

Alexander Brundiers

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RESEARCH INTERESTS

Computer Networks & Systems; Traffic Engineering; Segment Routing; Network Planning & Design;
Green Networking; Conceptualization & Implementation of (Network) Optimization Algorithms

EDUCATION

- **PhD, Computer Science** (*summa cum laude*) Jan. 2021 – Nov. 2024
Osnabrück University
Thesis: “Taking the Shortcut – Enhancing Backbone Network Traffic Engineering
with Segment Routing Midpoint Optimization” 
Advisor: Prof. Dr. Nils Aschenbruck
- **MSc, Computer Science** (*with distinction*) Nov. 2018 – Nov. 2020
Osnabrück University
Thesis: “Extending and Evaluating a Segment Routing based Framework for Midpoint
Traffic Engineering”
Advisor: Prof. Dr. Nils Aschenbruck, Dr. Timmy Schüller
- **BSc, Computer Science** (*with distinction*) Oct. 2015 – Nov. 2018
Osnabrück University
Thesis: “Implementation eines Frameworks zur Erzeugung und Evaluation von
Traffic Dispersion Graphs”
Advisor: Prof. Dr. Nils Aschenbruck

RESEARCH & WORK EXPERIENCE

- **Deutsche Telekom Technik GmbH** Feb. 2025 – Present
System Engineer (full-time employment)
Responsibilities: Conceptualization, implementation, and deployment of next-gen traffic
engineering strategies for a global ISP backbone
- **Osnabrück University** Feb. 2025 – Present
Visiting Researcher
Research Topic: Green Traffic Engineering; Network Planning and Design
Advisor: Prof. Dr. Nils Aschenbruck
- **Osnabrück University** Jan. 2021 – Jan. 2025
Research Assistant (full-time employment)
Research Topic: Segment Routing-based Network Traffic Engineering
Advisor: Prof. Dr. Nils Aschenbruck
- **Deutsche Telekom Technik GmbH** May 2020 – Oct. 2020
Internship and Master’s Thesis
Topic: Network Traffic Engineering
Advisor: Dr. Timmy Schüller

HONORS & AWARDS

- RACI Travel Grant for RIPE 90, 2025
- GI/ITG KuVS Dissertation Award, 2024
- Nominee for GI Dissertation Award, 2024

- IEEE LCN Best Paper Award Candidate (Top 4), 2023
- RACI Travel Grant for RIPE 86, 2023
- GI/ITG KuVS Master's Thesis Award, 2021
- Lower Saxony Scholarship, 2020
- Rosen Award (for my bachelor's thesis), 2019

PUBLICATIONS

Hint: Preprints of most of my papers are generally freely available on my website.

Journal Articles

- J3. *"Mind the Paths You Choose: Speeding up Segment Routing-based Traffic Engineering with Path Preprocessing"*
A. Brundiers, T. Schüller, N. Aschenbruck
Computer Communications, 2025. 
- J2. *"Fast Reoptimization with only a few Changes: Enhancing Tactical Traffic Engineering with Segment Routing Midpoint Optimization"*
A. Brundiers, T. Schüller, N. Aschenbruck
IEEE JSAC, 2025. 
- J1. *"An Extended Look at Midpoint Optimization for Segment Routing"*
A. Brundiers, T. Schüller, N. Aschenbruck
IEEE OJCOMS, 2024. 

Conference Papers

- C9. *"Power-Napping Networks: Towards Practically Usable Green Segment Routing for ISP Backbones"*
D. Otten, A. Brundiers, L. Brüggemann, N. Aschenbruck
CNSM, 2025. 
- C8. *"TROPIC: Traffic-Engineering-Oriented Planning of IP Core Networks"*
L. Richardt, A. Brundiers, T. Schüller, N. Aschenbruck
IFIP Networking, 2025. 
- C7. *"Live Long and Prosper – On the Potential of Segment Routing Midpoint Optimization to Improve Network Robustness"*
A. Brundiers, T. Schüller, N. Aschenbruck
IEEE LCN, 2024. 
- C6. *"Preprocess your Paths – Speeding up Linear Programming-based Optimization for Segment Routing Traffic Engineering"*
A. Brundiers, T. Schüller, N. Aschenbruck
IFIP Networking, 2024.  **Invited for Journal Extension**
- C5. *"Combining Midpoint Optimization and Conventional End-To-End Segment Routing for Traffic Engineering"*
A. Brundiers, T. Schüller, N. Aschenbruck
IEEE LCN, 2023.  **Best Paper Award Candidate**
- C4. *"Green Segment Routing for Improved Sustainability of Backbone Networks"*
D. Otten, A. Brundiers, T. Schüller, N. Aschenbruck
IEEE LCN, 2023. 

C3. “Tactical Traffic Engineering with Segment Routing Midpoint Optimization”

A. Brundiers, T. Schüller, N. Aschenbruck

IFIP Networking, 2023. 

C2. “Midpoint Optimization for Segment Routing”

A. Brundiers, T. Schüller, N. Aschenbruck

IEEE INFOCOM, 2022. 

C1. “On the Benefits of Loops for Segment Routing Traffic Engineering”

A. Brundiers, T. Schüller, N. Aschenbruck

IEEE LCN, 2021. 

Miscellaneous (Not peer-reviewed)

M2. “Verbesserung von Traffic Engineering für Backbone Netzwerke durch Segment Routing Midpoint Optimization”, Alexander Brundiers, GI Ausgezeichnete Informatikdissertationen 2024, LNI D-25, 2025. 

M1. “Best Thesis Abstract: Taking the Shortcut – Enhancing Backbone Network Traffic Engineering with Segment Routing Midpoint Optimization”, Alexander Brundiers, NetSys, 2025. 

TEACHING EXPERIENCE

■ Robust Networked Systems

Teaching Assistant

Osnabrück University

Fall 2023/24, Fall 2024/25

■ Internet Measurements

Teaching Assistant

Osnabrück University

Spring 2022, Spring 2023, Spring 2024

■ IT & Network Security

Teaching Assistant

Osnabrück University

Fall 2021/22

■ Computer Networks

Teaching Assistant

Osnabrück University

Spring 2021

SUPERVISED STUDENT THESES

Theses that led to a peer-reviewed publication are marked with a .

■ Leon Richardt

MSc, Computer Science

Design and Evaluation of an Algorithm for Segment-Routing-Tailored Capacity Upgrades 

Osnabrück University

2024

■ Bennet Janzen

BSc, Computer Science

Evaluation von Green Traffic Engineering Algorithmen unter Einbeziehung von Netzwerkresilienz-Aspekten

Osnabrück University

2022/23

SERVICE

■ IEEE INFOCOM, 2026

External Expert Reviewer

■ ACM Transactions on Internet Technology, 2025

Reviewer

PRESENTATIONS & INVITED TALKS

- KuVS NetSys, September 2025, Ilmenau, Germany (Award Talk)
- Dagstuhl Seminar (GI Dissertation Award), May 2025, Dagstuhl, Germany (Academia)
- RIPE 90, May 2025, Lisbon, Portugal (Industry)
- KuVS FG NetSoft, April 2025, virtual (Academia)
- Deutsche Telekom Technik GmbH, March 2025, Münster, Germany (Industry)
- IEEE LCN, October 2024, Caen, France (Conference)
- IFIP Networking, June 2024, Thessaloniki, Greece (Conference)
- University of Zurich, February 2024, Zurich, Switzerland (Academia)
- IEEE LCN, October 2023, Daytona Beach, FL, USA (Conference)
- KuVS NetSys, September 2023, Potsdam, Germany (Award Talk)
- IFIP Networking, June 2023, Barcelona, Spain (Conference)
- RIPE 86, May 2023, Rotterdam, Netherlands (Industry)
- Deutsche Telekom Technik GmbH, May 2023, Münster, Germany (Industry)
- IEEE INFOCOM, May 2022, virtual (Conference)
- IEEE LCN, October 2021, virtual (Conference)

TECHNICAL SKILLS

- **Programming languages:** C, C++, Python, Bash
- **Tools & Frameworks:** CPLEX

LANGUAGES

- **German:** Native
- **English:** Fluent

Last updated: September 26, 2025