University of Amsterdam
Informatics Institute

Complex Cyber Infrastructure Research Group

Complex Cyber Infrastructure

Building Sustainable Data Exchange Systems and Infrastructure

CCI Website

Our Team


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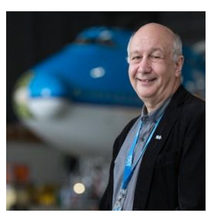

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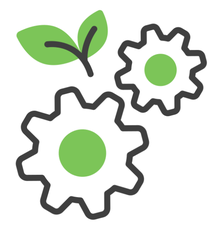

Tim Muller

Challenges in Data Exchange and Software Systems

- **Trusted** data sharing and exchange infrastructure
- Enabling inter-organizational data exchange and processing in **multi-party distributed systems** securely and reliably with **full control** over the data by the data owners
- Automatic **decomposition** of monoliths into fine-grained equivalents, like decomposing services into microservices
- Automatic **(re)-composition** of microservices. Identifying invariants of services, to eventually build **controllable** complex **software services**

Challenges in environmental sustainability and green technology

- Developing technology solutions that **minimize environmental impact and resource consumption**
- Developing architecture framework for **shared responsibility model** in sustainability
- Achieving trade-offs between **performance, cost, and sustainability**
- Mitigating the **environmental footprint** of **software and hardware systems throughout their lifecycle**
- Enabling **Experimental Research Reproducibility and Lifecycle Management**



Challenges in Normative Systems

- Building **trust** in IT solutions and infrastructures by constructing embedded compliance monitoring and enforcement technologies that meet **normative requirements** following from legal, social and ethical norms

Challenges in Teaching

- SNE and SE programs will go through an accreditation process, SNE in particular with changes to reflect new emerging technologies
- Introducing necessary foundational knowledge and competences on System and Software Engineering Architecture for students with different background

EDUCATION Hosting

Master Security and Network Engineering UvA

Master Software Engineering UvA

EDUCATION Contributing

Master Computer Science UvA/VU

Bachelor Informatica UvA

Bachelor Artificial Intelligence UvA

Master DA & BI Nyenrode Business University

Master Big Data National Tech Univ Kyiv, Ukraine

Projects

SLICES

EOSC-Interoperable pan-European Federated Testbeds for Large-Scale Scientific Experiments.

GreenDIGIT

Greening European Digital Research Infrastructure: Lowering energy consumption, environmental and GHG impact

eFLINT

A domain-specific language developed for formalizing norms from a variety of sources.

NWO

AMdEX

Amsterdam Data Exchange: A fair, open and reliable data market.

VISION

Enabling teachers to create individualized online courses via a smart authoring tool.

FogProtect

Protecting sensitive data in the computing continuum.