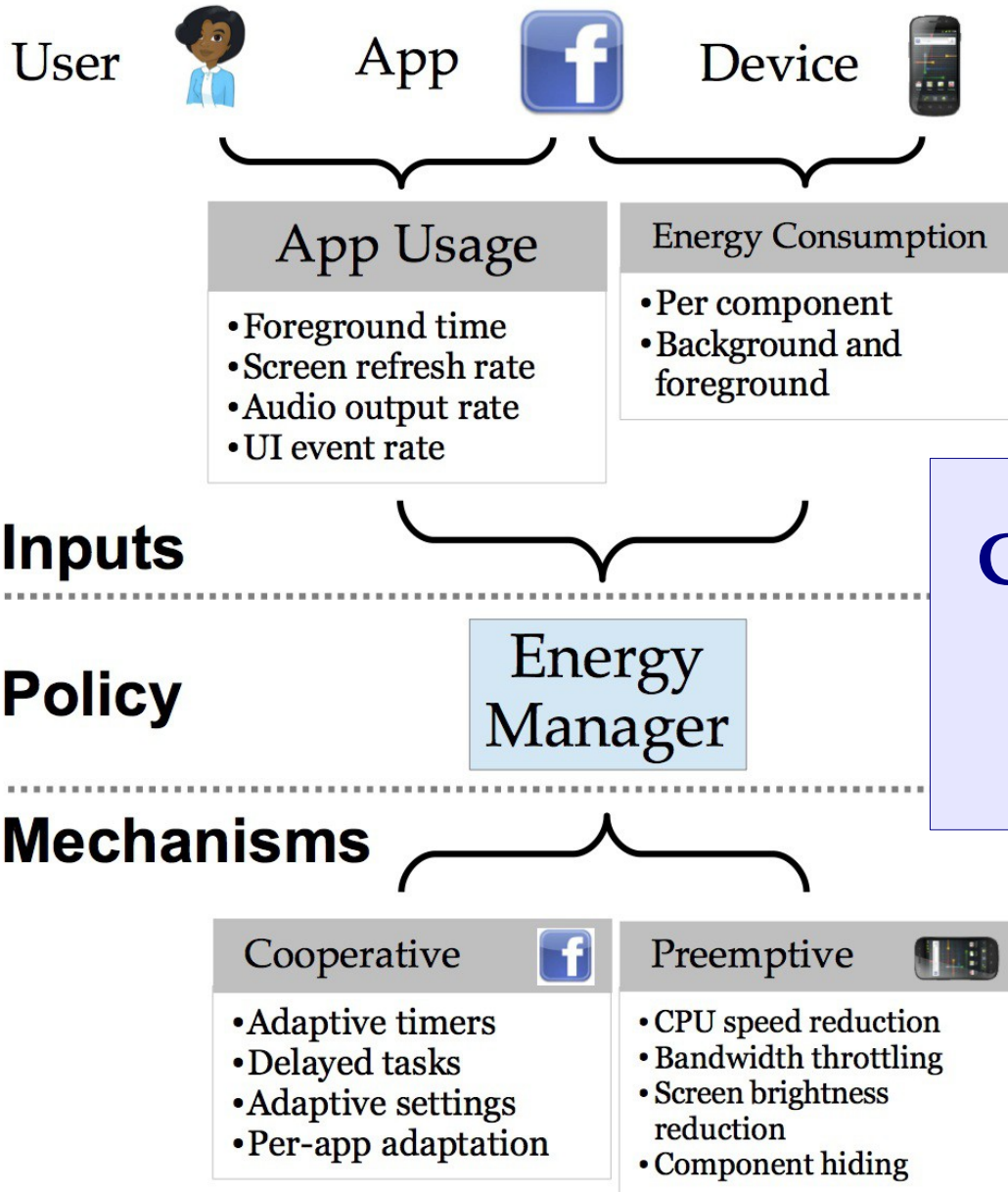
- Au
- Data fed to per-lot availability model
- 105 PhoneLab users generated 10,827 parking events over 45 days
- Lot predictions correct 94% of the time



There is not one smartphone energy management problem

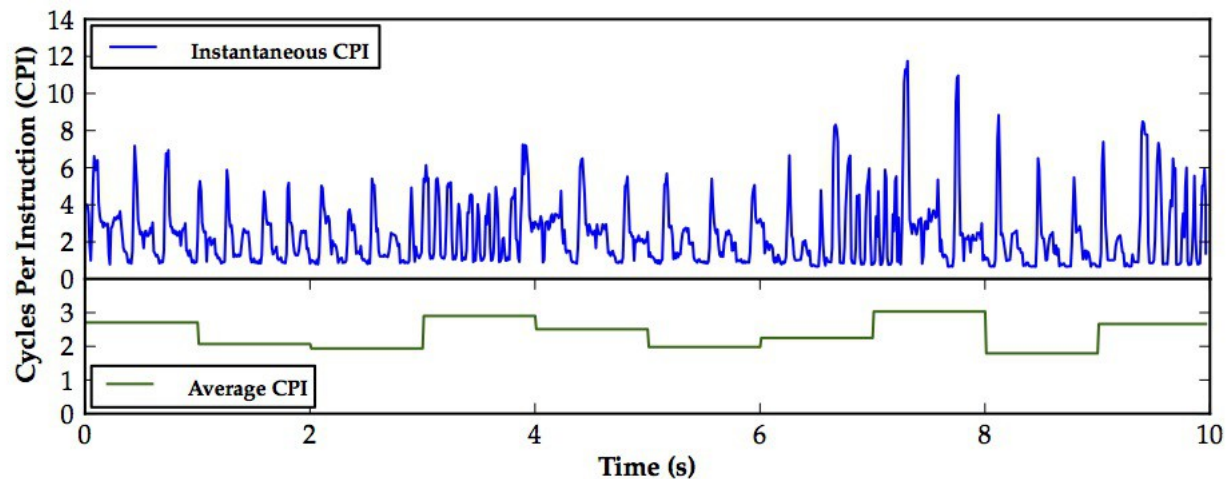
Jouler

Anudipa Maiti

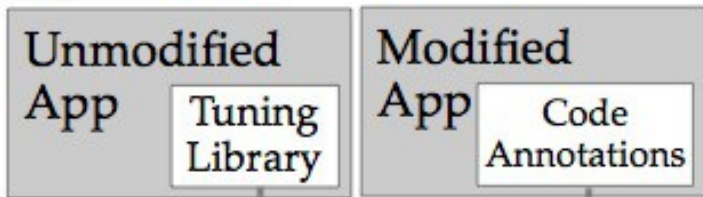


Can we harness application marketplaces to improve energy management?

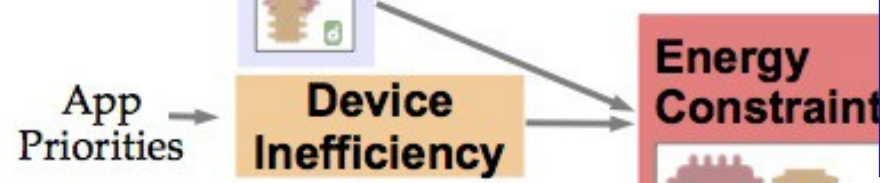
Power Agility



Application



OS



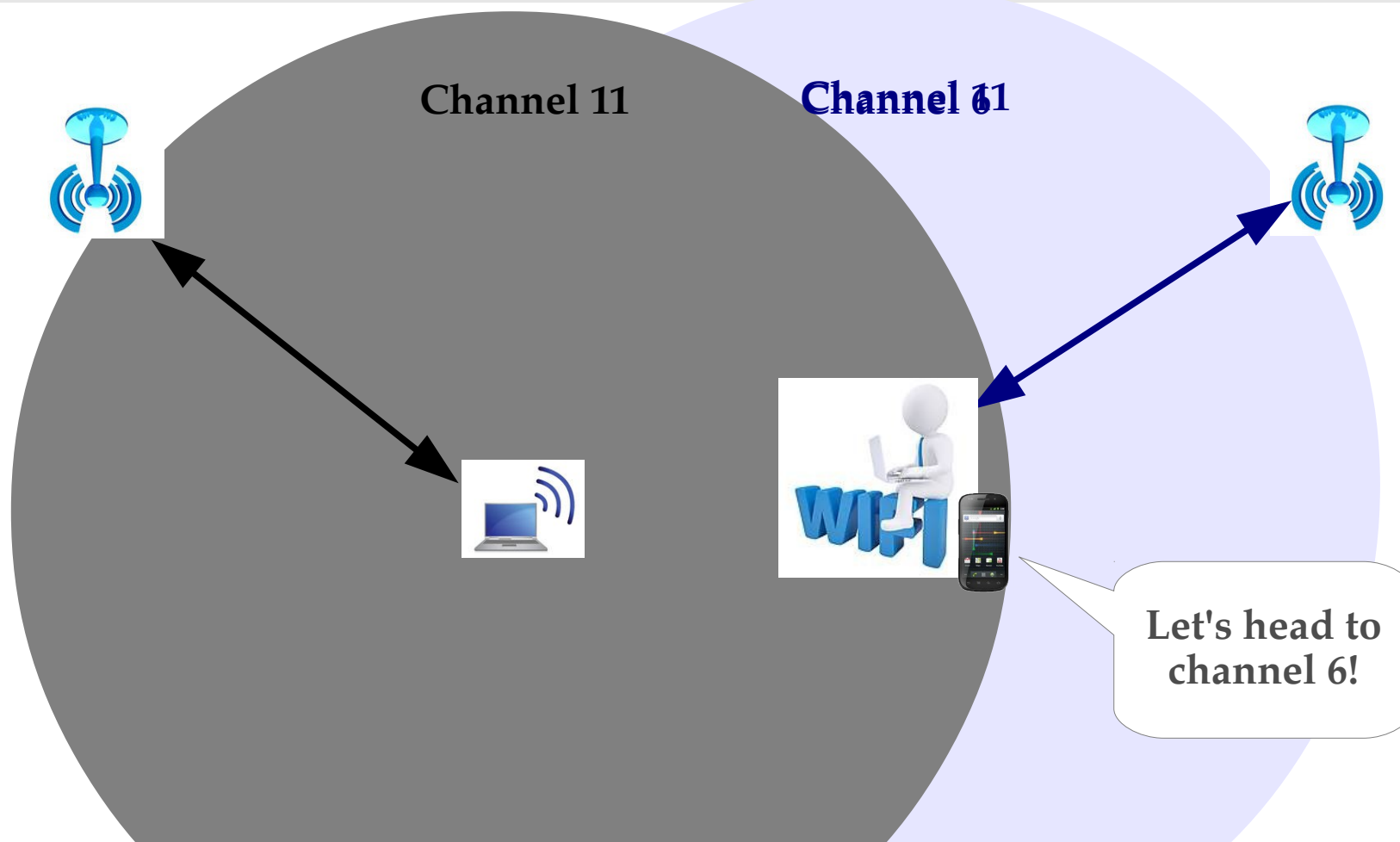
Hardware



Can we improve power efficiency by intelligently allocating power between components at runtime?

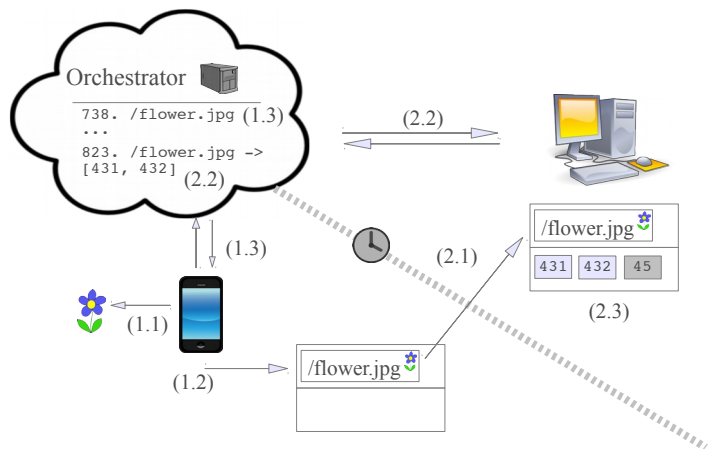
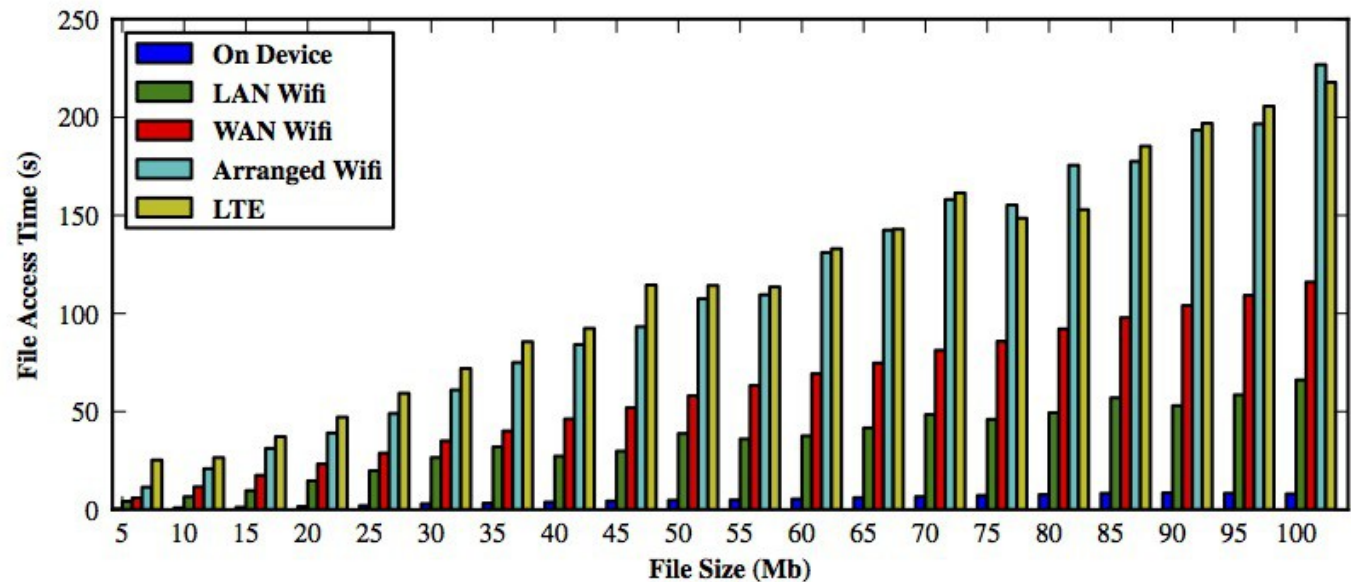
PocketSniffer

Jinghao Shi, Dimitrios Koutsonikolas, Chunming Qiao and Tommaso Melodia



Can inactive smartphones help monitor and reconfigure wireless networks?

PocketLocker



Can we improve cloud storage by combining available spaces on multiple personal devices?