Chen Griner

Curriculum Vitae

Holon, Israel
(+972) 544 239 113
griner321@gmail.com
Github Linkedin Google Scholar

Recently graduated Ph.D. with 6+ years of research experience in networking. Published four first-name papers in leading journals and conferences in collaboration with international teams. Researched state-of-the-art and novel technologies for datacenter networks and architectures. Developed new theoretical models, designs, and algorithms and tested them in various network simulations.

Education

2020 – 2024 **Ph.D. in Communications Systems Engineering**, *Ben Gurion University of the Negev (BGU)*, Be'er Sheva, Israel.
Dissertation title: *Demand-Aware Topology Engineering for Reconfigurable Networks.*

Supervisor : **Prof. Chen Avin**, *School of Electrical and Computer Engineering*, BGU (*Personal Web-page*).

2017 – 2020 **M.Sc. in Communications Systems Engineering**, *Ben Gurion University of the Negev (BGU)*, Be'er Sheva, Israel.
Thesis title: *The Complexity of Traffic Traces and its Application for Network Design.*

Supervisor : **Prof. Chen Avin**, *School of Electrical and Computer Engineering*, BGU.

2013 – 2017 **B.Sc. in Communications Systems Engineering**, *Ben Gurion University of the Negev (BGU)*, Be'er Sheva, Israel.
Comprehensive exposure to the core areas of computer and communication sciences, along with a final year project on Segment Routing in datacenters using SDNs.

Summary of Research & Academic Experience

Independent Research

2024 – 2025 ***Using Generative Pre-trained Transformers for Datacenter Research***.

- Conducted novel and independent research about synthetic datacenter packet trace generation using a modified GPT architecture.
- Designed and implemented a methodology to evaluate the fidelity of generated traces.
- Published a short paper (poster) based on initial findings at IFIP networking 2025.

Ph.D. Researcher, BGU

2020 – 2024 ***Demand-Aware Topology Engineering for Reconfigurable Networks***.

- Developed theoretical models analyzing the performance of novel reconfigurable datacenter network designs enabled by reconfigurable (leaf-spine) topologies. Found upper and lower bounds on their throughput as a function of demand.
- Established a new network design combining three existing topologies, where each component functions as a sub-topology of the network. This design assigns each traffic *type* (e.g., its size category) to its most suitable sub-topology, improving throughput by up to $\approx 30\%$.
- Designed and tested algorithms for reconfigurable topologies that improve network performance based on traffic demand, e.g., by changing the topology or re-assigning traffic.

M.Sc Researcher, BGU

2017 – 2020 ***The Complexity of Traffic Traces and its Application for Network Design***.

- Developed an information-theoretic measure of structure in network traffic, called *"trace complexity"*. Trace complexity gives evidence to the extant possibilities for optimization in datacenter networks using dynamic networks.

Teaching, BGU

2016 – 2023 **Teacher assistant with several courses related to computer networking**.

- Taught and shaped a practical *lab* course on computer networks and protocols, including emulation of Cisco routers and coding in C on a Linux environment.
- Wrote new exercises, tests, and technical guides for the computer networks lab course.
- Was a teacher assistant in courses on *Information Theory*, *Network Simulation*, and *Distributed Algorithms*.

Full Publications List

Journal Articles

2024 **Chen Griner**, Chen Avin, and Gil Einziger. Beyond matchings: Dynamic multi-hop topology for demand-aware datacenters. *Computer Networks*, volume 240, page 110143. Elsevier, 2024, **(Impact Factor: 4.4)**.

2022 **Chen Griner**, Stefan Schmid, and Chen Avin. Cachenet: Leveraging the principle of locality in reconfigurable network design. *Computer Networks*, volume 204, page 108648. Elsevier, 2022, **(Impact Factor: 4.4)**.

In Conference Proceedings

2025 Chen Griner. Effectively mimicking datacenter traffic patterns using transformers. In *2025 IFIP Networking Conference (IFIP Networking)*, pages 1–3. IEEE, 2025, **(Ranking: A)**.

2021 **Chen Griner**, Johannes Zerwas, Andreas Blenk, Manya Ghobadi, Stefan Schmid, and Chen Avin. Cerberus: The power of choices in datacenter topology design-a throughput perspective. volume 5, pages 1–33. ACM New York, NY, USA, 2021, **(Ranking: A*)**.

2021 **Chen Griner** and Chen Avin. Cachenet: Leveraging the principle of locality in reconfigurable network design. In *20th Annual IFIP Networking Conference, IFIP Networking 2021*, pages 1–3. IEEE, 2021, **(Ranking: A)**.

2020 Chen Avin, Manya Ghobadi, **Chen Griner**, and Stefan Schmid. On the complexity of traffic traces and implications. volume 4, pages 1–29. ACM New York, NY, USA, 2020, **(Ranking: A*)**.

Preprints

2025 **Chen Griner**. Harnessing generative pre-trained transformer for datacenter packet trace generation. *arXiv preprint arXiv:2501.12033*, 2025.

2024 Johannes Zerwas, **Chen Griner**, Stefan Schmid, and Chen Avin. D3: An adaptive reconfigurable datacenter network. *arXiv preprint arXiv:2406.13380*, 2024.

2024 **Chen Griner** and Chen Avin. Integrated topology and traffic engineering for reconfigurable datacenter networks. *arXiv preprint arXiv:2402.09115*, 2024.

2020 Chen Avin, **Chen Griner**, Iosif Salem, and Stefan Schmid. An online matching model for self-adjusting tor-to-tor networks. *arXiv preprint arXiv:2006.11148*, 2020.

Scholarships & Awards

2020 – 2023 **BGU**, Received *Negev* fellowship for outstanding doctoral students.

2020 **BGU**, Received an award on behalf of the Dean of the Faculty of Engineering Sciences.

2020 **BGU**, Graduated with highest honors from M.Sc (summa cum laude).

2019 **BGU**, Received Certificate of Excellence for first year of M.Sc.

2017 **BGU**, Received Certificate of Excellence for last year of B.Sc.

Presentations at Universities & Conferences

May 28th 2025 **Poster**, *Effectively Mimicking Datacenter Traffic Patterns Using Transformers*, IFIP Networking Conference 2025 , Limassol, Cyprus..

June 7th 2022 **Paper**, *Cerberus: The Power of Choices in Datacenter Topology Design - A Throughput Perspective*, ACM SIGMETRICS 2022 , Mumbai, India & Online.
(*Video presentation*)

June 24th 2021 **Poster**, *CacheNet: Leveraging the Principle of Locality in Reconfigurable Network Design*, IFIP Networking Conference 2021 , Online.

June 8th 2020 **Paper**, *On the Complexity of Traffic Traces and Implications*, ACM SIGMETRICS 2020 , Boston, Massachusetts, USA & Online.
(*Video presentation*)

July 5th 2019 **Poster**, *The Complexity of Traffic Traces*, DMBI conference , BGU,Be'er Sheva, Israel..

April 16th 2019 **Poster**, *The Complexity of Traffic Traces*, New England Network and Systems Day , MIT, Boston, Massachusetts, USA.

Teaching

Fall, 2022 – Fall, 2021 **Head Lab Instructor** | **Computer Networks Design Laboratory**, CSE BGU.
Subjects: Running network and protocol experiments on an emulated network of Cisco routers. Including DNS, DHCP, VLAN, MPLS, IPv6, BGP, PIM, IGMP, and RTP. Developing a client-server application using C socket programming running on a Linux VM.

Spring, 2022 – Spring, 2021 **Head Lab Instructor** | **Computer Networks Laboratory**, CSE BGU.
Subjects: Running network and protocol experiments on an emulated network of Cisco routers. This included the configuration of IP routers in IP networks. Routing Algorithms, OSPF, RIP. Transport layer protocols- TCP/UDP. Programming of simple client-server applications with C socket programming running on a Linux VM.

Fall, 2020 – Fall 2017 **Head Lab Instructor** | **Computer Networks 2 Laboratory**, CSE BGU.
Subjects: Running network and protocol experiments on an emulated network of Cisco routers. Including OSPF, RIP, BGP, PIM, and TCP/UDP. Developing a client-server application using C socket programming running on a Linux VM.

Spring, 2020 **Lab Instructor** | **Simulation in Networks**, CSE BGU.
Modeling and analysis in network research. Acquiring principles of simulation, design, writing, and building simulators, and the use of simulation packages from Omnet++ for modeling and analysis.

Spring, 2020 **Teaching assistant** | **Introduction to Information Theory**, CSE BGU.
Introductory Subjects to Information Theory, including: Information transfer rate, entropy and mutual information, lossless coding, noisy channels, coding theorems for discrete memoryless channels, channel capacity, data processing theorem, error bounds and source coding.

Spring, 2019 **Teaching assistant** | **Distributed algorithms**, CSE BGU.
Subjects: principles of distributed computing. Various failure models. Network search, leader election in a ring and arbitrary network, network routing, transaction management, and others.

Technical skills & Languages

Programming: Python, C, Wolfram Mathematica.

Networking: OMNeT++, GNS3, Wireshark.

Languages: English, Hebrew.

Referees

Prof. Chen Avin
Associate Professor, School of Electrical and Computer Engineering
Ben-Gurion University of the Negev
✉ chenavin@gmail.com (upon request)

Prof. Dr. Stefan Schmid
Full professor, Institute of Telecommunication Systems
Technical University Berlin
✉ stefan.schmid@tu-berlin.de (upon request)