Chair of Communication Networks
TUM Department of Electrical and Computer Engineering
Technical University of Munich

Forschungspraxis, Bachelor's Thesis

Studying the robustness of hyper-connected mesh core networks

Hyper-connected meshes are a growing idea that improves the connectivity in core networks. This approach adds several links to the existing core network to make it more dense and increases the number of simple paths in the network. There are several approaches to add these links to the network. In this work, we compare the robustness of the different approaches on different topologies and identify the best approach to add links in terms of robustness.

We already have our tool to develop robustness surfaces for the given network. The student is expected to use this tool and compare the robustness of different approaches and make meaningful inferences.

[1] Manzano, M., Sahneh, F., Scoglio, C., Calle, E. and Marzo, J.L., 2014. Robustness surfaces of complex networks. Scientific reports, 4(1), p.6133.

[2] Rueda, D.F., Calle, E. and Marzo, J.L., 2017. Robustness comparison of 15 real telecommunication networks: Structural and centrality measurements. Journal of Network and Systems Management, 25(2), pp.269-289.

This work is in collaboration with Christofer Vásquez from the University of the Bundeswehr, Munich.

Prerequisites

Python, NetworkX, Basic knowledge on robustness surfaces (from the aforementioned references)

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Advisors

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