

Thesis
B.Sc.

Thesis
M.Sc.

Guided
Research

Predicting Internet Paths Dynamics using Machine Learning

Motivation

Path inflation and performance degradation on the Internet are often linked with path changes. Path changes are frequently due to inter/intra-domain routing changes, load balancing, and even misconfigurations and failures. Methods based on traceroutes are often used for detecting path changes and measuring path performance.

In this thesis we want to study those Internet path changes using machine learning. The main goal is to evaluate metrics such as the remaining life time of a path before it actually changes or the number of path changes in a certain time period.

With this thesis, you will learn about the following topics:

- Internet-wide network measurements,
- Novel machine learning methods for computer networks.

Your Task

- Pre-process existing dataset of traceroute measurements
- Evaluate those datasets against novel machine learning methods
- Compare the results with existing literature [1]

Knowledge about Internet architecture and machine learning are recommended but not required.

References

- [1] S. Wassermann, P. Casas, T. Cuvelier, and B. Donnet, "NETPerfTrace: Predicting Internet Path Dynamics and Performance with Machine Learning," in *Proceedings of the Workshop on Big Data Analytics and Machine Learning for Data Communication Networks*, ser. Big-DAMA '17. ACM, 2017, pp. 31–36.

Contact

Fabien Geyer fgeyer@net.in.tum.de

