# Sepehr Abdous

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*Researcher in Datacenter Networking and AI Infrastructure*
*Ph.D. @ JHU*

## Education

**Johns Hopkins University** **Baltimore**
***PhD*** *2019-Present*
School of Computer Science

**Johns Hopkins University** **Baltimore**
***M.Eng*, *GPA: 3.81/4*** *2019-2023*
School of Computer Science

**Sharif University of Technology** **Tehran**
***BSc*, *GPA: 17.06/20*** *2014 - 2019*
School of Computer Engineering

## Research Summary

My research focuses on improving the speed and reliability of modern networks. I have developed mechanisms to **detect and quantify congestion events** in **datacenter networks** — critical infrastructure at the core of the Internet. In addition, I have proposed techniques to **mitigate congestion both within individual datacenters and across interconnected datacenter fabrics**. With the rapid expansion of large-scale Artificial Intelligence (AI) training workloads, **my current work targets emerging challenges in AI datacenters**, including addressing bandwidth inefficiencies and ensuring scalable, high-throughput network performance.

## Work Experience

**Microsoft** **2024-2025**
*Consulting researcher* *Baltimore, USA*
Under the supervision of Dr. Kabbani and Dr. Ghalayini, I designed Uno, a unified congestion control scheme that operates both within and across large-scale datacenter networks.

**CCC Intelligent Solutions** **2022**
*Intern* *Chicago, USA*
As an intern on the AI Enablement team, I designed and implemented a high-performance data migration technique that significantly improved the speed of transfers between the company's remote storage servers.

**HPDS (High Performance Data Storage) Company** **2018**
*Intern* *Tehran, Iran*

I was responsible for automating the system update process and performing system-level FIO benchmarking tests.

**Darmaneh** **2016-2018**
*Frontend developer* *Tehran, Iran*
Darmaneh was a startup focused on building a platform for online medical consultations. I was responsible for developing and maintaining the Android and iOS applications.

## Skills

- **Technical Skills:** Datacenter networking, AI networking, Network simulation and hardware implementation
- **Programming Languages:** C, C++, Python, Java, P4
- **Tools:** OMNeT++, HTSim, Git, Latex, Ansible

## Publications

### Papers

***Uno: A One-Stop Solution for Inter- and Intra-Datacenter Congestion Control and Reliable Connectivity*** **2025**
*Tommaso Bonato*, **Sepehr Abdous***, Abdul Kabbani, Ahmad Ghalayini, Nadeen Gebara, Terry Lam, Anup Agarwal, Tiancheng Chen, Zhuolong Yu, Konstantin Taranov, Mahmoud Elhaddad, Daniele De Sensi, Soudeh Ghorbani, Torsten Hoefler*
*(*Equal contribution)*
SC

***Tempus: Probabilistic Network Latency Verification*** **2024**
***Sepehr Abdous***, Senapati Diwangkara*, Soudeh Ghorbani*
*(*Equal contribution)*
IEEE Access

***Practical Packet Deflection in Datacenters*** **2023**
***Sepehr Abdous**, Erfan Sharafzadeh, Soudeh Ghorbani*
CoNEXT

***Understanding the impact of the host networking elements on traffic bursts*** **2023**
*Erfan Sharafzadeh, **Sepehr Abdous**, Soudeh Ghorbani*
NSDI

***Burst-tolerant Datacenter Networks with Vertigo*** **2021**
***Sepehr Abdous***, Erfan Sharafzadeh*, Soudeh Ghorbani*
*(*Equal contribution)*
CoNEXT

### Posters

***Implementable selective deflection with Canary*** **2023**
***Sepehr Abdous***, *Erfan Sharafzadeh*, *Soudeh Ghorbani*
NSDI

***Vertigo: A Priority-aware Burst-tolerant Datacenter Fabric*** **2021**
***Sepehr Abdous***, *Erfan Sharafzadeh*, *Sougol Gheissi*, *Soudeh Ghorbani*
Coordinated Science Laboratory Student Conference (CSLSC)

***Valinor: Transport-Agnostic Packet Prioritization and Ordering at the Edge*** **2021**
*Erfan Sharafzadeh*, ***Sepehr Abdous***, *Sougol Gheissi*, *Soudeh Ghorbani*
Coordinated Science Laboratory Student Conference (CSLSC)

## Professional Service

- Journal reviewer for Computer Networks (2022-2024)
- Journal reviewer for Journal of Network and Computer Applications (2022-2024)
- Journal reviewer for Ad Hoc Networks (2022-2023)