The Good, The Bad & The Ugly of AI for IoT & Sensor Network

Welcome to Joint IOTDI/IPSN 2019 Panel

Wednesday, April 17, 2019

Montreal, Canada

Introductions

- ## Chair: Klara Nahrstedt
  - Director of Coordinated Science Laboratory
  - Ralph and Catherine Fisher Professor
  - Department of Computer Science
  - University of Illinois at Urbana-Champaign

- ## Panelists:
  - Lucy Cherkasova
  - Dirk Elias
  - Tasuku Ishigooka
  - Jie Liu
  - Guoliang Xing

Lucy Cherkasova

Principal Research Scientist
ARM Research (IoT Services Group)
San Jose, California, USA

arm

Lucy Cherkasova, ARM Research

The Good, The Bad and The Ugly of AI for IoT and Sensor Networks

- April 18, 2018

- Lucy's research interests include the analysis, design, and performance management of concurrent and distributed systems with the the latest focus on emerging IoT systems and Big Data processing.

- Before joining Arm, Lucy worked for 20+ years at HP Labs, where she has authored over 100 referred publications and 78 patents.

- Over the years she has mentored and co-advised more than 20 PhD students/interns.

- She is an ACM Distinguished Scientist and recognized by multiple Certificates of Appreciation from the IEEE Computer Society.

Dirk Elias

Robert Borsch Corporate Research, Germany

Robert Bosch Corporate Research
Management Departments and Cross-Divisional Functions

CR/AE2 Software Intensive Systems

Prof. Dr. Dirk Elias
SVP

▶ **Vision:**
Humans expect a life in the Human-Machine-Society where smart machines provide ubiquitous and seamless support.

• **Therefore future systems need to be connected, intelligent, autonomous, personalized and organize themselves across domains and applications.**

▶ **Regional setup:**
China, Germany, India, North America

▶ **Member of ITEA Management Board**

▶ **Member Strategic Platform ICT, German Ministry for Science and Education**
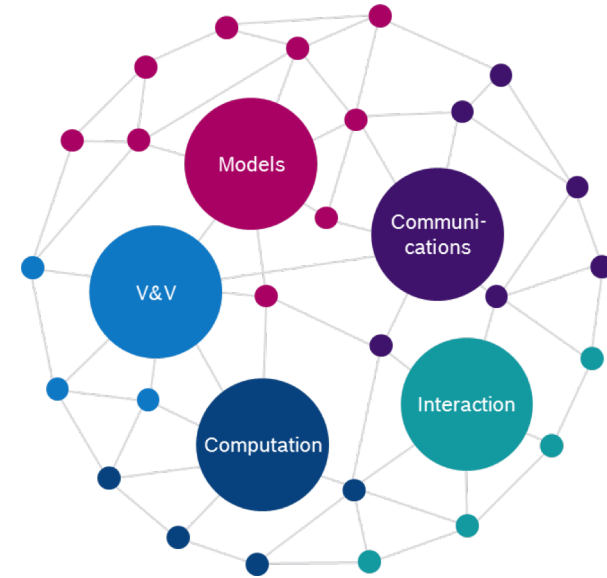
Physics and data-based Models for design, simulation & control on system & application level

Communications: from embedded to highly distributed systems

V&V: from code to ethics

Interaction: from physical & knowledge oriented interfaces to user models and experience

Computation: from HW/SW co-design to secure multiparty computing & empowered ecosystems

BOSCH

Tasuku Ishigooka

Hitachi, Ltd., Japan

Tasuku ISHIGOOKA

- Control Platform Research Department, R&D Group, Hitachi, Ltd. (FY2018 Revenue: aprox.89 Billion dollars)
- Software Platform Research Team Leader (1/2000)
- Autonomous Driving System, Industrial Robot, Automated Forklift System
- Job
  - ✓ Applied Research (Technology transfer from Academia/Research Institute)
  - ✓ New product development support
  - ✓ Deployment to other domain (best practice share)

AUTOSAR

ISO 26262

⋮⋮⋮ROS

AutoWare

Interest

- Cost-Effective Real-time System Design (Hard Real-time Scheduling, Dynamic Reconfiguration)
- Safety Design & Verification (Fail-Operational, AI)
- New Control System Architecture (AI, Edge-Cloud)

Jie Liu

Harbin Institute of Technology, China

2001 – 2004 Xerox PARC
2004 – 2014 Microsoft Research
            Sensing and Energy Group
2014 – 2019 MSR NExT (incubation),
            Microsoft Business AI,
            Microsoft Cloud and AI Platforms

Jie Liu
Professor,
Dean of AI Research Institute
Harbin Institute of Technology, China

- IEEE Fellow
- ACM Distinguished Scientist
- Steering Committee Chair, IPSN and CPS-IoT Week

Guoliang Xing

The Chinese University of Hong-Kong

Guoliang Xing

- The Chinese University of Hong Kong
  - 2018 - present, Professor
- Michigan State University
  - 2008 - 2018, Assistant/Associate Professor
- Washington Univ. in St. Louis
  - 2001-2006, Doctor of Science (D.Sc)

- IPSN Steering Committee
- General Co-Chair, EWSN 2019
- TPC Co-Chair, IPSN 2017
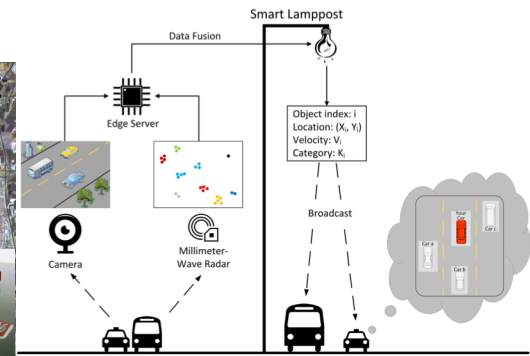- General Chair, IPSN 2016
- Demo Chair, CPSWeek 2015
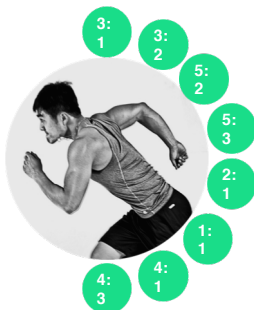
Mobile Health

Green Home & Datacenter
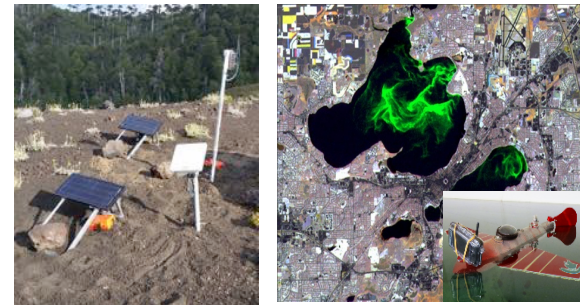
Environmental Monitoring (Volcano & Aqua Ecosystems)

Smart Lampposts/Cities

Real-Time Performance Control (data fusion, real-time protocols)

Security & Networking (wireless co-existence, low-power systems)

Panel Process

- **Each panelist presents her/his position regarding the Good, the Bad and the Ugly of AI in IOT and Sensor Networks**

- **After the position statements of all panelists, we will open the panel for discussion with the audience**