

PhD position (Wissenschaftlicher Mitarbeiter, E13, 4 years)

Multipath transport with real-time capabilities for 6G

This research topic is in the intersection of protocol and system design to support time-bounded access of mobile devices (including smartphones, vehicles, UAVs, industrial robots) to network-based services, likely at the edge. Such devices may use multiple networks in parallel (e.g. 4G/5G/6G, WiFi, D2D mesh, satellite, etc.) to access “their” service instance for different interaction patterns (one-shot, continuous, on/off). The goal is modeling different application classes and their specific demands on the one hand and the observed and predicted link/path properties on the other (at different geographic and time scales) and devising transport layer mechanisms that support the timely interaction between the mobiles and their service instances. This may extend to adjusting applications and reallocating service instances on the fly to cope with demands and constraints along with dynamic changes in the network. The resulting design shall be able use the available resources (paths) to satisfy the user demands within the defined time-bounds.

This thesis project will be carried out in close collaboration with PhD students working on network and edge resource allocations and real-time transport protocols for media delivery.

The position is part of the 6G-life project (www.6g-life.de), a major joint activity of TUM and TU Dresden, targeting research into novel foundational mechanisms for future 6G networks and their demonstration as proof-of-concept implementation in an experimental 6G testbed.

Your qualifications

- MSc in Computer Science or Electrical Engineering
- Strong background in networking and systems with solid coding skills
- Mathematical background for modeling and analytics
- Openness for collaboration within our research group, inside the project, and beyond
- Curiosity and creativity to explore new directions
- Professional English

Our offer

- Full-time position, with payment according to the Collective Agreement for the Civil Service of the Länder (TV-L) E13, up to four years
- Open-minded research environment with many peers inside the 6G-life project and with numerous complementary projects on challenging topics and manifold cooperation opportunities
- Network of national and international partners for cooperation and research exchanges
- Inspiring working atmosphere in one of the leading informatics departments in Germany

TUM is an equal opportunity employer and strives to raise the proportion of women in its workforce and explicitly encourages applications from qualified women. Applications from disabled persons with essentially the same qualifications will be given preference.

Application

We accept applications until the position is filled. Please send your applications with the usual material (motivation letter, CV, certificates, possibly publications) as a single PDF to the email address indicated below.

Technische Universität München

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