

SEPEHR ABDOUS

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🌐 sepehrabdous.github.io

A researcher with a keen interest in **datacenter networking**, developing mechanisms for **high-performance and reliable communication** within and across large-scale datacenters. My work spans both traditional datacenter networks and emerging large-scale AI clusters.

SKILLS

Research and Expertise:

Datacenter Networking AI Infrastructure Congestion Management
Packet Routing Network Simulation Hardware Implementation
AI Networking Transport Protocols

Coding:

C C++ Python Java

Tools:

OMNeT++ HTSim P4 Git LaTeX

EXPERIENCE

Part-time Consulting Researcher

Microsoft

📅 2024–2025

📍 Baltimore, MD

Designed *Uno*, a unified congestion-control system for reliable communication within and across large-scale datacenter networks.

AI Enablement Intern

CCC Intelligent Solutions

📅 2022

📍 Baltimore, MD

Developed a high-performance data-migration technique that accelerated transfers between geographically distributed storage systems.

Teaching Assistant

Johns Hopkins University

📅 2019–2025

📍 Baltimore, MD

Three appointments in *Computer Networks* and *Cloud Computing*.

Systems Intern

HPDS (High Performance Data Storage)

📅 2018

📍 Tehran, Iran

Automated system updates and performed system-level storage benchmarking with FIO.

Frontend Developer

Darmaneh

📅 2016–2018

📍 Tehran, Iran

Developed and maintained Android and iOS applications for an online medical-consultation platform.

Teaching Assistant

Sharif University of Technology

📅 2015–2019

📍 Tehran, Iran

Fourteen appointments across programming, systems, architecture, numerical methods, and statistics courses.

PROFESSIONAL SERVICES

Reviewer for *Computer Networks*, *Journal of Network and Computer Applications*, *Ad Hoc Networks*, and IEEE journals (2022–Present).

EDUCATION

Ph.D. in Computer Science

Johns Hopkins University

📅 2019–2026

📍 Baltimore, MD

Thesis: *Taming the Beast: In-network Congestion Management for Large-scale Datacenters*

Advisor: Dr. Soudeh Ghorbani

M.Eng. in Computer Science

Johns Hopkins University

📅 2019–2023

📍 Baltimore, MD

GPA: 3.81/4.00

Advisor: Dr. Soudeh Ghorbani

B.Sc. in Computer Engineering

Sharif University of Technology

📅 2014–2019

📍 Tehran, Iran

GPA: 17.06/20.00

SELECTED PUBLICATIONS

Full list here

- Closing the Bandwidth Gap in AI Datacenters with Scalable Multicast
Scalable multicast, distributed AI training, datacenter networks
NSDI 2027 • Co-first author
- One to Many: Closing the Bandwidth Gap in AI Datacenters with Scalable Multicast
AI networking, multicast, collective communication
HotNets 2025 • First author
- Uno: A One-Stop Solution for Inter- and Intra-Datacenter Congestion Control and Reliable Connectivity
Congestion control, intra- and cross-datacenter communication, reliable transport
SC 2025 • Co-first author
- Practical Packet Deflection in Datacenters
Packet deflection, burst mitigation, programmable networks
CoNEXT 2023 • First author
- Burst-tolerant Datacenter Networks with Vertigo
Burst tolerance, packet scheduling, in-network congestion management
CoNEXT 2021 • Co-first author