# GAREGIN GRIGORYAN, PH.D.

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## WORK EXPERIENCE

**Alfred University** *Since August 2020*

*Assistant Professor in Computer Science and Math Division*

- Designed and taught Computer Science courses: CSCI-156 and CSCI-157 in-person courses (Computer Science I and II), CSCI-156 online course (Computer Science I), CSCI-205 in-person course (Database Systems), CSCI-315 in-person course (Computer Networks), and CSCI-206 in-person course (Algorithm Design).
- Co-developed the curriculum for the university's new Computer Science program.
- Advised Computer Science major and minor undergraduate students.
- Co-advised graduate students from Rochester Institute of Technology for their research projects.
- University service: Served on multiple university committees. Chaired a faculty search committee.
- Research projects: Green data center networking; Network QoS and Machine Learning; AI performance prediction; Load balancing in containerized clusters; Mitigation of QUIC vulnerabilities in the data plane.
- Published and presented peer-reviewed papers at IEEE conferences.
- Recipient of the "Joseph Kruson Excellence in Teaching" award (2026).

**Rochester Institute of Technology** *May 2018 - August 2020*

*Adjunct Faculty Instructor*
*Research and Teaching Assistant*

- Taught CSCI-651 online course (Foundations of Computer Networks).
- Research projects: FIB compression (aggregating and caching), integrating Kubernetes and RDMA, network security via programmable data plane.
- Held office hours for Computer Algorithms course. Graded weekly tests and exams.

**Cisco Systems** *June 2018 - December 2018*

*Software Engineer Intern*

- Developed and executed performance tests for Mellanox NICs via DPDK, VPP and TREX with a different number of cores/threads enabled and other parameters.
- Developed a software to test Cisco-developed P4 switch. Executed various tests in P4 behavioral model environment (bmv2) and identified several bugs, including a one in the original bmv2 code. The software is still in use at Cisco.
- Administrated RedHat Linux infrastructure and NIC software on several machines of a Cisco Lab in RTP.

**Clarkson University** *January 2016 - May 2018*

*Research and Teaching Assistant*

- Research projects: FIB compression (aggregation and caching), verification of routing tables, IoT security, green-energy aware routing via SDN and programmable data plane.
- Instructed and held office hours for Computer Science I and II, Operating Systems, Computer Networks courses. Received positive evaluation from students.

**Diasoft (Moscow, Russia)** *November 2012 - December 2015*

*Leading Implementation Specialist and Analyst*

- Promoted from an implementation specialist to the leading implementation specialist position.
- Troubleshoot and configure complex multi-modal banking software. Conducted employee training.
- Performed a leading role in multiple projects.
- Recipient of the "Best Employee" award (2014).

**Mother See of Holy Etchmiadzin (Moscow, Russian diocese)** *November 2008 - November 2012*
*Layout and Web Designer*

- Designed the monthly print newspaper.
- Designed and administrated the newspaper's website.

## EDUCATION

**Rochester Institute of Technology, Rochester, NY** *May 2018 - August 2020*
Ph.D., Computer Science.
**Clarkson University, Potsdam, NY** *January 2016 - May 2018*
M.S., Computer Science. Transferred to Rochester Institute of Technology.
**National Research Nuclear University 'MEPhI', Moscow, Russia** *September 2007 - July 2012*
Diploma, Automated data processing and management systems.

## PROFESSIONAL ACTIVITIES

**Reviewer:** IEEE/ACM Transactions on Networking; IEEE Access; IEEE Systems; IEEE OJ-COMS, Elsevier Computer Networks; Elsevier Future Generation Computer Systems; ASTESJ (Advances in Science, Technology and Engineering Systems Journal).
**Conference talks:** IEEE HPSR, Montreal, Canada (2026); IEEE CCNC, Las Vegas, NV (2025); IEEE HPSR, Albuquerque, NM (2023); IEEE CANOPIE HPC, Online (2020); ACM HPDC, Online (2020); ACM CoNEXT, Orlando, FL (2019); IEEE NCA, Boston, MA (2018); IEEE INFOCOM, Honolulu, HI (2018).
**Other activities:** Talks at Bergen Forum, ChatGPT discussion group (both at Alfred University, 2023); "The Responsible Computer Science Challenge" grant, Mozilla Foundation (2022).
**Travel grants:** ACM CoNEXT at UCF (December 9-12, 2019); IEEE ICNP at UIC (October 7-10, 2019); ACM SIGCOMM at UCLA (August 21-25, 2017); NANOG 70 in Bellevue, WA (June 5-7, 2017); GENI Summer Camp at Boston University (May 24-27, 2016); "Oregon Cyber Security Day" workshop at University of Oregon (April 21-22, 2016).
**Poster presentations:** IEEE ICNP, Chicago, IL (2019), UIC; 1st Research and Project Showcase (RAPS), Postdam NY (2017); GENI Engineering Conference 25, Miami FL (2017); 3rd Graduate Student Symposium, Potsdam, NY (2016);
**Patents:** Y. Liu and **G. Grigoryan**, US Patent 11,606,284; US Patent 10,917,338.

## BOOK CHAPTER

Y. Liu, **G. Grigoryan**, Laurent L. Njilla, Charles A. Kamhoua, "Leverage SDN for Cyber Security Deception in Internet of Things" in "Modeling and Design of Secure Internet of Things", John Wiley & Sons, 2020, 704 pages, ISBN: 1119593379, 9781119593379,
https://onlinelibrary.wiley.com/doi/book/10.1002/9781119593386

## PEER-REVIEWED CONFERENCE PUBLICATIONS

- **G. Grigoryan**, D. Mindaye, S. Maini, M. Kwon, "Securing Load Balancing over QUIC", IEEE HPSR 2026, https://ieeexplore.ieee.org/document/11615179.
- **G. Grigoryan**, K. Penkowski, M. Kwon, "P4Kube: In-Network Load Balancer for Kubernetes", IEEE CCNC 2025, https://ieeexplore.ieee.org/document/10976037.
- **G. Grigoryan**, M. Kwon, "Towards Greener Data Centers via Programmable Data Plane", IEEE HPSR 2023, https://ieeexplore.ieee.org/document/10148026.
- S. Chuprov, L. Reznik, **G. Grigoryan**, "Study on Network Importance for ML End Application Robustness", IEEE ICC 2023, https://ieeexplore.ieee.org/document/10279698.
- S. Gupta, D. Gosain, **G. Grigoryan**, M Kwon, HB Acharya, "Simple Deep Packet Inspection with P4", IEEE ICNP 2021, demo abstract, https://ieeexplore.ieee.org/document/9651973.
- **G. Grigoryan**, M. Kwon, M. M. Rafique "Extending the Control Plane of Container Orchestrators for

I/O Virtualization", IEEE CANOPIE HPC 2020, URL: https://ieeexplore.ieee.org/document/9297047.
- **G. Grigoryan**, Y. Liu, M. Kwon "Boosting FIB Caching Performance with Aggregation", ACM HPDC 2020, https://dl.acm.org/doi/abs/10.1145/3369583.3392682
- **G. Grigoryan**, Y. Liu, M. Kwon "iLoad: In-network Load Balancing with Programmable Data Plane", ACM CoNEXT Student Workshop 2019, https://dl.acm.org/doi/abs/10.1145/3360468.3366774.
- C. Link, J. Saran, **G. Grigoryan**, M. Kwon, M. M. Rafique, W. R. Carithers "Container Orchestration by Kubernetes for RDMA Networking", IEEE ICNP 2019, poster abstract, https://ieeexplore.ieee.org/document/8888116.
- **G. Grigoryan**, Y. Liu, "LAMP: Prompt Layer 7 Attack Mitigation With Programmable Data Planes", IEEE NCA 2018, https://ieeexplore.ieee.org/document/8548136.
- Y. Liu, **G. Grigoryan**, "Toward Incremental FIB Aggregation with Quick Selections (FAQS)", IEEE NCA 2018, https://ieeexplore.ieee.org/document/8548101.
- **G. Grigoryan**, Y. Liu, "PFCA: A Programmable FIB Caching Architecture", ACM ANCS 2018, https://dl.acm.org/doi/abs/10.1145/3230718.3230721.
- **G. Grigoryan**, Y. Liu, M. Leczinsky, J. Li, "VeriTable: Fast Equivalence Verification of Multiple Large Forwarding Tables", IEEE INFOCOM 2018, https://ieeexplore.ieee.org/document/8485948.
- **G. Grigoryan**, K. Bahmani, G. Schermerhorn, Y. Liu, "GRASP: a GReen energy Aware SDN Platform", IEEE INFOCOM CNERT 2018,
- **G. Grigoryan**, Y. Liu, L. Njilla, C. Kamhoua, K. Kwiat, "Enabling Cooperative IoT Security via Software Defined Networks (SDN)", IEEE ICC 2018 SAC Symposium, https://ieeexplore.ieee.org/document/8423017.
- **G. Grigoryan,** Y. Liu, "Toward a Programmable FIB Caching Architecture", IEEE ICNP 2017, poster abstract, https://ieeexplore.ieee.org/document/8117584.

## PEER-REVIEWED JOURNAL PUBLICATIONS

- **G. Grigoryan**, Y. Liu, M. Kwon, "PFCA: a programmable FIB caching architecture", IEEE/ACM Transactions on Networking, Volume 28 , Issue 4, 2020, https://dl.acm.org/doi/10.1109/TNET.2020.3001904.
- Y. Liu, **G. Grigoryan**, J. Li, G. Sun, T. Tauber, "VeriTable: Fast Equivalence Verification of Multiple Large Forwarding Tables", Computer Networks, Volume 168, 106981, 2019, https://www.sciencedirect.com/science/article/abs/pii/S1389128618314105.

## COURSES TAUGHT

**Tutoring:** Algebra and Geometry.
**Clarkson University:** Computer Science I, Computer Networks, Operating Systems (lab instructor and TA), Computer Science II (TA).
**Rochester Institute of Technology:** Computer Networks (instructor/course designer) and Computer Algorithms (TA).
**Alfred University:** Instructor and designer of Computer Science I (online and in-person), Computer Science II, Database Systems, Computer Networking, Algorithm Design (all in-person).

## SELECTED INDUSTRY PROJECTS

**Cisco Systems (RTP, NC), 2018:** Developing a test module for a P4 software switch.
**Diasoft, FLEXTERA Accounting Project in VTB Capital (Moscow, Russia), 2015:** Analyst for "Financial Instruments" Module.
**Diasoft, FLEXTERA Back Office Project in International Investments Bank (Moscow, Russia), 2015:** Lead implementation specialist for "Financial Markets" Module. Team leader of "Issuance" Module's development and implementation teams.
**Diasoft, FLEXTERA Front Office Project in Vietnamese International Bank (Hanoi, Vietnam), 2014:** Senior implementation specialist for "Risk Management" module.

## RESEARCH INTERESTS

Routing Scalability, Software-Defined Networking, Programmable Data Plane, Green Computing, Load Balancing, Network Security (Mitigating Application Layer Attacks, Attacks on QUIC), Named Data Networking, RDMA, Machine Learning for Networking.

## PERSONAL PROJECTS

**Garegin Info:** Django-based personal website developed using SQL, HTML, CSS, JavaScript, and jQuery.
**Setlist Manager:** Flask-based multi-user web application that helps musicians organize their repertoire and create setlists. Features user authentication, isolated user workspaces, AI-assisted setlist generation, and extensive use of SQL, JavaScript, AJAX, HTML, and CSS.
**Erger Web:** React-based web application for viewing and transposing song lyrics and chords.
**Erger Mobile App:** Android application for viewing and transposing song lyrics and chords.

## SKILLS

**Programming languages:** C, C++, Python, SQL, Shell, HTML, CSS, Java, Javascript, jQuery, AJAX.
**Computer networking:** P4, FABRIC testbed, SDN, OpenFlow, RYU framework, RDMA.
**Software/Software frameworks:** MariaDB, SQLite, MySQL, DMBS Oracle, IBM Websphere, Android Studio, Django Framework, Bootstrap, React, React Native, scikit-learn.
**Languages:** English, Russian, Armenian, French, Spanish.