Chavoosh Ghasemi

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EDUCATION

The University of Arizona, *Tucson, AZ*
Doctorate of Computer Science *Aug. 2016 – Dec. 2020*
Advisor: Prof. Beichuan Zhang
Awarded Full-Tuition Scholarship
Funded by National Science Foundation (NSF)
GPA: 4.00 / 4.00

Sharif University of Technology, *Tehran, Iran*
Master of Engineering of Information Technology - Computer Networking *Aug. 2012 – Apr. 2014*
Thesis Title: *Fast and Adaptive Forwarding in Named-Data Networks*
Advisor: Prof. Ali Movaghar
Awarded Full-Tuition Scholarship
GPA: 3.72 / 4.00

RESEARCH INTERESTS

Future Internet Architecture, Information-Centric Networking, Routing and Forwarding in Wide-area Networks, Data Structure Design

CURRENT PROJECTS

- **iCDN: A Content Delivery Network over Information Centric Network**
  Advisor: *Prof. Beichuan Zhang*
  Design and implementation of a new CDN architecture that employs content-centric paradigm to detach the centralized application-layer routing module from the CDN architecture and natively support multicast and multipath to sharply reduce complexity and cost of the system without sacrificing the performance. This project deploys a world-wide, public CDN over the global NDN testbed. Both the simulated and implemented versions of this project are written in C/C++.
- **iViSA: Let NDN stream Videos!**
  Advisor: *Prof. Beichuan Zhang*
  http://ivisa.named-data.net
  Design and implementation of a zero client-side configuration, adaptive bit-rate video streaming service over NDN protocol. This project employs building blocks developed by NDN and open-source community to develop a new video streaming tool-bundle. The back-end and front-end of this service are implemented in C/C++ and JavaScript, respectively. From mid-2019, NDN's official website started using iViSA software-bundle to serve its videos to its users.
- **OpenICN: SDN for Content-Centric Networks**
  Design and implementation of a scalable SDN-based forwarding architecture. It utilizes a global view of the network to fetch data from the nearest cache. A new SDN controller (implemented in C++) cooperates with modified name-based packet forwarders through a southbound communication channel/protocol for network/cache state update, decision making, and forwarding table population. This project is mostly implemented in C++.

WORK EXPERIENCE

IIDtech Co., *Tehran, Iran*
IT Supervisor and Technician *Feb. 2010 – Apr. 2016*
- Maintained and diagnosed computer and electronic systems of Tos-eh Farda Bank (northern branches), including hardware and software, operating systems, and security equipment.
- Frequently interacted with clients to teach/help them to use installed hardware/software.

TEACHING EXPERIENCE

The University of Arizona, *Tucson, AZ*
- Web Programming *(Aug. 2016 – Dec. 2016)*
- Analysis of Discrete Structures *(Jan. 2017 – May. 2017)*

Sharif University of Technology, *Tehran, Iran*
- Advanced Computer Networks *(Aug. 2013 – Dec. 2013)*
- Advanced Computer Networks *(Jan. 2014 – May. 2014)*

SKILLS & TOOLS

Programming Languages: C/C++ (**strongest**), C#, Matlab, Python
Web Programming: React, HTML & CSS3, JavaScript, PHP
Code Review & Version Control: Git, Gerrit, Redmine
Database: Microsoft SQL Server, MongoDB, MySQL
Simulators & Emulators: OPNET, NS3, ndnSIM, mininet, mini-ndn, Packet Tracer
Network & Security: Socat, Nmap, hPing3, TCPDump, Netcat, Wireshark
Operating Systems: Macintosh, Windows, Linux (Ubuntu, Backtrack)
Virtualization: VirtualBox, VMware

PUBLICATION

Published

- C. Ghasemi, H. Yousefi, K.G. Shin, B. Zhang, *"NameTrie: A Fast and Memory-Efficient Data Structure for Name-based Packet Forwarding"*, *in proceedings of 26th IEEE International Conference on Network Protocols (ICNP), 2018 – (acceptance rate: 17%)*
- C. Ghasemi, H. Yousefi, K.G. Shin, B. Zhang, *"Routing Meets Caching in Named Data Networks"*, *in proceedings of IEEE International Conference on Computer Communications (INFOCOM), 2018 (Poster)*
- C. Ghasemi, H. Yousefi, K.G. Shin, B. Zhang, *"MUCA: New Routing for Named Data Networking"*, *in proceedings of 17th IFIP Networking (NETWORKING), 2018 – (acceptance rate: %21)*
- C. Ghasemi, H. Yousefi, K.G. Shin, B. Zhang, *"On the Granularity of Trie-based Data Structures for Name Lookups and Updates"*, *accepted by IEEE/ACM Transactions on Networking (github/chavoosh/TrieGranularity)*

Under Review

- C. Ghasemi, H. Yousefi, B. Zhang, *"Keep Calm and Let NDN Stream Videos"*, *submitted to IEEE Network*

HONORS & AWARDS

- Galileo Scholar Award, the finest graduate award of College of Science at The University of Arizona, in 2020
- Fellowship Award from Computer Science department at The University of Arizona, in 2019
- Offered direct full-funded admission to the doctorate program at Sharif University of Technology in 2015
- Ranked 3rd among all students of Information Technology Engineering-Computer Networking at Sharif University of Technology in 2014
- Awarded direct admission to the Master's program in IT Engineering at Sharif University of Technology in 2012

MORE PROJECTS

- **NDN Tools & Protocols**
  One of the main developers and reviewers of the following NDN tools & protocols: A version discovery protocol for NDN (called RDR) and a tool bundle for fetching and publishing content in NDN (called ndnchunks). These projects are implemented in *C++*.
- **DuDJ: A Dumb Digital Jukebox**
  http://dumbjukebox.com
  A modern web-based jukebox, fully compatible with Spotify. This is a free online service that allows anyone to sign up with their Spotify account and run a simple jukebox, right away. With DuDJ, people in a Café, a wedding, or a party can be part of song selection and decide what music they want to listen to! This website is implemented by *React*.
- **Car License Plate Recognition**
  A program to recognize, extract, and categorize car plates from an input collection of car images. The program's accuracy had been tested by using various sample databases and it could successfully pass several unit tests and show a satisfactory performance (in terms of speed and accuracy). This program is implemented in *Matlab*.

MEETINGS & HACKS

Hackathons

- 4th NDN Hackathon, *Memphis, TN*
- 5th NDN Hackathon, *Los Angeles, CA* **(Winner project)**
- 6th NDN Hackathon, *Miami, FL* **(Winner project)**
- 8th NDN Hackathon, *Los Angeles, CA*
- Hack Arizona '18, *Tucson, AZ*

Meetings

- NDNComm '17, *Memphis, TN*
- 9th NDN Retreat, *Los Angeles, CA*
- 10th NDN Retreat, *Los Angeles, CA*
- 11th NDN Retreat, *Tucson, AZ*

ASSOCIATION & MEMBERSHIP

- Peer reviewer of IEEE Networking Letters IEEE
- Chair of Activities at Graduate Students Council (GSC) (*2018 - Present*)
- IEEE Member
- IEEE Young Professionals Group

MUSIC & ART

Instruments: Tombak (**professionally**) (*2001 - Present*), Piano (*2017 - Present*), Santur (*2007 - 2014*)
Ensembles: Saba Orchestra, Gat Orchestra, Darvish Khan Ensemble, Tombak & Daf Ensemble
Compositions: Gray, Childhood, Nothing Lasts, Gone, Galaxy
Composition Tools: Pro Tools, Sibelius
Calligraphy: Elementary Diploma of Calligraphy from Iranian Calligraphy Association (ICA) (*2013*)
Graphic Design: Designed the logo of Arizona Bear Down Krav Maga community (*2017*)

SPORTS

- Judo *(2008 - Present)*
  - 3rd in Judo Black Belts State Championships in *2019*
  - 3rd in Judo State Championships in *2012*
- Krav Maga *(2017 – 2018)*
- Swimming *(1998 - 2000)*
- Badminton *(1997-1999)*
- Basketball *((2001-2005)*