NODES/KOPS Glögi 2014

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Mission

The Networking and Services unit educates experts and strategic leaders for the design and realization of new, global platforms and infrastructures.

Organization

The unit consists of four professors, five lecturers, and many post doctoral researchers and PhD candidates.

NODES is a community of interacting research groups in the field of networks and distributed systems, ranging from Internet protocols, wireless communication and ubiquitous computing to new challenges pertaining to globally interoperating business services and human-computer interaction.

News

- Our unit is 20 years old!
- New interaction lab
- New EU Horizon and Marie Curie projects!
- Intel donation for wearable security
- New book on mobile energy modelling and optimization from Cambridge University Press
- Success with the Carat project
- Best paper awards (Sigcomm CCR, AsiaCCS …)
- We have a new security professor: Valtteri Niemi
- Data Science profile started in the Fall
- International collaboration with top universities continues
- We co-organized EGI 2014

2014 in a nutshell

- System security and Big Data continue to be important trends
- New postdocs: Dr. Mohammad Hoque, Dr. Ashwin Rao
- Ph.D. theses: Eemil Lagerspetz, Sourav Bhattacharya (for ALKO)
- Ph.D. theses statistics
  - 2014: 2
  - 2013: 3
  - 2012: 3
- M.Sc. Theses statistics
  - 2014: 16, 2013: 22, 2012: 20

Specialization profiles

Future internet

- Building the internet and other global architectures, especially for mobile users' needs
- Internet-protocols, P2P, security, specification
- Internet of Things

Collaborative and interoperable computing

- Evolving open service ecosystems by providing global infrastructure solutions and service-oriented engineering practices and tools that enable semantic and pragmatic interoperability management
- Developing infrastructure services for service interoperability, contract-based collaboration control and management for dynamically formed business service collaborations amongst autonomous parties

Interactive systems

- Human-computer interaction
- Interaction Design
- Ubiquitous Computing
- Adaptive User Interfaces

Security

- System and protocol security
- Security and usability

Collaborative and Interoperable computing **Lea Kutvonen**	▪ Inter-enterprise collaboration ▪ Service interoperability and open service ecosystems ▪ Trust, reputation, privacy ▪ Service-oriented software engineering
Collaborative Networking **Jussi Kangasharju**	▪ Information-centric networking ▪ Opportunistic networks ▪ Green networking
Interactive Systems **Giulio Jacucci** **Eve Hoggan**	▪ Multimodal interaction ▪ Ubiquitous and surface computing ▪ Adaptivity and Engagement in User Interfaces
Content-centric Structures and Networking **Sasu Tarkoma**	▪ Distributed services; mobile solutions ▪ Content in Future Internet ▪ Energy aware computing & communication
Wireless Internet **Markku Kojo**	▪ Wireless and mobile computing ▪ Internet Protocol enhancements ▪ Seamless connectivity
Secure Systems **Valtteri Niemi** **N. Asokan**	▪ System and protocol security ▪ Mobile security ▪ Applied security
Ubiquitous Sensing **Petteri Nurmi**	▪ Mobile sensing ▪ Ubiquitous computing

NODES Lab highlights

- Software-defined networks
- HCI Lab
- Home gateway testbed
- Wireless experiments
- Energy modelling
- Connection to the Ukko cluster for combined real-life and simulation/emulation experiments

- New HW

Group Talks

Prof. Tarkoma's Group

- The research group investigates new solutions for mobile and cloud computing
  - Mobile sensing, IoT, ubicomp, 5G
  - Personal data analytics
  - Security and privacy
  - Cloud computing and datacenters
- Methodology
  - Theory & experiments with prototype implementation / simulation

Research Vision

New kinds of applications, networks, and devices will revolutionize daily lives, which anticipate, adapt, and assist users.

Applications, networks, and devices will be data-driven, distributed, and cognitive adapting to changing operating conditions, security and privacy requirements, and end-user wishes by learning, predicting, and decision-making at runtime.

Distributed heterogeneous real-time self-optimising

Current Projects

SWEN: Secure Wearables

Intel Institute for Secure Computing at Helsinki (ICRI-SC)

CloSe: Cloud Security Services, 2014-2015, AF

Carat and CUBIC:Mobile Crowdsensing in Ubiquitous Cloud Environments 2014-2017, AF

EIT SDN Activities 2012-2014

Everyday Sensing Finland-China 2013-2015, Tekes

Reknow 2013-2017, Strategic Tekes Project

Software-defined Networking

Internet of Things 2012-2015, SHOK

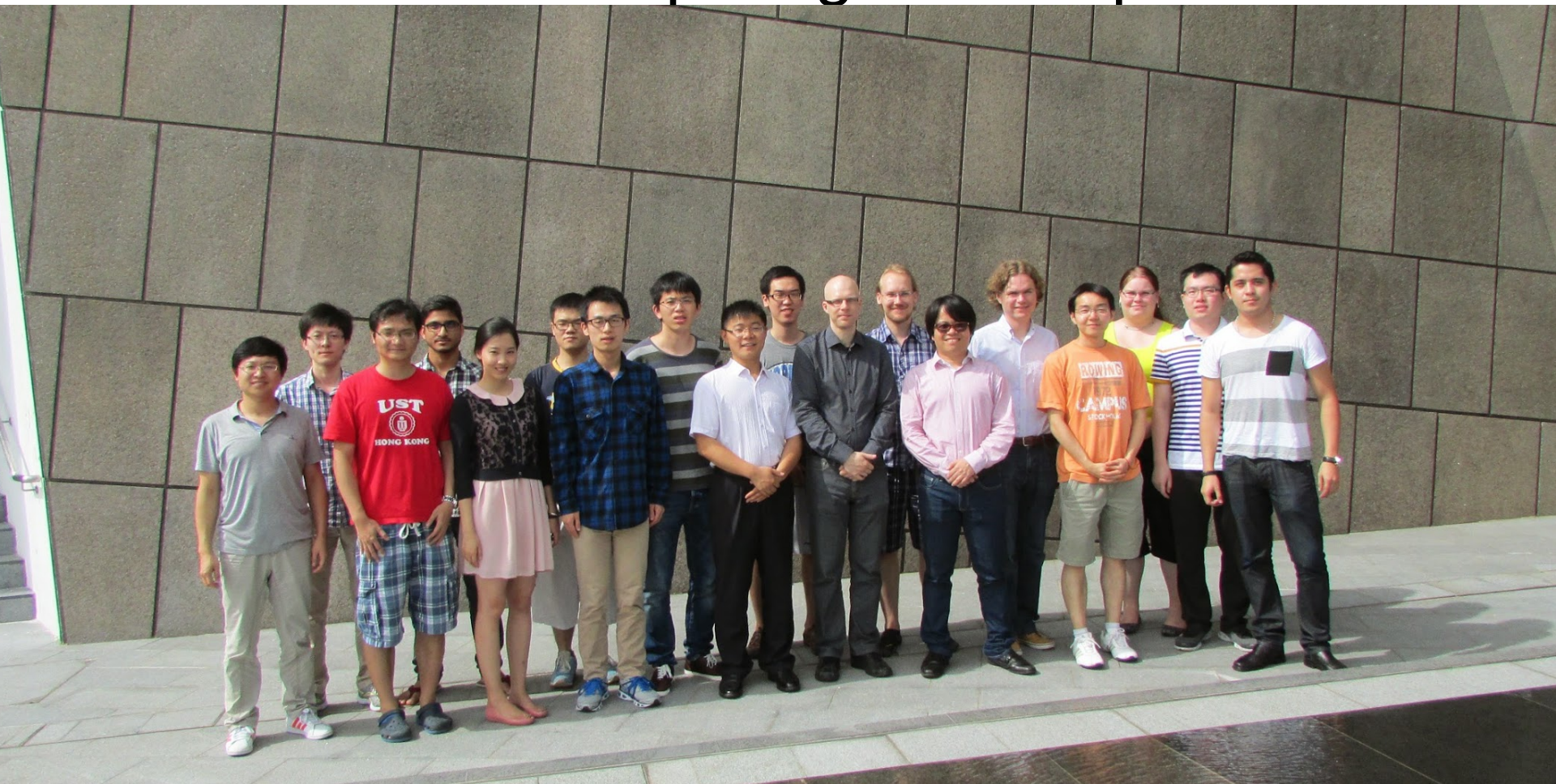
EasiClouds ITEA2 project 2012-2014

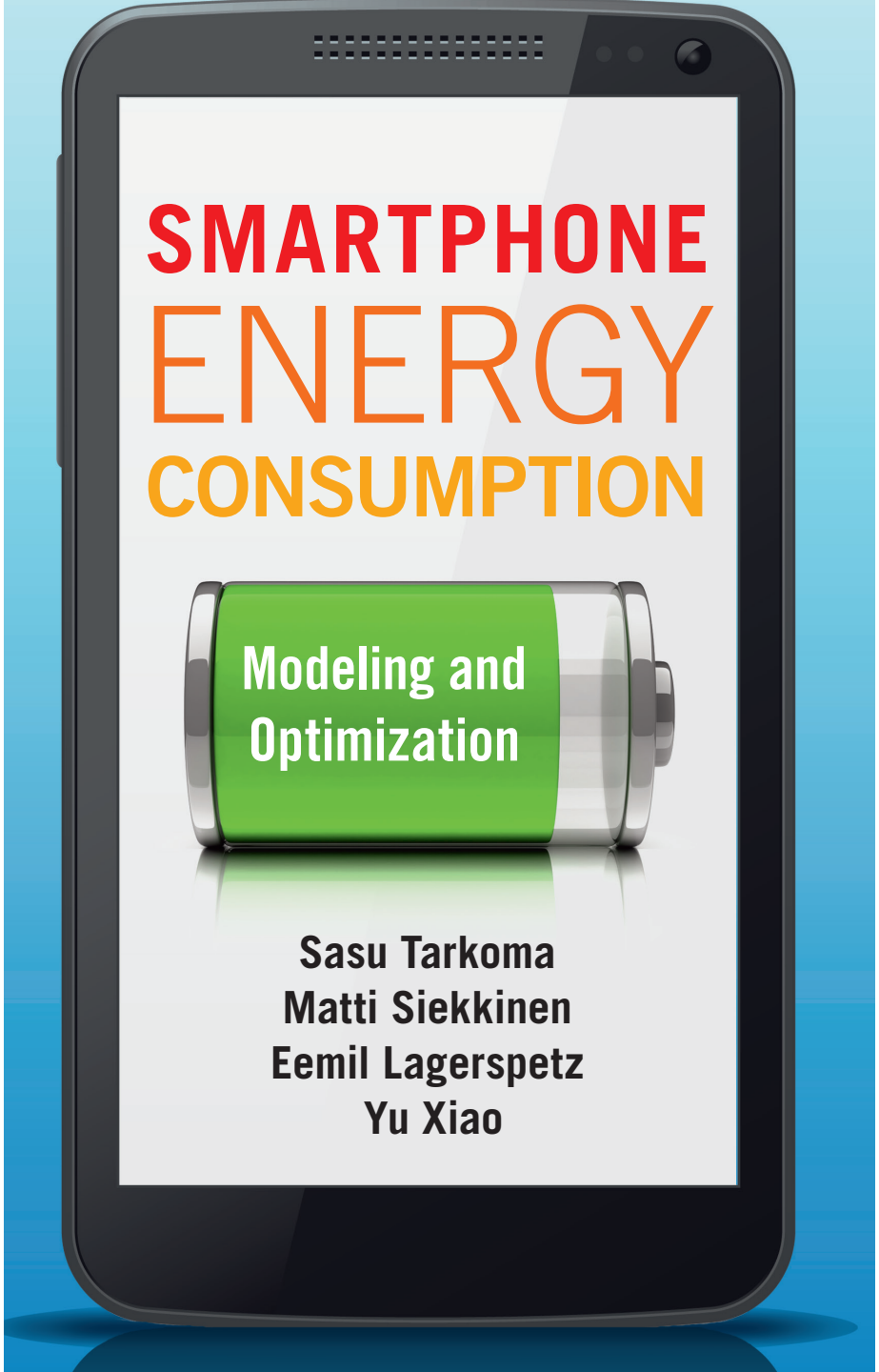
Datacenter Indirection Infrastructure for High Energy Physics (CERN). Academy of Finland (AF). 2012-2014

NODES Laboratory

Helsinki-HKUST-Tsinghua Workshop on Mobile and Cloud Computing 2-4 July 2014

- https://sites.google.com/site/cloudmobilecomputingworkshop/home





New book on smart device energy modeling and optimization published by Cambridge University Press in August 2014

Course materials available