Masoud Hemmatpour

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Nationality: Iranian (Permanent Residency Norway)

Date of Birth: May 29, 1983

Residence:Tromso, Norway

Gender: Male

Online links to resources are included for easy access.

Personal Page: https://mashemat.github.io

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Positions

- **The Arctic University of Norway (UiT)** — Tromsø, Norway
  Postdoctoral Fellow — *May. 2023 – Current*
  - **Project**
    - Energy-efficient in-network intelligent framework for edge
- **Simula Lab** — Oslo, Norway
  Adjunct Research Scientist — *May. 2023 – Dec. 2023*
  - **Project**
    - In-network computing in HPC systems
- **Simula Lab** — Oslo, Norway
  Postdoctoral Fellow — *Mar. 2021 – May. 2023*
  - **Project**
    - In-network computing in HPC systems
- **Cisco systems** — Paris, France
  Senior Software engineer — *Jan. 2019 – Jan. 2020*
  - **Project**
    - Control and management plane in cloud-native environment

Education

- **Politecnico di Torino** — Torino, Italy
  PhD in computer engineering — *Nov. 2015 – Sept. 2019*
  - **Thesis**
    - High Performance Computing using InfiniBand based clusters
- **Politecnico di Torino** — Torino, Italy
  MSc in communications and computer networks engineering — *Oct. 2012 – Oct. 2015*
  - **Thesis**
    - Read-copy update synchronization technique improvement by hardware message passing
      Research project at École Politechnique Fédérale de Lausanne (EPFL)
- **Azad university of najaf abad** — Najaf abad, Iran
  Bachelor of Science, Computer Software Engineering — *2005 – 2008*
  - **Thesis**
    - Implementing bulk SMS (Short Message Service) sender with AT commands in Delphi programming
- **Bu-Ali Sina University** — Hamedan, Iran
  Association Degree, Computer Software — *2002 – 2004*
  - **Thesis**
    - Implementing answering machine with TAPI , Delphi programming

Work experience

- Energy-efficient intelligent in-network framework (European Union's Horizon MISO project - The Arctic University of Norway)

  - The goal of MISO project is to develop and demonstrate an autonomous in-situ observation platform for use in hard-to-reach areas. I develop an intelligent framework to reduce the power consumption of end nodes. Moreover, I develop an in-network intelligent solution to detect anomalies of IoT nodes.

- Highly Accurate and Autonomous Programmable Platform for Providing Air Pollution Data Services to Drivers and Public (HAPADS - The Arctic University of Norway)
  - HAPADS is ambitious project that will custom design and build a novel smart and autonomous air monitoring platform which, will enable end-users (drivers, transport companies, municipalities and the at-large public) to make information-driven decisions to mitigate air pollution exposure for the people.
- Initiative research on various future hardware (ex3 - Simula Research Laboratory)
  - eX3 project is to provide an experimental, heterogeneous computational cluster as a national infrastructure in Norway that will help Norwegian HPC researchers, HPC/Big Data users, data center management, and HPC industry prepare for the coming exascale era of computing.
  - In this project, I investigated several hardware such as programmable network and new generation of processing interconnect (i.e., PCIe).
- In-network computing (Simula Research Laboratory)
  - Exploring in-network computing research directions.
  - Working on several programmable network devices including FPGA and Soc based SmartNIC as well as programmable switch.
- Network management (Linux Foundation Collaborative Project in Cisco Systems)
  - Designing and implementing a Yet Another Next Generation (YANG) model to enable VPP to communicate with remote controllers such as OpenDaylight (ODL) and Network Services Orchestrator (NSO) in order to receive telemetry and push configuration.
  - Enabling VPP to communicate with a network routing software suite such as FRRouting (FRR).
- Remote Direct Memory Access (RDMA) (Research project Politecnico di Torino & T.J. Watson IBM research center)
  - Investigating performance challenges of RDMA operations in InfiniBand based clusters.
  - Designing and implementing an RDMA enabled in-memory key-value store.
- Health care system (OPportunities for active and healthy LONgevity (OPLON) project)
  - Designing and implementing a holistic approach to detect an abnormal gait in order to avoid an unintentional fall and in case of a fall detection reduces injuries and notifies care givers.
- Fault injection (Research Project Politecnico di Torino & University of Montpellier)
  - Designing and implementing a framework to automatically inject faults into a real-time operating system (i.e., FreeRTOS) for STM32 Discovery boards.
- Linux kernel scheduler optimization (Research Project at Politecnico di Torino)
  - Introducing new parameter (i.e., the number of data cache misses) at the given time slice to the Completely Fair Scheduler (CFS). In this way, the scheduler can penalizes processes which waste CPU cycles to handle cache miss instead of the main task.
- Synchronization algorithm on multi core architecture (Research Project at Politecnico di Torino)
  - Implementing a framework to evaluate different synchronization methods including non-blocking algorithms.
- Urban air quality (Cyclair project Torino Living Lab)
  - Investigating the relevance of height in dust monitoring systems based on Libelium Waspmote connected to a dust sensor OPC-N2.
- System-on-a-chip (Research project Politecnico di Torino & École polytechnique fédérale de Lausanne (EPFL))
  - Exploiting hardware message passing feature in system-on-a-chip CPU (i.e., TILE-Gx36) in order to enhance the performnce of the non-blocking synchronization algorithm.
- Co-founder Fanavaran Pasargad J, Linux Professional Institute (LPI) partner

- Teaching LPI courses to universities and organizations

Submitted proposals

- NetCrush: Crushing Communication wall with In-Network Machine Learning, 2023, excellence: 6/7
- Smart RDMA: In-Network Accelerated Processing of Big Data, 2022, excellence: 5/7

Visiting programs and talks

- Non profit and independent climate and environmental research institute (NILU), Oslo, 2024
- Laboratory for Information, Networking and Communication Sciences (LINCS), Paris, 2023
- Computing Infrastructure Group, University of Oxford, 2023
- ExpoLab, University of California Davis, 2018
- Computer science department, Purdue University, 2017
- Distributed Systems Laboratory, École Polytechnique Fédérale de Lausanne (EPFL), 2015

Scientific community engagement

- Program Committee in 17th Asian Conference on Intelligent Information and Database Systems (ACIIDS), 2024
- Technical Program Committee (TPC) in 7th European P4 Workshop (EuroP4), 2024
- Session manager in SmartGridComm, 2024
- Organizing committee in Pint of Science Tromsø, 2024
- Chair of Academic Affairs of Tromsø Doctoral Students and Postdocs in Arctic University of Norway, 2023
- Organizing committee in Computer Software and Applications Conference (COMPSAC), 2017
- Reviewers in several conferences and journals such as TKDE, TPDS, Supercomputing, 2015-2024

Awards and Grants

- Åsgard Horizon, 2023
- Best Dissertation Award Politecnico di Torino, 2019
- Quality Award Politecnico di Torino, 2018
- Quality Award Politecnico di Torino, 2017
- Provincial math prize, math house Isfahan, 2000

Languages with proficiency

- Norwegian, Elementary, A2 level
- English, Fluent
- Italian, Upper Intermediate, B2 level

- Persian, Native

References

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