

GAREGIN GRIGORYAN, PH.D.

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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.

WORK EXPERIENCE

Alfred University *Since August 2020*

Assistant Professor in Computer Science and Math Division

- Helped designing the curriculum for the new Computer Science program at the university.
- Designed and taught multiple computer science courses, such as 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), CSCI-206 in-person course (Algorithm Design).
- Advised Computer Science major and minor students.
- University service: Served on multiple university committees.
- Research projects: Green data center networking; Network QoS and Machine Learning; AI performance prediction; Load-balancing in containerized clusters. Published and presented papers at IEEE conferences.

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 TRESX 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 setup complex multimodal banking software. Conducted employee training.
- Performed a leading role in multiple projects. “Best employee-2014” awardee.

RESEARCH INTERESTS

Routing scalability, Software-Defined Networking, Programmable Data Plane, Green Computing, mitigating application layer attacks, Named Data Networking, RDMA, Machine Learning.

PROFESSIONAL ACTIVITIES

- **Reviewer:** 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, 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 (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.

PEER-REVIEWED CONFERENCE PUBLICATIONS

- G. Grigoryan, M. Kwon, “Towards Greener Data Centers via Programmable Data Plane”, IEEE HPSR 2023.
- S. Chuprov, L. Reznik, G. Grigoryan, “Study on Network Importance for ML End Application Robustness”, IEEE ICC 2023.
- S. Gupta, D. Gosain, G. Grigoryan, M Kwon, HB Acharya, “Simple Deep Packet Inspection with P4”, IEEE ICNP 2021, poster abstract.
- G. Grigoryan, M. Kwon, M. M. Rafique “Extending the Control Plane of Container Orchestrators for I/O Virtualization”, IEEE CANOPIE HPC 2020.
- G. Grigoryan, Y. Liu, M. Kwon “Boosting FIB Caching Performance with Aggregation”, ACM HPDC 2020.
- G. Grigoryan, Y. Liu, M. Kwon “iLoad: In-network Load Balancing with Programmable Data Plane”, ACM CoNEXT Student Workshop 2019.
- C. Link, J. Sarran, G. Grigoryan, M. Kwon, M. M. Rafique, W. R. Carithers “Container Orchestration by Kubernetes for RDMA Networking”, IEEE ICNP 2019, poster abstract.
- G. Grigoryan, Y. Liu, “LAMP: Prompt Layer 7 Attack Mitigation With Programmable Data Planes”, IEEE NCA 2018.
- Y. Liu, G. Grigoryan, “Toward Incremental FIB Aggregation with Quick Selections (FAQS)”, IEEE NCA 2018.

- **G. Grigoryan**, Y. Liu, “PFCA: A Programmable FIB Caching Architecture”, ACM ANCS 2018.
- **G. Grigoryan**, Y. Liu, M. Leczinsky, J. Li, “VeriTable: Fast Equivalence Verification of Multiple Large Forwarding Tables”, IEEE INFOCOM 2018.
- **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.
- **G. Grigoryan**, Y. Liu ”Toward a Programmable FIB Caching Architecture”, IEEE ICNP 2017, poster abstract.

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.
- 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.

CLASSES 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.

SKILLS

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