University of Amsterdam
Informatics Institute

Multiscale Networked Systems

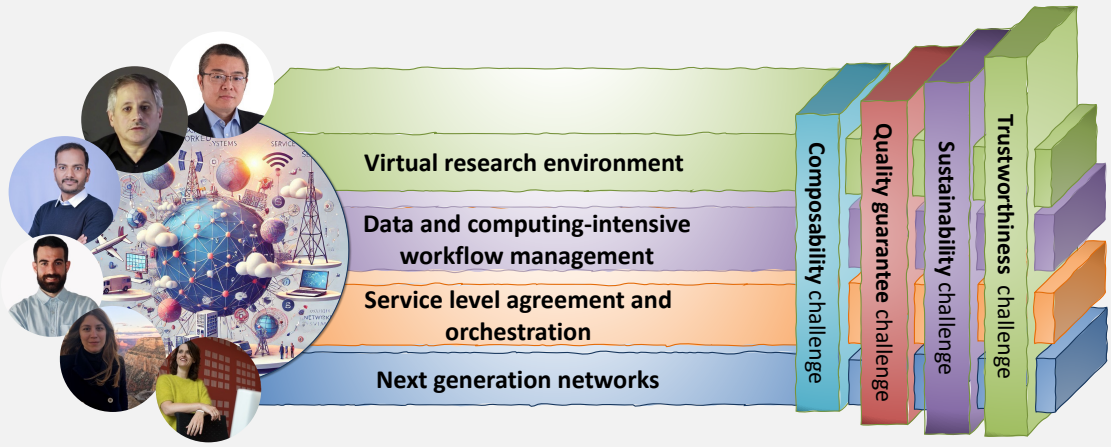
Multiscale Networked Systems research group:

Quality-critical service computing and data-intensive applications on programmable Next Generation Network

Adam Belloum, Chrysa Papagianni, Marios Avgeris, Paola Grosso, Shashikant Ilager, **Zhiming Zhao**

Research Challenges and Vision

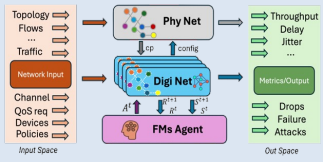
Driven by the **engineering challenges** of data- and computing-intensive applications in **next-generation networked infrastructures**, our research focuses on the **architecture, protocols, and algorithms** needed to deliver **quality critical services** and **sustainable, reliable solutions** across various **scales** and **layers**, from applications to underlying networks.



Selected Research and Development Activities

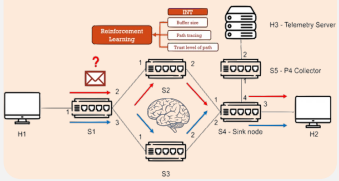
Network Digital Twins

How can we optimize next generation networks in a scalable, cost-efficient and non-intrusive way using NDT?



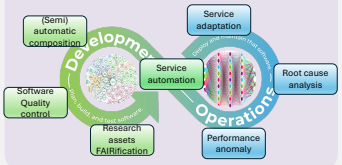
AI-native Networking

How can we design scalable, cost-efficient next-generation networks using AI-native networking to optimize performance, enhance user experiences, and reduce operational complexity?



AI-empowered DevOps

How can we facilitate the Development and Operation (DevOps) of quality-critical service using advanced AI technologies?



Digital Twin-oriented Virtual Research Environment



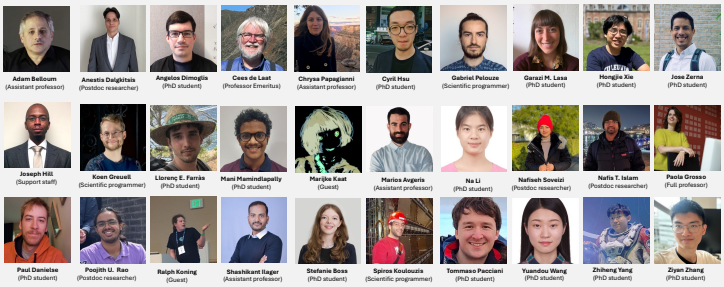
How can we support ecologists in conducting predictive studies using a Digital-twin-oriented Virtual Research Environment?

NaaVRE — Notebook as a Virtual Research Environment

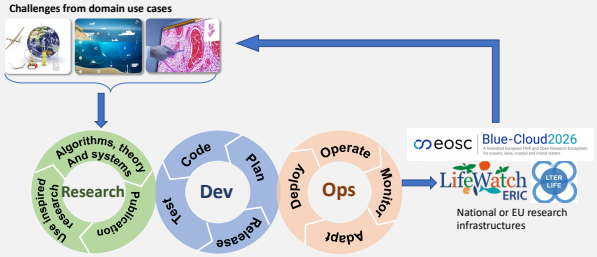
Members



Group Chair
Zhiming Zhao
Associate professor



Embedded in EU/Dutch Infrastructures



Ongoing projects

RESPONSIBLE INTERNET · DESIRE6G · FUTURE 6G NETWORK SERVICES · OSCARS · eosc · EVERSE · eosc · Blue-Cloud2026 · LifeWatch ERIC · ENVRI-Hub NEXT · LTER LIFE