

Serhat Arslan

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EDUCATION

- Stanford University, School of Engineering** California, USA
- ✓ *Ph.D. in Electrical Engineering, Advised by Prof. Nick McKeown, and Prof. Sachin Katti* 2020 – 2024
 - ✓ *Thesis: Pushing Transport Latency Down Towards Its Physical Limits In Data Centers With Programmable Architectures and Algorithms*
 - ✓ *M.S. in Electrical Engineering GPA: 3.94 / 4.00* 2018 – 2020
- Koç University, College of Engineering** İstanbul, Türkiye
- ✓ *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*

PROFESSIONAL EXPERIENCE

- Nvidia Corporation – Senior Host System Architect, GPU Networking** Remote, Maryland, 2024 – Present
- ✓ *Protocol and Algorithm evaluations under the Networking Software & Systems Architecture team*
- Intel Corporation – Senior AI Network and Transport Layer Modeling Engineer** Remote, Maryland, 2024 – 2025
- ✓ *Silicon Product Architect under the Networking Product & Platform Architecture team*
 - ✓ *Developed the behavioral model of AI connectivity solutions in C++ for large scale performance evaluations*
- Google LLC – Core Systems Infrastructure, Software Engineering Intern** Remote, California, 2021 – 2022
- ✓ *Designed Bolt, a data center congestion control algorithm (see the publication above)*
 - *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.*
 - *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*
 - *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.*
 - ***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.*
 - ✓ *Tested new home gateway firmware releases of Vendors.*

PATENTS

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

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 Yebenes 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)

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

SERVICE & ACTIVITIES

- ✓ **ACM Internet Measurement Conference**, *Technical Program Committee*, 2026
- ✓ **IEEE International Conference on Computer Communications**, *Technical Program Committee*, 2026
- ✓ **IEEE/ACM Transactions on Networking**, *Reviewer*, 2024
- ✓ **TheNetworkingChannel Panel** (How to give an interesting talk for a SIGCOMM/NSDI or similar audience?), *Organizer and Moderator*, 2023
- ✓ **EuroSys Conference**, *Shadow Program Committee*, 2021
- ✓ **Association for Evaluation and Accreditation of Engineering Programs (MUDEK)**, *Evaluator*, 2016
- ✓ **Yeniköy Rotaract Club**, *Founding President*, 2014 – 2015, *Member*, 2015 – 2018

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

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.*

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

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

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