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Dragos Dumitrescu

Education

- 2017– **PhD**, *University Politehnica Bucharest, Faculty of Automatic Control and Computer Science, Computer Science Department*, Bucharest.
Topic: Cloud network verification. **Advisor:** Dr. Costin Raiciu. Publications in SIGCOMM and NSDI conferences
- 2015–2017 **Master's Degree**, *University Politehnica Bucharest, Faculty of Automatic Control and Computer Science, Computer Science Department, Advanced Computer Network Security*, Bucharest.
Network security, network and system design and administration
- 2011–2015 **Bachelor's Degree**, *University Politehnica Bucharest, Faculty of Automatic Control and Computer Science, Computer Science Department*, Bucharest.
Networking, distributed computing, software engineering, algorithms and data structures
- 2007–2011 **Baccalaureate**, *Tudor Vianu National High School of Computer Science*, Bucharest.
Mathematics, physics, informatics. Prizes and awards in National and International Olympiads in Mathematics and Physics

Experience

- 2020– **Engineering Team Lead (co-founder)**, *Correct Networks*, Bucharest, Romania.
Leading the control-plane team in developing EQDSmon, a monitoring solution for datacenter networks
- Designing and implementing a network monitoring and verification solution
 - Adding protocol support in P4
 - Tuning high-performance host network code - DPDK
- 2017– **Junior Researcher**, *University Politehnica of Bucharest*, Bucharest, Romania.
Network middle-box verification:
- Modeling and verifying correctness in cloud environments
 - Refining and enhancing models and execution patterns
 - Formal methods applied for network verification
 - Formalizing and defining network semantics and verification problems
 - Synthesizing correctness specifications for P4 controllers
- Feb 2018 – **Research Intern**, *Microsoft Research Cambridge*, Cambridge, UK.
- Jul 2018 Enhance performance of network verification tools at MicrosoftActivities:
- Designed and implemented algorithms to speed up network simulation and verification for large scale data-centers
 - Increased performance of BGP simulation by up to an order of magnitude

2015–2017 **Control Systems Engineer**, *Extreme Light Infrastructure - Nuclear Physics. Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH)*, Magurele, Romania.

Slow control and data acquisition for the High Power Laser System

- Design and development of control and data acquisition applications - C++, Python, Java (Distributed Control Systems)
- Investigated controller synthesis problem in deriving operational procedures

2013–2015 **Software Developer**, *Netsun Software SRL*, Bucharest, Romania.

Delivering large-scale applications as part of a small team

- Web and Mobile Application Development - Android, C# .NET
- Database design and application development

Computer skills

Programming Languages Advanced in C++, Java, C#, Python, Scala, P4, good knowledge of C

Tools z3 SMT solver, P4 compiler infrastructure

Operating Systems Installing, configuring and deploying services under Linux (Debian-based systems)

Networking Network administration skills in Linux and CISCO iOS (formerly CCNA certified) Good understanding on OpenFlow, OpenvSwitch, Neutron (OpenStack's networking service). Very good knowledge of the P4 switch programming language, P4 runtime and its underlying target architectures. Configuring and understanding the BGP routing protocol.

Interests

- Cloud computing
- Software defined networking
- Network architectures
- Model checking
- Program verification
- Network protocols
- Mathematics
- Programmable networks

Languages

Romanian **Native**

English **Fluent**

French **Fluent**

Publications

Dragos Dumitrescu, Radu Stoenescu, Lorina Negreanu, and Costin Raiciu. Bf4: Towards bug-free p4 programs. In *Proceedings of the Annual Conference of the ACM Special Interest Group on Data Communication on the Applications, Technologies, Architectures, and Protocols for Computer Communication*, SIGCOMM '20, page 571–585, New York, NY, USA, 2020. Association for Computing Machinery.

Mihai Valentin Dumitru, Dragos Dumitrescu, and Costin Raiciu. Can we exploit buggy p4 programs? In *Proceedings of the Symposium on SDN Research*, SOSR

'20, page 62–68, New York, NY, USA, 2020. Association for Computing Machinery.

Dragos Dumitrescu, Radu Stoenescu, Matei Popovici, Lorina Negreanu, and Costin Raiciu. Dataplane equivalence and its applications. In *Proceedings of the 16th USENIX Conference on Networked Systems Design and Implementation, NSDI'19*, page 683–697, USA, 2019. USENIX Association.

Radu Stoenescu, Dragos Dumitrescu, Matei Popovici, Lorina Negreanu, and Costin Raiciu. Debugging p4 programs with vera. In *Proceedings of the 2018 Conference of the ACM Special Interest Group on Data Communication, SIGCOMM '18*, page 518–532, New York, NY, USA, 2018. Association for Computing Machinery.

Radu Stoenescu, Dragos Dumitrescu, and Costin Raiciu. Openstack networking for humans: Symbolic execution to the rescue. In *IEEE International Symposium on Local and Metropolitan Area Networks, LANMAN 2016, Rome, Italy, June 13-15, 2016*, pages 1–6, 2016.