Serhat Arslan
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EDUCATION

Stanford University, School of Engineering
- **Ph.D. in Electrical Engineering, Advised by Prof. Nick McKeown, and Prof. Sachin Katti**
  - 2020 – 2024
- **M.S. in Electrical Engineering**
  - GPA: 3.94 / 4.00
  - 2018 – 2020
- **Research Area: Next Generation Energy Aware, Low Latency Software Defined Networks and Systems**

Koç University, College of Engineering
- **B.S. in Electrical and Electronics Engineering GPA: 4.17 / 4.00**
  - 2012 – 2016
- **Top ranking student among the engineering school, **Salutatorian** among the university**

PUBLICATIONS & RESEARCH

**Green With Envy: Unfair Congestion Control Algorithms Can Be More Energy Efficient**
Serhat Arslan, Sundararajan Renganathan, Bruce Spang
In *Proceedings of the 22nd ACM Workshop on Hot Topics in Networks (HotNets '23)*

**Bolt: Sub-RTT Congestion Control for Ultra-Low Latency**
Serhat Arslan, Yuliang Li, Gautam Kumar, Nandita Dukkipati
In *Proceedings of 20th USENIX Symposium on Networked Systems Design and Implementation (NSDI '23)*

**d-Cellular Trust-Free Connectivity in Decentralized Cellular Networks**
Serhat Arslan, Ali Abedi, Sachin Katti
*(Best Paper)* In *Proceedings of IEEE Future Networks World Forum (FNWF '23)*

**Trust-free Service Measurement and Payments for Decentralized Cellular Networks**
S.V.R. Anand, Serhat Arslan, Rajat Chopra, Sachin Katti, Milind Kumar Vaddiraju, Ranvir Rana, Peiyao Sheng, Himanshu Tyagi, Pramod Viswanath
In *Proceedings of the 21st ACM Workshop on Hot Topics in Networks (HotNets ’22)*

**NanoTransport: A Low-Latency, Programmable Transport Layer for NICs**
Serhat Arslan, Stephen Ibanez, Alex Mallery, Changhoon Kim, Nick McKeown
In *Proceedings of the Symposium on SDN Research (SOSR '21). ACM*

**The nanoPU: A Nanosecond Network Stack for Datacenters**
Stephen Ibanez, Alex Mallery, Serhat Arslan, Theo Jepsen, Muhammad Shahbaz, Changhoon Kim, Nick McKeown
15th USENIX Symposium on Operating Systems Design and Implementation (OSDI 21)

**Updating the Theory of Buffer Sizing**
Bruce Spang, Serhat Arslan, Nick McKeown
*IFIP Performance Conference 2021. Journal of Performance Evaluation (PEVA) 151:102232, 2021*

**Switches Know the Exact Amount of Congestion**
Serhat Arslan, Nick McKeown
In *Proceedings of Buffer Sizing Workshop (BS '19). ACM, December 2019*

**SFC: Near-Source Congestion Signaling and Flow Control**
Yanfang Le, Jeongkeun Lee, Jeremias Blendin, Jiayi Chen, Georgios Nikolaidis, Rong Pan, Robert Soule, Aditya Akella, Pedro Yebeles Segura, Arjun singhvi, Yuliang Li, Qingkai Meng, Changhoon Kim, Serhat Arslan
In *Arxiv 2023*

**Enabling the Reflex Plane with the nanoPU**
Stephen Ibanez, Alex Mallery, Serhat Arslan, Theo Jepsen, Muhammad Shahbaz, Changhoon Kim, Nick McKeown
In *Arxiv 2022*

**Using Google Search Trends to Estimate Global Patterns in Learning**
Serhat Arslan, Mo Tiwari, Chris Piech
In *Proceedings of the Seventh (2020) ACM Conference on Learning @ Scale (L@S ’20)*
PROFESSIONAL EXPERIENCE

Intel Corporation – Senior AI Network and Transport Layer Modeling Engineer  
Remote, 2024 – Present
✓ Silicon Product Architect under the Networking Product & Platform Architecture team

Google LLC – Core Systems Infrastructure, Software Engineering Intern  
Remote, 2021 – 2022
✓ Designed Bolt, a data center congestion control algorithm (see the publication above)
  o Utilized P4 language and C++ to develop and test the algorithm on programmable switches.

Google LLC – Cloud Network Analytics, Software Engineering Intern  
Sunnyvale, California, 2020 – Summer
✓ Worked on network performance estimation project.
  o Designed measurement techniques and Machine Learning Models to estimate current network state.

Vodafone – IP CPN (Converged Packet Network) L2 Senior Specialist  
İstanbul, Türkiye, 2017 – 2018
✓ Migrated services from gateways to new edge routers for consolidation and cost reduction in the network.
✓ Reduced operational workload from hours to minutes via the Data Center Device Status Monitoring Tool
  o Developed a Python program that collects current information from devices and produce report.
✓ Integrated and operated Carrier Grade NAT Devices.

Vodafone – Discover Young Talent Program Attendee  
İstanbul, Türkiye, 2016 – 2017

Rotation 1: @ PS (Packet Switch) Core Network 2nd Level Operations Management
✓ Installed and documented the location-based policy application via DPI infrastructure.
✓ Installed and documented the audit logging on all devices of PS Core Network’s portfolio.
  o Shell Scripts to regularly collect logging files to a central location.
✓ Tested new protocol pack releases of DPI Vendor for approval on live migration.

Rotation 2: @ Data Services Department
✓ Conducted market research for NFV-SDN technology opportunities for the business.
  o Tested new home gateway firmware releases of Vendors.

INVITED TALKS

Pushing Transport Layer Latency Down Towards Its Physical Limits in Data Centers with Programmable Architectures and Algorithms  
University of Pennsylvania, PennNetworks Seminar Series, April 2024

Verifiable On-Demand QoS for Cellular Networks  
UC Berkeley NetSys Group Seminar Series, April 2023

Sub-RTT Congestion Control for Ultra-Low Latency  
Google LLC, S2Infra Paper Discussion Series, March 2023

A Low Latency, Programmable Transport Layer for NICs  
Google LLC, CoreInfra Intern Talks, September 2021

Very Low Latency, Programmable Transport Layer for NICs  
Stanford University, PlatformLab Annual Review, February 2021

Using Google Search Trends to Estimate Global Patterns in Learning  
Google LLC, CoreInfra Intern Talks, July 2020

PATENTS

Network Congestion Control In Sub-Round Trip Time  
Serhat Arslan, Yuliang Li, Gautam Kumar, Nandita Dukkipati  
US Patent App. 18/136,551
SERVICE & ACTIVITIES

- IEEE/ACM Transactions on Networking, Reviewer, 2024
- The Networking Channel Panel (How to give an interesting talk for a SIGCOMM/NSDI or similar audience?), Organizer and Moderator, 2023
- EuroSys Conference, Shadow PC, 2021
- Association for Evaluation and Accreditation of Engineering Programs (MUDEK), Evaluator, 2016
- Yeniköy Rotaract Club, Founding President, 2014 – 2015, Member, 2015 – 2018

TEACHING

- Advanced Topics in Networking (CS 244, Stanford University), Teaching Assistant 2021 Spring
- Introduction to Computer Networking (CS 144, Stanford University), Teaching Assistant 2020 Autumn
- CS Bridge (csbridge.stanford.edu), Section Leader 2016 and 2019 Summer

  International program that offers an intensive summer course on Java for high school students.

COMPUTER LITERACY

| Python      | ★★★★★ |
| C/C++       | ★★★★★ |
| P4          | ★★★★★ |
| MATLAB      | ★★★★★ |
| Shell Scripting | ★★★★ |
| Java        | ★★★★ |

AWARDS & ACHIEVEMENTS

- Koç University; President’s Award 2016
- Koç University; Dean of Students Special Award 2016
- Koç University; Vehbi Koç Scholar 2012-2016
- Hisar Schools; Mehpare Taki Edin Social Services Award 2012
- Hisar Schools; Ayfer Yeniçağ Honor Award 2012

ADDITIONAL INFORMATION

Selected Courses:

- Topics in Computer Networks (Build Your Own Router), Stanford University CS344, 2021 Spring
- Advanced Topics in Networking, Stanford University CS244, 2019 Spring
- Deep Learning, Stanford University CS230, 2019 Autumn
- Signal Processing for ML, Stanford University EE269, 2019 Autumn
- Convex Optimization, Stanford University EE364-A, 2019 Winter
- Statistical Signal Processing, Stanford University EE278, 2018 Autumn
- Linear Dynamical Systems, Stanford University EE263, 2018 Autumn
- Modern Applied Statistics: Data Mining, Stanford University STATS315B, 2019 Spring

Professional Training:

- CCNA – Custom (Cisco Certified Network Associate),
- CCNP-SP – Custom (Cisco Certified Network Professional)
- Cisco ACI (Application Centric Infrastructure)

Languages: Turkish (Native), English (Fluent), German (A2 Certified)

Hobbies: Private pilot, Social dancing (Ballroom, Swing, Latin), Playing guitar, ukulele, and baglama