

# Oliver Michel

## Academic Curriculum Vitae

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### Education

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#### **Philosophical Doctor (Ph.D.), Computer Science**

University of Colorado Boulder, Aug. 2015 – Aug. 2019

Research Area: Systems & Networking

Thesis: Cloud-Scale Packet-Level Network Telemetry & Analytics

#### **Master of Science (M.S.), Computer Science**

University of Colorado Boulder, Aug. 2013 – May 2015

#### **Bachelor of Science (B.Sc.), Computer Science**

University of Vienna, Austria, Jan. 2009 – Jan. 2013

Thesis: Adaptive Source Routing and Speculative Execution for Multi-Homed Wireless Clients in Preclinical Medical Care

### Work History

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#### **Backend Software Engineer**

TourRadar GmbH, Vienna, Austria, Aug. 2019 – Feb. 2020

#### **Graduate Research Assistant**

University of Colorado Boulder, USA, Aug. 2013 – May 2019

#### **Undergraduate Research Assistant (part-time)**

University of Vienna, Austria, Oct. 2010 – Jun. 2011 and Aug. 2012 – Jan. 2013

#### **Software Engineer (part-time)**

Tupalo Internetservices GmbH, Vienna, Austria, Jun. 2009 – Jun. 2011

### Publications

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#### **Network Defragmentation in Virtualized Data Centers**

Oliver Michel, Eric Keller, Fernando M.V. Ramos

6th IEEE International Conference on Software Defined Systems (SDS-2019), Rome, Italy, 2019

#### **PIQ: Persistent Interactive Queries for Network Analytics**

Oliver Michel, John Sonchack, Eric Keller, Jonathan M. Smith

ACM International Workshop on Security in Software Defined Networks & Network Function Virtualization (SDN-NFV Sec. 2019), Dallas, TX, USA, 2019

#### **Packet- Level Analytics in Software without Compromises**

Oliver Michel, John Sonchack, Eric Keller, Jonathan M. Smith

10th USENIX Workshop on Hot Topics in Cloud Computing (HotCloud '18), Boston, MA, USA, 2018

#### **Scaling Hardware Accelerated Monitoring to Concurrent and Dynamic Queries With \*Flow**

John Sonchack, Oliver Michel, Adam J. Aviv, Eric Keller, Jonathan M. Smith

2018 USENIX Annual Technical Conference (ATC '18), Boston, MA, USA, 2018

#### **Machine Learning-Based Detection of Ransomware using SDN**

Greg Cusack, Oliver Michel, Eric Keller

ACM International Workshop on Security in Software Defined Networks & Network Function Virtualization (SDN-NFV Sec. 2018), Tempe, AZ, USA, 2018

**SDN in Wide-Area Networks: A Survey**

Oliver Michel, Eric Keller

4th IEEE International Conference on Software Defined Systems (SDS-2017), Valencia, Spain, 2017

**Policy Routing using Process-Level Identifiers**

Oliver Michel, Eric Keller

3rd IEEE Intl. Symposium on Software Defined Systems (SDS-2016), Berlin, Germany, 2016

**Applying Operating System Principles to SDN Controller Design**

Matthew Monaco, Oliver Michel, Eric Keller

12th ACM Workshop on Hot Topics in Networks (HotNets-XII), College Park, MD, USA, 2013

**More is Less: Reducing Latency via Redundancy**

Ashish Vulimiri, Oliver Michel, P. Brighten Godfrey, Scott Shenker

ACM Workshop on Hot Topics in Networks (HotNets-XI), Redmond, WA, USA, 2012

**Invited Talks**

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**Packet-Level Network Telemetry and Analytics**

University of Vienna, April 2019

**Cloud-Scale Packet-Level Network Telemetry and Analytics**

North American Network Operators Group General Meeting 73, Denver, CO, June 2018

**Network Defragmentation in Virtualized Data Centers**

University of Lisbon, September 2017

**Applying Operating System Principles to SDN Controller Design**

University of Illinois at Urbana-Champaign, April 2014

**More is Less – Reducing Latency via Redundancy**

University of Colorado Boulder, April 2013

**Posters**

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**Scalable, Hardware-Accelerated Network Analytics**

Oliver Michel, John Sonchack, Adam J. Aviv, Eric Keller

15<sup>th</sup> USENIX Symposium on Networked System Design and Implementation (NSDI '18), Renton, WA, USA, 2018

**Machine Learning-Based Fingerprinting of Network Traffic using Programmable Forwarding Engines**

Greg Cusack, Oliver Michel, Eric Keller

NDSS Security Symposium 2018, San Diego, CA, USA, 2018 – Won Best Poster Award

**Defragmenting the Cloud**

Oliver Michel, Eric Keller

13<sup>th</sup> USENIX Symposium on Networked System Design and Implementation (NSDI '16), Santa Clara, CA, USA, 2016

**Extending the Software-Defined Network Boundary**

Oliver Michel, Michael Coughlin, Eric Keller

ACM SIGCOMM 2014 Conference, Chicago, IL, USA, 2014

**Making the Live Network the Honey-pot**

Michael Coughlin, Oliver Michel, Eric Keller

11<sup>th</sup> USENIX Symposium on Networked System Design and Implementation (NSDI '14), Seattle, WA, USA, 2014

**Applying Operating System Principles to SDN Controller Design**

Oliver Michel, Matthew Monaco, Eric Keller

18<sup>th</sup> GENI Engineering Conference, New York, NY, USA, 2013

## **Multihoming and Adaptive Multipath Transmission using off-the-shelf Components in Preclinical Medical Care**

Oliver Michel, David Stezenbach, Kurt Tutschku

10<sup>th</sup> USENIX Symposium on Networked System Design and Implementation (NSDI '13), Chicago, IL, USA, 2013

## **Adaptive Source Routing**

Oliver Michel, Ashish Vulimiri, P. Brighten Godfrey

12<sup>th</sup> GENI Engineering Conference, Los Angeles, CA, USA, 2012

## Technical Reports

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### **Applying Operating System Principles to SDN Controller Design**

Matthew Monaco, Oliver Michel, Eric Keller

University of Colorado Technical Report, 2015

## Teaching

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### **Guest Lecturer, ECEN5008 Advanced Computer and Networked System Security**

Professor Eric Keller

University of Colorado Boulder, Fall 2017

### **Guest Lecturer, ECEN5013, Advanced Computer Networks**

Professor Eric Keller

University of Colorado Boulder, Fall 2013, Fall 2015, Fall 2016

### **Teaching Assistant, CSCI2400 Computer Systems**

Professor Richard Han

University of Colorado Boulder, Fall 2013

### **Staff Tutor, VO Networking Technologies**

Professor Kurt Tutschku

University of Vienna, Spring 2012

## Internships

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### **WAN Automation Software Engineer**

Juniper Networks OpenLab, Bridgewater, NJ, USA, Summer 2016

### **Research Intern**

University of Colorado Boulder, CO, USA, Summer 2013

Advised by Professor Eric Keller

### **Research Intern**

Information Trust Institute, University of Illinois at Urbana-Champaign, IL, USA, Summer 2012

Advised by Professor Brighten Godfrey

### **Research Intern**

Department of Computer Science, University of Illinois at Urbana-Champaign, IL, USA, Winter 2011

Advised by Professor Brighten Godfrey

## Awards and Fellowships

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- Best Technical Poster Award, NDSS 2018
- Dean's Outstanding Merit Fellowship, University of Colorado Boulder
- Joint Study Scholarship, University of Vienna, Austria