

SMART CITIES RESEARCH

IN THE CONTEXT OF LASARIS

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My Research Background

- **Formal methods**
 - Formal verification of functional correctness
 - In the context of **Software Engineering** practices
- **Software architecture**
 - Design-time analysis
 - **Quality-driven design**
- **Quality attributes**
 - Performance
 - **Reliability**
 - and others

LaSARIS Research in the Perspective of Smart Cities

- **Domains**

- Smart grids
- Smart buildings

- **Research**

- **Monitoring and control**

- Stream data processing
- Big data anomaly detection

- **Architecture design**

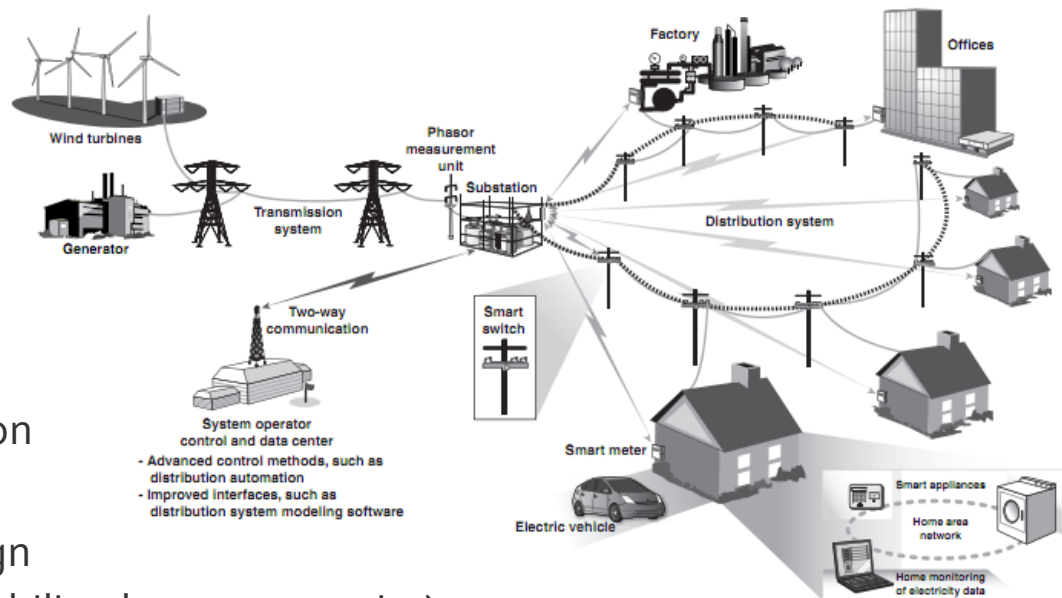
- Smart infrastructure design
- Quality optimization (reliability, latency, security)

- **Modeling and simulation**

- Analysis of what-if scenarios
- Evaluation of design options, under uncertainty

- **Visualization** – of surveillance data

- **Persistence of large data** – and cloud computing



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- **Smart City architecture in the context of SSME**

- Holistic view of Smart City
 - Citizen, Smart city features, Smart services, Supporting IT services, ICT infrastructure
- **FI MU** – Terézia Kazičková, Leoš Wallezký
- **Uni Salerno** – Francesco Caputo, Francesco Polese
- **TU Wien** – Schahram Dustdar and others

- **Smart Grid design**

- Simulation and what-if analysis
- Quality trade-off analysis
- **ČEZ, Mycroft Mind** – Honza Rosecký, Miro Kadlec, Filip Procházka

- **Critical infrastructure design**

- Applicable also in the cyber-security context
- **FI MU, ICS, LAW** – **C4e project** (OP VVV) - team on infrastructure design

- **Reliability in Smart City infrastructure**
 - Reliability and uncertainty analysis
 - **FI MU** – Stano Chren
- **Intelligent traffic control**
 - **Siemens** – Jan Verner
 - **Carnegie Mellon University** – Hanka Rudová, postdoc student
 - **ICS** – Tom Rebok
- **Architectural tactics for Cloud computing**
 - **FI MU, Microsoft** – David Gešvindr, Onřej Gasior
- **Data analytics**
 - **ICS** – CERIT SC (OP VVV) – Tom Rebok, Bruno, Adam, Karolína, etc.

Thank you for your attention!

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