

# Huawei – TU Berlin Joint Graduate School

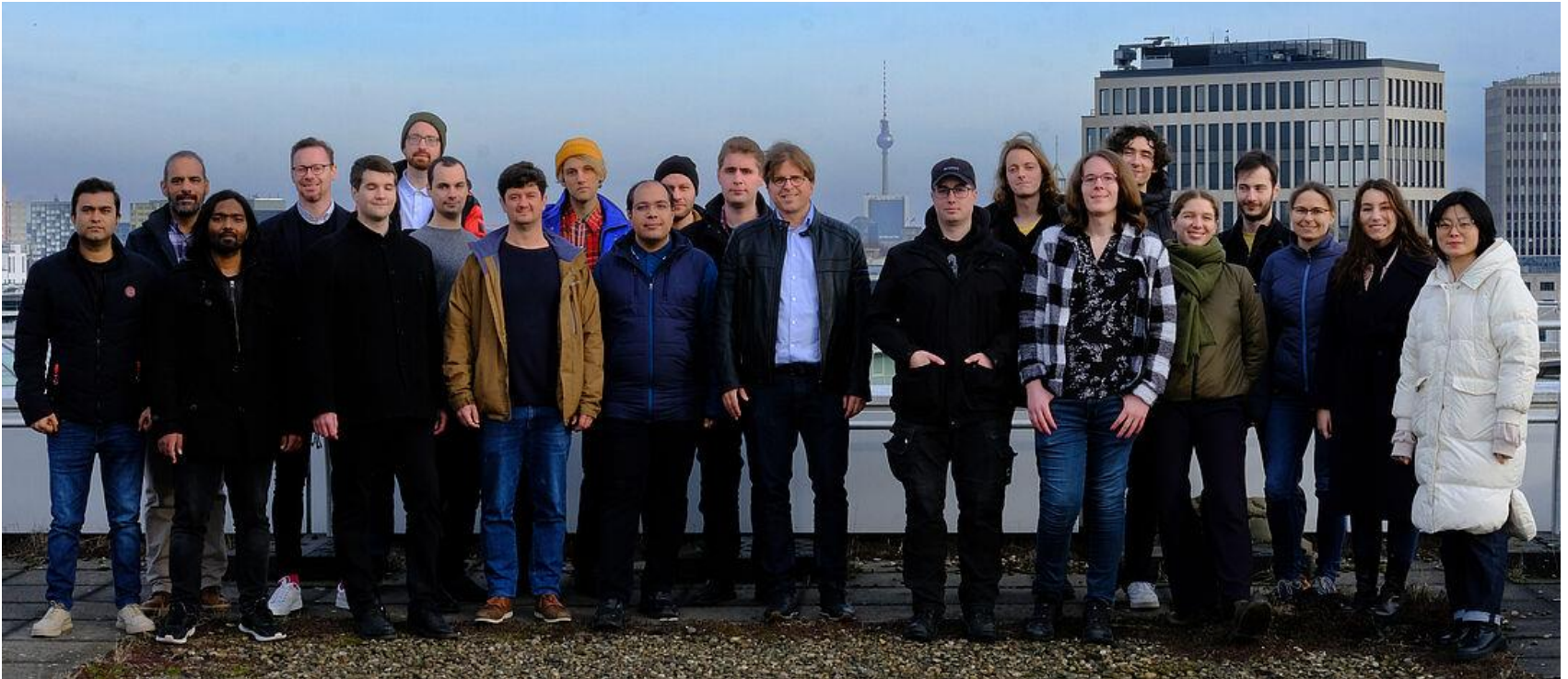
Research group INET - Prof. Dr. Stefan Schmid  
*Presented by Tijana Milentijevic*

<https://www.tu.berlin/en/eninet>  
<https://schmiste.github.io/>



# Research Group

---



# Areas of Expertise

---

- ▶ Internet protocols, management, and architecture
- ▶ Datacenter networks (ERC consolidator grant)
- ▶ Infrastructures for AI/ML workloads
- ▶ Dependability: link failures, malicious behavior, selfish behavior
- ▶ Economical and regulatory aspects: research group at Weizenbaum Institute
- ▶ *Methodologies*: optimization, algorithms, and formal methods

# Our Vision

---

- ▶ Our vision is that networked systems should become *self-\**: i.e., self-optimizing, self-repairing, self-configuring
- ▶ Accordingly, we are currently particularly interested in *automated and data-driven approaches* to design, optimize, and verify networked systems.

# Planned Contributions to Graduate School (1)

---

- ▶ Design and build the *simulation* platform for *AI inference*
- ▶ Analyze the *traffic pattern* inside the AI training and inference
- ▶ Investigate benefits and limitations of *packet spraying* in datacenter networks
  - Big efforts currently in the *Ultra Ethernet Consortium*
- ▶ How to deal with link *failures*? Packet spraying vs per-flow consistent paths.
- ▶ Develop simulator and/or extend SimAI or *AstraSim* for realistic workload generation

# Planned Contributions to Graduate School (2)

---

- ▶ Support/evaluate *flow control* in simulation platform
- ▶ Support *congestion control* techniques in simulator and compare performance, including PFC, CBFC, rPFC, ECN, ECMP, packet spraying
- ▶ Technical report and *publication*

# Thank you and looking forward!

---