

Laurent VANBEVER

Associate professor, PhD & MSc in computer science, MSc in management

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Education

- 2008–2012 PhD in computer science, **University of Louvain** (Belgium)
Advised by Prof. Olivier Bonaventure.
PhD thesis: *Methods and Techniques for Disruption-Free Network Reconfiguration*.
- 2008–2010 Master in management, **Solvay Brussels School of Economics and Management** (Belgium)
Graduated *magna cum laude*, ranked 1 out of 100 students.
Specialization: Finance. Master's thesis (advised by Prof. S. Peffer):
Liquidity analysis of the belgian non-regulated stock market. How to improve it?
- 2003–2008 Master in computer science (ingénieur civil), **University of Louvain** (Belgium)
Graduated *magna cum laude*, ranked 1 out of 30 students.
Specialization: Networks and security. Master's thesis (advised by Prof. O. Bonaventure):
Automatic generation and validation of network configurations.

Experience

- 2020– Associate professor (with tenure), **ETH Zürich**, Switzerland
- 2015–2019 Assistant professor (tenure-track), **ETH Zürich**, Switzerland
I bootstrapped the *Networked Systems Group* within the Information Technology and Electrical Engineering department (D-ITET).
- 2012–2014 Postdoctoral research associate, **Princeton University**, New Jersey, USA
I collaborated with Prof. Jennifer Rexford on developing new abstractions on top of Software Defined Networks (SDN) to enable better network management.
- My projects included:
- Applying SDN design principles to cellular networks and Internet routing (BGP),
 - Developing techniques and tools to upgrade SDN controllers in a disruption-free manner,
 - Developing transition mechanisms to deploy SDN within traditional IP networks,
 - Scaling Internet routing through filtering without requiring global coordination.
- 2012–2014 Research advisor, **Princeton University**, New Jersey, USA
I advised three graduate students working on cellular core networks and Internet Exchange Points, as well as one undergraduate student working on SDN.

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| Oct–Nov 2011 | Visiting researcher, Roma Tre University , Rome, Italy I implemented a reconfiguration framework and performed large-scale network analysis. |
| Feb–Mar 2011 | Visiting researcher, Internet Initiative Japan Innovation Institute , Tokyo, Japan I developed and validated seamless reconfiguration mechanisms for both IGP and BGP. |
| Summer 2007 | Intern, Belgian national research network (BELNET), Brussels, Belgium I collaborated on the design and on the implementation of Quality of Service in the network. |
| 2007–2015 | Project leader, Alain & Evelyne Morel de Westgaver Art Auctions , Brussels, Belgium I designed and implemented a live auction management software. Between 2007 and 2015, I have provided customer support and extended the software which is still used daily. I have also actively collaborated in the organization and the operation of 3 to 4 art auctions per year. |

Honors and awards

| | |
|-----------|---|
| 2021 | Maria Apostolaki “Rising Stars in Networking and Communications” (as advisor) 2 × IETF/IRTF Applied Networking Research Prizes (ANRP) for our works on: <ul style="list-style-type: none"> ■ network specification inference; and ■ making distributed routing protocols flexible. |
| 2020 | Credit Suisse Award for Best Teaching, ETH Zürich ACM SIGCOMM Best Student Paper Award ACM SIGCOMM Best of CCR Paper Award |
| 2019 | ERC Starting Grant (SyNET) Golden Owl Teaching Award, ETH Zürich Coralie Busse-Grawitz ABB Research Award (as advisor) |
| 2018 | IETF/IRTF Applied Networking Research Prize (for our work on routing attacks) |
| 2017 | Roland Meier CyCon Junior Scholar Award (as advisor) |
| 2016 | Golden Owl Teaching Award, ETH Zürich Usenix NSDI Community Award IETF/IRTF Applied Networking Research Prize (for our work on network programmability) Roland Meier ETH Silver Medal for outstanding master thesis (as advisor) |
| 2015 | ACM SIGCOMM Best Paper Award IETF/IRTF Applied Networking Research Prize (for our work on routing scalability) |
| 2013 | IEEE ICNP Best Paper Award IETF/IRTF Applied Networking Research Prize (for our work on network reconfiguration) |
| 2012 | ACM SIGCOMM Doctoral Dissertation Award (runner up) University of Louvain/ICTEAM Best PhD Thesis Award |
| 2008–2012 | PhD scholarship from the Belgian scientific research foundation (FNRS/FRIA grant) |
| 2010 | CeFiP Academic Award Belgium for my master’s thesis on SMEs financing |
| 2008 | Alcatel-Lucent Innovation Award for my master’s thesis on network configuration |
| 2007 | Winner of the Belgium BEST Engineering Competition (beBEC) |

Languages

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| French | Native |
| English | Fluent |
| German | Fair knowledge |
| Dutch | Fair knowledge (albeit passive) |

Teaching

Communication Networks

Spring 2016, 2017, 2018, 2019, 2020, 2021

| Students rating (/5.0) | 2016 | 2017 | 2018 | 2019 | 2021 |
|------------------------|-------|-------|-------|--------|--------|
| ■ Average | 4.4 | 4.7 | 4.4 | 4.6 | 4.7 |
| ■ Median | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| # Respondents/Total | 43/99 | 31/79 | 37/88 | 52/100 | 44/124 |

Advanced Topics in Communication Networks

Fall 2018, 2019, 2020, 2021

| Students rating (/5.0) | 2018 | 2019 | 2020 |
|------------------------|-------|-------|-------|
| ■ Average | 4.6 | 4.9 | 4.5 |
| ■ Median | 5.0 | 5.0 | 5.0 |
| # Respondents/Total | 18/25 | 19/41 | 27/61 |

Discrete Event Systems

Fall 2015, 2016, 2017, 2018, 2020, 2021

co-taught with Prof. Roger Wattenhofer and Prof. Lothar Thiele

Seminar in Communication Networks

Spring 2019, 2021

Computer Networks Seminar

Fall 2020

co-taught with Prof. Ankit Singla

I only list the students ratings for the lectures where I am the sole teacher and when available.

Research awards

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|-----------|--|
| 2019-2024 | European Research Council (ERC) Starting Grant “From Network Verification to Synthesis: Breaking New Ground in Network Automation” (SyNET) |
| 2019-2022 | Armasuisse & Zurich Information Security and Privacy Center (ZISC) “Self-Securing Networks” |
| 2017-2020 | Swiss National Science Foundation (SNF) “Data-Driven Internet Routing” |
| 2017-2020 | Armasuisse & Zurich Information Security and Privacy Center (ZISC) “Improving network security through programmability” |
| 2017-2018 | Google Inc. (unrestricted gift) “Transport protocol development and standardization” |
| 2016-2018 | European Project Horizon 2020, Principal Investigator “MAMI: Measurement and Architecture for a Middleboxed Internet” |
| 2016-2017 | Armasuisse & Zurich Information Security and Privacy Center (ZISC) “Context-aware Digital Incident Data Compression and Representation” |

Research group

| | | | | |
|------------|-----------------|-----------------------|--|--|
| PhD | 12 | Tibor Schneider | Apr 2021- | |
| | | Ege Cem Kirci | Sep 2020- | |
| | 10 | Roland Schmid | Sep 2020- | |
| | | Rui Yang | Sep 2020- | |
| | | Coralie Busse-Grawitz | Feb 2020- | |
| | | Albert Gran Alcoz | Mar 2019- | |
| | | Alexander Dietmüller | Oct 2018- | |
| | 5 | Edgar Costa Molero | Mar 2017- | |
| | | Roland Meier | Jan 2017- | |
| | | Tobias Bühler | Nov 2016- | |
| | Rüdiger Birkner | July 2016- | co-supervised with Prof. Martin Vechev | |
| | 1 | Thomas Holterbach | Jan 2016- | |
| PhD Alumni | | Maria Apostolaki | Sep 2015–July 2021 | now postdoc at Carnegie Mellon University; then Assistant professor (TT) at Princeton University |
| | | Ahmed El-Hassany | June 2015–Sept 2019 | now at Swisscom |
| Post-doc | | Romain Jacob | May 2020- | |
| | | Mirja Kühlewind | Oct 2015–Feb 2019 | now at Ericsson Research |
| | | David Gugelmann | Nov 2015–Nov 2016 | now CEO at Exeon Analytics |
| | | Bernhard Ager | Aug–Dec 2015 | now at Google |
| Researcher | | Brian Trammel | Jan 2016–Dec 2018 | now at Google |

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|--------|--------------------|-------------------|---|
| Intern | Sharat Madanapalli | Feb-May 2020 | from UNSW Sydney |
| | Albert Gran Alcoz | Jan-July 2019 | from Universitat Politècnica de Catalunya |
| | Olivier Tilmans | September 2017 | from University of Louvain |
| | Tobias Bühler | Jan-Sept 2016 | |
| | Olivier Tilmans | May-June 2016 | from University of Louvain |
| | Shouxi Luo | Oct 2015-Sep 2016 | from UESTC |
| | Nick Shelly | Sep 2015-May 2016 | from Stanford University |
| | Michael Alan Chang | Jan-Jun 2015 | from Princeton University/UC Berkeley |
| | Roland Meier | Oct 2015-Feb 2016 | |
| | Rüdiger Birkner | July-Aug 2015 | |
| | Liang Zhang | July-Aug 2015 | from Hong Kong Polytechnic University |
| | Thomas Holterbach | Jan-Dec 2015 | |

Master and semester theses

Our group has supervised **51** master [M], **62** semester [S], and **3** bachelor theses [B] since 2015.
The theses which lead to a peer-reviewed publication are indicated with a ●

- 2021
- [M] David Carminati (supervised jointly with T. Schneider)
“Optimizing Network Convergence in the SWITCH Network”
 - [M] Eric Marty (supervised jointly with A. Gran Alcoz and C. Busse-Grawitz)
“P4 Blocks: P4-Programming Made Easy!”
 - [M] Tim Bohren (supervised jointly with C. Busse-Grawitz)
“On the Feasibility of using Segment Routing for Telco Networks”
 - [M] Hendrik Züllig (supervised jointly with T. Bühler)
“Stateful Tofino-based Traffic Generator”
 - [S] Zhengqing Liu (supervised jointly with R. Jacob)
“Routing in P4”
 - [M] Patrick Wintermeyer (supervised jointly with M. Apostolaki, E. Costa Molero, and A. Dietmüller)
“Profile-Guided Network Optimizations”
 - [S] Sunniva Flück (supervised jointly with E. Cem Kirci and R. Meier)
“Website Fingerprinting”
 - [S] Yu Chen (supervised jointly with R. Yang and R. Birkner)
“Automated BGP Policy Analysis”
 - [S] Kévin Selänne (supervised jointly with R. Jacob)
“Process Mining for Networking”
 - [B] Dominic Bieri (supervised jointly with R. Schmid)
“Networking meets BFT—Extended!”
 - [S] Siddhant Ray (supervised jointly with E. Costa Molero)
“Hardware and Software Codesign of Network Planes”
 - [B] Alex Studer (supervised jointly with T. Bühler and T. Holterbach)
“Towards a not so mini mini-Internet”
 - [B] Fredrik Nestaas (supervised jointly with A. Dietmüller and R. Jacob)
“In Search of Network Shifts”
 - [S] Sandro Lutz (supervised jointly with T. Bühler and T. Holterbach)
“Towards a full implementation of RPKI in the mini-Internet”
 - [S] Jurij Nota (supervised jointly with E. Costa Molero)
“Improving current P4 prototyping tools”
 - [S] Lina Gehri (supervised jointly with R. Birkner and A. Dietmüller)
“NANOG Mailing List Analysis”
 - [S] Martin Vahlensieck (supervised jointly with T. Holterbach)
“An auto-grading framework for the mini-Internet”
 - [S] Marc Ilunga (supervised jointly with R. Schmid)
“Networking meets BFT”

2020

- [M] Tibor Schneider (supervised jointly with R. Birkner)
 - “Synthesizing Network-Wide Configuration Updates”
- [M] Cedric Maire (supervised jointly with M. Apostolaki)
 - “De-anonymizing Users of Cryptocurrencies”
- [S] Lioba Heimbach
 - “Latency-Aware Protocol for Real-Time Video Applications”
- [S] Eric Marty (supervised jointly with T. Bühler and T. Holterbach)
 - “A framework for collecting data traffic from real networks”
- [S] Robin Berner (supervised jointly with A. Gran Alcoz and A. Dietmüller)
 - “Improving Performance with Network aware Scheduling Algorithms”
- [M] Robin Berner (supervised jointly with C. Busse-Grawitz and R. Birkner)
 - “Extending NetComplete”
- [M] Tino Rellstab (supervised jointly with T. Holterbach)
 - “On combining SWIFT and Blink to improve Internet convergence”
- [S] Barth Carsten (supervised jointly with R. Meier)
 - “Network behavior monitoring in the data plane”
- [M] Matthias Bräm (supervised jointly with R. Meier)
 - “Developing a Semi-Automated Framework to Label Network Traffic Datasets”
- [M] Noa Melchior (supervised jointly with A. Gran Alcoz and R. Meier)
 - “Self-protecting Networks from IoT-based Attacks”
- [M] Tobias Brodmann (supervised jointly with R. Birkner and P. Tsankov)
 - “Metha: Network Verifiers Need To Be Correct Too!”
- [S] Denis Mikhaylov (supervised jointly with T. Bühler and T. Holterbach)
 - “Implementing the RPKI infrastructure in a virtual mini-Internet”
- [M] Livio Sgier (supervised jointly with T. Bühler)
 - “Visualizing BGP RIB Changes into Forwarding Plane by Leveraging BMP and IPFIX”
- [S] Tim Bohren (supervised jointly with C. Busse-Grawitz and R. Birkner)
 - “A Network-Wide Configuration Fuzzer”
- [S] Kirill Meisser (supervised jointly with R. Birkner)
 - “BGP Verification without Specification”
- [S] Patrick Wintermeyer (supervised jointly with M. Apostolaki and A. Dietmüller)
 - “Traffic-Aware Compilation”
- [M] Manuel Pulfer (supervised jointly with T. Bühler and T. Holterbach)
 - “Anonymized traffic trace collection in the data plane”

- [S] Yannick Merkli (supervised jointly with R. Meier)
“Evaluating and Defeating Network Flow Classifiers Through Adversarial Machine Learning”
- [S] Leonardo Rodoni (supervised jointly with T. Bühler)
“High-performance traffic generation”
- [S] Boya Wang (supervised jointly with M. Apostolaki and A. Dietmüller)
“Meta Congestion Control”
- [S] Long He (supervised jointly with M. Apostolaki and A. Dietmüller)
“Ensuring Transport Fairness with Smart Networks”

2019

- [M] Jan Müller (supervised jointly with A. Gran Alcoz and R. Meier)
“Traffic-analysis attacks over encrypted HTTP from the data plane”
- [M] Tomer Gidron (supervised jointly with R. Meier)
“Developing a Dataset with Coordinated Network Attacks”
- [M] Stephan Keck (supervised jointly with T. Holterbach)
 - “On Making Blink Deployable in Practice”
- [S] Tibor Schneider (supervised jointly with E. Costa Molero and R. Meier)
“Automatic Generation of Adversarial Workload for Programmable Switches”
- [S] Matthias Stähli (supervised jointly with R. Meier)
 - “Network Performance Obfuscation”
- [S] Tom Kuchler (supervised jointly with T. Bühler)
“A test framework to verify end point implementations”
- [S] Tino Rellstab (supervised jointly with T. Bühler and T. Holterbach)
 - “Network virtualization—creating arbitrary networks with one click”
- [S] Ege Cem Kirci (supervised jointly with A. Singla)
“Securing the network against malicious programmable switches”
- [M] Nico Schottelius (supervised jointly with T. Bühler)
“High speed NAT64 with P4”
- [M] Christelle Gloor (supervised jointly with D. Desislava)
“Exploring data-centre topology structure for low-overhead active monitoring”
- [S] Hendrik Züllig (supervised jointly with T. Bühler)
“P4 programming on the SUME NetFPGA board”
- [S] Ege Cem Kirci (supervised jointly with R. Meier)
“P4-based Header Obfuscation”
- [S] Manuel Pulfer (supervised jointly with M. Apostolaki)
“Multi-path Routing”
- [S] Hanjing Gao (supervised jointly with R. Birkner)
“Automatic BGP Configuration Analysis and Summarization”
- [S] Tomer Gidron (supervised jointly with R. Meier)
“Monitoring and Controlling Network Reconnaissance using Programmable Networks”
- [S] Stephan Keck (supervised jointly with T. Holterbach)
“Securing data-plane-driven fast-reroute systems”
- [M] Coralie Busse-Grawitz (supervised jointly with R. Meier, T. Bühler, A. Dietmüller)
“Leveraging Network Programmability for Machine Learning”

2018

- [M] Dimitra Azariadi (supervised jointly with R. Meier)
“Traffic Matrix Obfuscation”
- [M] Nicolas Käzig (supervised jointly with R. Meier, L. Gambazzi and V. Lenders)
 - “Network Monitoring and Attack Detection”
- [S] Noah Studach (supervised externally by M. Kühlewind and B. Trammell)
“Measuring support for Protocols on the Internet”
- [S] Rolf Scheuner (supervised externally by M. Kühlewind and B. Trammell)
“Representation of Internet Path Transparency”
- [M] Alexander Dietmüller (supervised jointly with T. Bühler)
“Next-generation network monitoring using programmable network devices”
- [M] Philipp Mao (supervised jointly with R. Birkner)
“Expanding Net2Text to analyze multiple time points”
- [M] Alberto Gran Alcoz (supervised jointly with E. Costa Molero)
“On Offloading Control Plane Applications to the Data Plane”
- [M] Pierre Dumont-dit-Voitel (externally supervised by A. Giner)
“Analytics System for Internet Security Dataset”
- [M] Fabian Schleiss (supervised jointly with T. Holterbach and E. C. Molero)
“Data-plane driven network convergence”
- [M] Samuel Steffen (supervised jointly with P. Tsankov, D. Drachslers-Cohen, T. Gehr, M. Vechev)
“Probabilistic Network Analysis and Synthesis”
- [M] Giorgio Tresoldi (externally supervised by V. Lenders and D. Moser)
“Verifying ADS-B Position Claims with Passive Radar”
- [M] Piet De Vaere (supervised jointly with M. Kuehlewind and B. Trammel)
 - “Adding measurability to QUIC”
- [S] Coralie Busse-Grawitz (supervised jointly with R. Meier)
“Data-driven classification and isolation of network devices”
- [S] Gian Marti (supervised jointly with M. Apostolaki)
 - “Safeguarding Bitcoin Against Active Routing Attack”
- [M] Ruggiero Dargenio (externally supervised by U. O’Reilly, MIT)
“Learning Defenses in Computer Networks: Neural Networks Approach”
- [S] Jan Müller (supervised with M. Apostolaki)
 - “Protecting Blockchain Applications with Programmable Networks”
- [S] Noa Melchior (externally supervised by P. Tsankov and M. Vechev)
“Data Privacy in Decentralized Networks”
- [S] Alexander Hedges (supervised with A. El-Hassany)
“Grigori: Does the network work as I expected?”
- [S] Jan-Philipp Schulze (externally supervised by M. Apostolaki and D. Guggelmann)
“Data-Driven Performance Correlation”
- [S] Norwin Schnyder (externally supervised by A. Jaggi)
“Building Threat Intelligence from Internet Background Noise”

2017

- [M] Nicola Rustignoli (supervised jointly with D. Dimitrova and J. Liagouris)
“Constraint-based routing as a stream computation”
- [M] Michael Walter (externally supervised by with B. Trammell and M. Kühlewind)
“Tracing Internet Path Transparency”
- [S] Pierre Dumont-dit-Voitel (externally supervised by V. Lenders, R. Meier, and D. Guggelmann)
 - “Detection of Malicious Remote Shell Sessions”
- [S] Christof Gerber (externally supervised by D. Guggelmann)
“Passive Detection of Tor Domain Fronting”
- [M] Cornelia Scherrer (externally supervised by D. Gugelmann, V. Lenders, and R. Meier)
“Analysis of Cyber Threat Intelligence Feeds”
- [M] Andreas Germann (externally supervised by M. Kühlewind and B. Trammell)
“Evaluation of AQM schemes to support Low Latency in the Internet”
- [M] Andreas Pantelopoulos (supervised jointly with M. Apostolaki and E. C. Molero)
“Towards accurate simulations of programmable dataplanes”
- [M] Antonios Karkatsoulis (supervised jointly with Prof. A. Singla)
“Exploring the impact of TCP/IP parameter tuning on performance”
- [S] Fabian Schleiss (supervised jointly with R. Meier)
“In-network Anomaly Detection with Programmable Switches”
- [S] Giorgio Tresoldi (externally supervised by V. Lenders)
“A FLARM Receiver for Crowdsourced Air Traffic Monitoring”
- [S] Christelle Gloor (supervised jointly with A. El-Hassany)
“Chronos: Finding the configurations recipe for fast convergence”
- [S] Simon Miescher (supervised jointly with T. Holterbach)
“A Fast and Loop-Free Convergence upon Remote BGP Disruptions in Large IP Networks”
- [S] Philipp Mao (supervised jointly with T. Holterbach and R. Birkner)
 - “Boosting the convergence performance of SDX platforms”
- [S] Piet De Vaere (externally supervised by M. Kühlewind and B. Trammell)
“Continuous Measurements of Internet Path Transparency”
- [S] Floyd Basler (supervised jointly with M. Apostolaki)
“Detecting and mitigating network attacks on Bitcoin”

2016

- [M] Roman May (supervised jointly with A. El-Hassany)
 - “Practical Concurrency Analysis for SDN”
- [M] Ferran Llamas Arroniz (supervised jointly with Prof. Dr. S. Vissicchio, UCL London)
“Improving Load-Balancing in IP-based Data Centers with Fibbing”
- [S] Stefan Rietmann
“Applying meaningful destruction in Software-Defined Networks”
- [S] Dominic Brüttsch (externally supervised by M. Kühlewind and B. Trammell)
“Cooperating with Middleboxes in the Internet”
- [M] Pavlos Lamprakis (externally supervised by with D. Gugelmann and M. Happe)
 - “Human or malware? Detection of malicious Web requests”
- [M] Edgar Costa Molero
“Improving Load-Balancing Decisions in Data Center Networks Using SDN”
- [S] Severin Amrein (externally supervised by M. Kühlewind and D. Gugelmann)
“Does your phone spy on you?”
- [S] Ruggiero Dargenio (externally supervised by D. Gugelmann)
 - “Accurate classification of Web requests”
- [M] Elio Gubser (externally supervised by B. Trammell and M. Kühlewind)
 - “Building a Path Transparency Observatory”
- [M] Rüdiger Birkner (supervised jointly with Prof. Dr. N. Feamster, Princeton University)
 - “On the Correctness of Inter-Domain Deflections”
- [M] Stephan Dollberg (supervised jointly with Prof. Dr. J. L. Sobrinho, Instituto Superior Técnico)
“Implementation and validation of distributed route aggregation in the wild”
- [S] Pascal Sprenger (externally supervised by M. Kühlewind and B. Trammell)
“Design and Implementation of an ECN Proxy for Performance Improvements in the Internet”
- [S] Martin Müller (externally supervised by M. Kühlewind and B. Trammell)
“Integration of measurement probes into a distributed measurement plane”
- [S] Solène Buet (supervised jointly with T. Holterbach)
“On Leveraging Machine Learning techniques to predict the extent of Internet failures”
- [S] Andreas Germann (externally supervised by M. Kühlewind and B. Trammell)
“Measuring Internet Path Transparency for Transport Protocol Extensions”
- [S] Ferran Llamas Arroniz
“Traffic engineering in networks with central control”

- 2015
- [M] Tobias Bühler
 - “Improving Network-Wide Troubleshooting with Few SDN Devices”
 - [M] James Guthrie
 - “NetBursting: Network Infrastructure in the Cloud”
 - [M] Roland Meier
 - “SDN-based Network Obfuscation” **ETH medal for best M.Sc. thesis**
 - [M] Maciej Bednarek (externally supervised by M. Kühlewind and B. Trammell)
 - “Multipath bonding at Layer 3”
 - [M] Tabita Arn
 - Flexible SDN testing in production with Shadow Policies
 - [S] Roman May
 - “Supercharging IP router memory with SDN”
 - [M] Damian Scherrer (supervised jointly with M. Brunner, P. Georgopoulos, B. Ager, V. Kotronis)
 - “Self-Learning Enterprise Networks Via Software Defined Networking”
 - [S] Rüdiger Birkner
 - “Improving the scalability of Software-Defined Internet Exchange Points”
 - [M] Jeremie Miserez (supervised jointly with P. Bielik and M. Vechev)
 - “Detecting Concurrency Violations in Software-Defined Networks”

PhD thesis committee

| | Candidate | Advisor | University |
|------|---------------------------|---------------------------|---------------------------------|
| 2021 | Jean-Romain Luttringer | Prof. Cristel Pelsser | University of Strasbourg |
| 2020 | Amaury Van Bemten | Prof. Wolfgang Kellerer | TU Munich |
| 2019 | Christoph Dietzel | Prof. Anja Feldmann | TU Berlin |
| | Olivier Tilmans | Prof. Olivier Bonaventure | University of Louvain |
| 2017 | Der-Yeuan Yu | Prof. Srdjan Capkun | ETH Zürich |
| 2016 | Maciej Kuzniar | Prof. Dejan Kostic | EPFL |
| | Peter Peresini | Prof. Dejan Kostic | EPFL |
| | Xuan-Nam Nguyen | Dr. Thierry Turetletti | INRIA Sophia Antipolis |
| 2015 | Ignacio de Castro Arribas | Dr. Sergey Gorinsky | Universitat Oberta de Catalunya |

Professional services to the academic community

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| 2021 | Program chair | <ul style="list-style-type: none"> ■ ACM HotNets'21 (with Minlan Yu) |
| | TPC member | <ul style="list-style-type: none"> ■ ACM SIGCOMM'21 ■ USENIX NSDI'22 |
| 2020 | Committee | <ul style="list-style-type: none"> ■ ACM SIGCOMM Nomination Committee Member |
| | Program chair | <ul style="list-style-type: none"> ■ ACM SIGCOMM 2020 SPIN Workshop (with Ang Chen) ■ ACM SIGCOMM 2020 Tutorials Chair (with Stefano Vissicchio) |
| | TPC member | <ul style="list-style-type: none"> ■ USENIX NSDI'21 |
| 2019 | TPC member | <ul style="list-style-type: none"> ■ ACM SIGCOMM'19 ■ USENIX NSDI'20 (heavy) ■ SIGPLAN PLDI'19 (External Review Committee) |
| | Program chair | <ul style="list-style-type: none"> ■ ACM CoNEXT'18 (with Theophilus Benson) ■ ACM SOSR'18 (with Dave Maltz) |
| | TPC member | <ul style="list-style-type: none"> ■ ACM SIGCOMM'18 ■ ACM SIGCOMM Workshop on In-Network Computing |
| 2017 | TPC member | <ul style="list-style-type: none"> ■ ACM SIGCOMM'17 ■ ACM CoNEXT'17 ■ ACM SOSR'17 |
| | Reviewer | <ul style="list-style-type: none"> ■ IEEE/ACM Transactions on Networking ■ Elsevier Computer Networks |
| | Jury member | <ul style="list-style-type: none"> ■ Swisscom's Call for Innovation: SDN and NFV startups |
| 2016 | Chair | <ul style="list-style-type: none"> ■ ACM SIGCOMM Doctoral Dissertation Award Committee ■ ACM CoNEXT'16 student workshop ■ USENIX NSDI'16 poster session |
| | TPC member | <ul style="list-style-type: none"> ■ SIGPLAN PLDI'16 (External Review Committee) ■ ACM CoNEXT'16 |
| | Reviewer | <ul style="list-style-type: none"> ■ IEEE/ACM Transactions on Networking ■ ACM SIGCOMM Computer Communication Review (CCR) |
| | Organizer | <ul style="list-style-type: none"> ■ Summer School on Software-Defined Networks (SDNschool'15) |
| 2015 | Reviewer | <ul style="list-style-type: none"> ■ Wiley's International Journal of Network Management (SDN issue) ■ IWT (Flemish/Belgian government funding agency) project proposals ■ ACM Computing Surveys |
| | TPC member | <ul style="list-style-type: none"> ■ ACM SOSR'16 (Symposium on SDN Research) ■ USENIX NSDI'16 (heavy) ■ ACM CoNEXT Student Workshop ■ ACM SIGCOMM AINTEC ■ ACM Distributed Cloud Computing (DCC) Workshop ■ IEEE International Conference on Network Protocols (ICNP'15) |

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| 2014 | Reviewer | <ul style="list-style-type: none"> ■ ACM Computing Surveys |
| | TPC member | <ul style="list-style-type: none"> ■ ACM CoNEXT Student Workshop ■ IEEE ICNP CoolSDN Workshop ■ IEEE ICCCN ■ IEEE INFOCOM SDP Workshop ■ ONS Research Track ■ IEEE NetSys SDNFlex Workshop |

Professional services to ETH Zürich

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| 2020- | Committee | <ul style="list-style-type: none"> ■ rETHink Workstream “Professorships” |
| 2020 | Speaker | <ul style="list-style-type: none"> ■ New faculty (assistant professor) orientation event |
| 2019- | Committee | <ul style="list-style-type: none"> ■ D-ITET MsC admission committee (Computers and Networks) ■ Department faculty representative to the IT support group |
| 2018 | Committee | <ul style="list-style-type: none"> ■ Search committee for a professor in Embedded Information Systems |
| | Speaker | <ul style="list-style-type: none"> ■ ETH Industry Day (talk title: “Provably-correct network operations”) |
| 2017 | Committee | <ul style="list-style-type: none"> ■ ETH medals committee (D-ITET) ■ Search committee for a professor in Embedded Information Systems |
| 2016 | Organizer | <ul style="list-style-type: none"> ■ ETH Zürich programming challenge (100 participants) ■ ETH Zürich meets California’s Hackathon |
| | Panelist | <ul style="list-style-type: none"> ■ “The Future of the Internet”, ETH Zürich meets London |
| 2016- | Sport | <ul style="list-style-type: none"> ■ ETH Zürich Professoren Ruderteam |

Selected recent publications

- Tibor Schneider, Rüdiger Birkner, Laurent Vanbever
Snowcap: Synthesizing Network-Wide Configuration Updates
ACM SIGCOMM'21. Online (August 2021)
- Rüdiger Birkner*, Tobias Brodmann*, Petar Tsankov, Laurent Vanbever, Martin Vechev
Metha: Network Verifiers Need To Be Correct Too!
USENIX NSDI'21. Online (April 2021)
- [best student paper] Samuel Steffen, Timon Gehr, Petar Tsankov, Laurent Vanbever, Martin Vechev
Probabilistic Verification of Network Configurations
ACM SIGCOMM'20. New York, NY, USA (August 2020)
- [ANRP Prize] Rüdiger Birkner, Dana Drachsler Cohen, Laurent Vanbever, Martin Vechev
Config2Spec: Mining Network Specifications from Network Configurations
USENIX NSDI'20. Santa Clara, CA, USA (February 2020)
- Albert Gran Alcoz, Alexander Dietmüller, Laurent Vanbever
SP-PIFO: Approximating Push-In First-Out Behaviors using Strict Priority Queues
USENIX NSDI'20. Santa Clara, CA, USA (February 2020)
- Thomas Holterbach, Edgar Costa Molero, Maria Apostolaki, Alberto Dainotti, Stefano Vissicchio, Laurent Vanbever
Blink: Fast Connectivity Recovery Entirely in the Data Plane
USENIX NSDI'19. Boston, MA, USA (February 2019)
- Ahmed El-Hassany, Petar Tsankov, Laurent Vanbever, Martin Vechev
NetComplete: Practical Network-Wide Configuration Synthesis with Autocompletion
USENIX NSDI'18. Washington, WA, USA (April 2018)
- Thomas Holterbach, Stefano Vissicchio, Alberto Dainotti, Laurent Vanbever
SWIFT: Predictive Fast Reroute
ACM SIGCOMM'17. Los Angeles, CA, USA (August 2017)
- [ANRP Prize] Maria Apostolaki, Aviv Zohar, Laurent Vanbever
Hijacking Bitcoin: Routing Attacks on Cryptocurrencies
IEEE Symposium on Security and Privacy (S&P'17). San Jose, CA, USA (May 2017)
- [NSDI community award] Arpit Gupta, Robert MacDavid, Rudiger Birkner, Marco Canini, Nick Feamster
Jennifer Rexford, Laurent Vanbever
An Industrial-Scale Software Defined Internet Exchange Point
USENIX NSDI'16. Santa Clara, CA, USA (March 2016)
- [best paper]
[ANRP prize] Stefano Vissicchio, Olivier Tilmans, Laurent Vanbever, Jennifer Rexford
Central Control Over Distributed Routing
ACM SIGCOMM'15. London, UK (August 2015)

Conference publications

Tibor Schneider, Rüdiger Birkner, Laurent Vanbever
Snowcap: Synthesizing Network-Wide Configuration Updates
ACM SIGCOMM'21. Online (August 2021)

Rüdiger Birkner*, Tobias Brodmann*, Petar Tsankov, Laurent Vanbever, Martin Vechev
Metha: Network Verifiers Need To Be Correct Too!
USENIX NSDI'21. Online (April 2021)

Maria Apostolaki, Cedric Maire, Laurent Vanbever
Perimeter: A network-layer attack on the anonymity of cryptocurrencies
Financial Cryptography and Data Security'21. Online (March 2021)

[best student paper]

Samuel Steffen, Timon Gehr, Petar Tsankov, Laurent Vanbever, Martin Vechev
Probabilistic Verification of Network Configurations
ACM SIGCOMM'20. New York, NY, USA (August 2020)

[ANRP prize]

Rüdiger Birkner, Dana Drachler Cohen, Laurent Vanbever, Martin Vechev
Config2Spec: Mining Network Specifications from Network Configurations
USENIX NSDI'20. Santa Clara, CA, USA (February 2020)

Albert Gran Alcoz, Alexander Dietmüller, Laurent Vanbever
SP-PIFO: Approximating Push-In First-Out Behaviors using Strict Priority Queues
USENIX NSDI'20. Santa Clara, CA, USA (February 2020)
see <https://sp-pifo.ethz.ch/>

Thomas Holterbach, Edgar Costa Molero, Maria Apostolaki, Alberto Dainotti, Stefano Vissicchio, Laurent Vanbever
Blink: Fast Connectivity Recovery Entirely in the Data Plane
USENIX NSDI'19. Boston, MA, USA (February 2019)
see <https://blink.ethz.ch>

Maria Apostolaki, Gian Marti, Jan Müller, Laurent Vanbever
SABRE: Protecting Bitcoin against Routing Attacks
NDSS'19. San Diego, CA, USA (February 2019)
see <https://btc-hijack.ethz.ch>

Roland Meier, Petar Tsankov, Vincent Lenders, Laurent Vanbever, Martin Vechev
NetHide: Secure and Practical Network Topology Obfuscation
USENIX Security'18. Baltimore, MD, USA (August 2018)
see <https://nethide.ethz.ch>

Timon Gehr, Sasa Misailovic, Petar Tsankov, Laurent Vanbever, Pascal Wiesman, Martin Vechev
Bayonet: Probabilistic Inference for Networks
PLDI'18. Philadelphia, PA, USA (June 2018)

Olivier Tilmans, Tobias Bühler, Ingmar Poesse, Stefano Vissicchio, Laurent Vanbever
Stroboscope: Declarative Traffic Mirroring on a Budget
USENIX NSDI'18. Washington, WA, USA (April 2018)
see <https://stroboscope.ethz.ch>

Ahmed El-Hassany, Petar Tsankov, Laurent Vanbever, Martin Vechev
NetComplete: Practical Network-Wide Configuration Synthesis with Autocompletion
USENIX NSDI'18. Washington, WA, USA (April 2018)
see <https://netcomplete.ethz.ch>

Rüdiger Birkner, Dana Drachler Cohen, Laurent Vanbever, Martin Vechev
Net2Text: Interactive Summarization of Network Forwarding Behaviors
USENIX NSDI'18. Washington, WA, USA (April 2018)
see <http://net2text.ethz.ch>

Thomas Holterbach, Stefano Vissicchio, Alberto Dainotti, Laurent Vanbever
Predictive Fast Reroute upon Remote BGP Outages
ACM SIGCOMM'17. Los Angeles, CA, USA (August 2017)
see <https://swift.ethz.ch>

Ahmed El-Hassany, Petar Tsankov, Laurent Vanbever, Martin Vechev
Network-wide Configuration Synthesis
CAV'17. Heidelberg, Germany (July 2017)
see <http://synet.ethz.ch>

Pavlos Lamprakis, Ruggiero Dargenio, David Gugelmann, Vincent Lenders, Markus Happe, Laurent Vanbever
Unsupervised Detection of APT C&C Channels using Web Request Graphs
DIMVA'17. Bonn, Germany (July 2017)

[ANRP Prize]
Maria Apostolaki, Aviv Zohar, Laurent Vanbever
Hijacking Bitcoin: Routing Attacks on Cryptocurrencies
IEEE Symposium on Security and Privacy (S&P'17). San Jose, CA, USA (May 2017)
see <https://btc-hijack.ethz.ch>

Roman May, Ahmed El-Hassany, Laurent Vanbever, Martin Vechev
BigBug: Practical Concurrency Analysis for SDN
ACM SOSR'17. Santa Clara, CA, USA (April 2017)
see <http://sdnracer.ethz.ch>

[CyCON award]
Roland Meier, David Gugelmann, Laurent Vanbever
iTAP: In-network Traffic Analysis Prevention using Software-Defined Networks
ACM SOSR'17. Santa Clara, CA, USA (April 2017)
see <https://itap.ethz.ch>

Rüdiger Birkner, Arpit Gupta, Nick Feamster, Laurent Vanbever
SDX-Based Flexibility or Internet Correctness? Pick Two!
ACM SOSR'17. Santa Clara, CA, USA (April 2017)

Shouxi Luo, Hongfang Yu, Laurent Vanbever
Swing State: Consistent Updates for Stateful and Programmable Data Planes
ACM SOSR'17. Santa Clara, CA, USA (April 2017)

Ahmed El-Hassany, Jeremie Miserez, Pavol Bielik, Laurent Vanbever, Martin Vechev
SDNRacer: Concurrency Analysis for Software-Defined Networks
ACM PLDI'16. Santa Barbara, CA, USA (June 2016)
see <http://sdnracer.ethz.ch>

[NSDI community award]

Arpit Gupta, Robert MacDavid, Rudiger Birkner, Marco Canini, Nick Feamster
Jennifer Rexford, Laurent Vanbever
An Industrial-Scale Software Defined Internet Exchange Point
USENIX NSDI'16. Santa Clara, CA, USA (March 2016)
see <http://sdx.cs.princeton.edu>

Arpit Gupta, Nick Feamster, Laurent Vanbever
FLANC: A Formal Logic for Authorizing Network Control
ACM SOSR'16. Santa Clara, CA, USA (March 2016)

Karla Saur, Joseph Collard, Nate Foster, Arjun Guha, Laurent Vanbever, Michael Hicks
Safe and Flexible Controller Upgrades for SDN
ACM SOSR'16. Santa Clara, CA (March 2016)

Thomas Holterbach, Cristel Pelsser, Randy Bush, Laurent Vanbever
Quantifying interference between measurements on the RIPE Atlas platform
ACM IMC'15. Tokyo, Japan (October 2015)

Yixin Sun, Anne Edmundson, Laurent Vanbever, Oscar Li, Jennifer Rexford, Mung Chiang, Prateek Mittal
RAPTOR: Routing Attacks on Privacy in Tor
USENIX Security'15. Washington, D.C., USA (August 2015)

[best paper]
[ANRP prize]

Stefano Vissicchio, Olivier Tilmans, Laurent Vanbever, Jennifer Rexford
Central Control Over Distributed Routing
ACM SIGCOMM'15. London, UK (August 2015)
see <http://fibbing.net>

Peng Sun, Laurent Vanbever, Jennifer Rexford
Scalable Programmable Inbound Traffic Engineering
ACM SOSR'15. Santa Clara, US (June 2015)

Jeremie Miserez, Pavol Bielik, Ahmed El-Hassany, Laurent Vanbever, Martin Vechev
SDNRacer: Detecting Concurrency Violations in Software-Defined Networks
ACM SOSR'15. Santa Clara, US (June 2015)

Stefano Vissicchio, Luca Cittadini, Olivier Bonaventure, Geoffrey Xie, Laurent Vanbever
On the Co-Existence of Distributed and Centralized Routing Control-Planes
IEEE INFOCOM'15. Hong Kong (April 2015)

[ANRP prize]

João Luis Sobrinho, Laurent Vanbever, Franck Le, Jennifer Rexford
DRAGON: Distributed Route Aggregation on the Global Network
ACM CoNEXT'14. Sydney, Australia (December 2014)
see <http://route-aggregation.net>

Shuyuan Zhang, Sharad Malik, Sanjai Narain, Laurent Vanbever
In-Band Update for Network Routing Policy Migration
IEEE ICNP'14 (Concise paper). Raleigh, NC, USA (October 2014).

Arpit Gupta, Laurent Vanbever, Muhammad Shahbaz, Sean Donovan, Brandon Schlinker,
Nick Feamster, Jennifer Rexford, Scott Shenker, Russ Clark, Ethan Katz-Basnett
SDX: A Software Defined Internet Exchange
ACM SIGCOMM'14. Chicago, IL, USA (August 2014)

Stefano Vissicchio, Laurent Vanbever, Luca Cittadini, Geoffrey Xie, Olivier Bonaventure
Safe Routing Reconfigurations with Route Redistribution
IEEE INFOCOM'14. Toronto, ON, Canada (April 2014)

Xin Jin, Li Erran Li, Laurent Vanbever, Jennifer Rexford
SoftCell: Scalable and Flexible Cellular Core Network Architecture
ACM CoNEXT'13. Santa Barbara, CA, USA (December 2013)

[best paper]

Marco Chiesa, Luca Cittadini, Laurent Vanbever, Stefano Vissicchio, Giuseppe Di Battista
Using Routers to Build Logic Circuits: How Powerful is BGP?
IEEE ICNP'13. Göttingen, Germany (October 2013)

Laurent Vanbever, Stefano Vissicchio, Luca Cittadini, Olivier Bonaventure
When the Cure is Worse than the Disease: the Impact of Graceful IGP Operations on BGP
IEEE INFOCOM'13. Turin, Italy (April 2013)

Stefano Vissicchio, Luca Cittadini, Laurent Vanbever, Olivier Bonaventure
iBGP Deceptions: More Sessions, Fewer Routes
IEEE INFOCOM'12. Orlando, FL, USA (March 2012)

Laurent Vanbever, Stefano Vissicchio, Cristel Pelsser, Pierre Francois, Olivier Bonaventure
Seamless Network-Wide IGP Migrations
ACM SIGCOMM'11. Toronto, ON, Canada (August 2011)

Journal publications

Yixin Sun, Maria Apostolaki, Henry Birge-Lee, Laurent Vanbever, Jennifer Rexford, Mung Chiang, Prateek Mittal
Securing Internet Applications from Routing Attacks
Communications of the ACM. Volume 64. Issue 6. June 2021. pp 86–96

[best of CCR paper]

Thomas Holterbach, Tobias Bühler, Tino Rellstab, Laurent Vanbever
An Open Platform to Teach How the Internet Practically Works
ACM SIGCOMM CCR 2020. Volume 50 Issue 2 (April 2020)

Stefano Vissicchio, Laurent Vanbever, Luca Cittadini, Geoffrey G. Xie, Olivier Bonaventure
Safe Update of Hybrid SDN Networks
IEEE/ACM Transactions on Networking, Volume 25, Issue 3, pp. 1649-1662 (June 2017)

João Luis Sobrinho, Laurent Vanbever, André Sousa, Franck Le, Jennifer Rexford
Scaling the Internet Routing System through Distributed Route Aggregation
IEEE/ACM Transactions on Networking, Volume 24, Issue 6, pp. 3462-3476 (December 2016)
see <http://route-aggregation.net>

Stefano Vissicchio, Laurent Vanbever, Olivier Bonaventure
Opportunities and Research Challenges of Hybrid Software Defined Networks
ACM SIGCOMM Computer Communications Review, Editorial Zone (April 2014)

[ANRP prize]

Stefano Vissicchio, Laurent Vanbever, Cristel Pelsser, Luca Cittadini, Pierre Francois, Olivier Bonaventure
Improving Network Agility with Seamless BGP Reconfigurations
IEEE/ACM Transactions on Networking, Volume 21, Issue 3, pp. 990-1002 (June 2013)

Laurent Vanbever, Stefano Vissicchio, Cristel Pelsser, Pierre Francois, Olivier Bonaventure
Lossless Migrations of Link-State IGPs
IEEE/ACM Transactions on Networking, Volume 20, Issue 6, pp. 1842-1855 (December 2012)

Workshop publications

[ANRP prize]

Thomas Wirtgen, Quentin De Coninck, Randy Bush, Laurent Vanbever, Olivier Bonaventure
xBGP: When you can't wait for the IETF and vendors
ACM HotNets'20. Chicago, Illinois, USA (November 2020)

Patrick Wintermeyer, Maria Apostolaki, Alexander Dietmüller, Laurent Vanbever
P2GO: P4 Profile-Guided Optimizations
ACM HotNets'20. Chicago, Illinois, USA (November 2020)

Maria Apostolaki, Laurent Vanbever, Manya Ghobadi
FAB: Toward Flow-aware Buffer Sharing on Programmable Switches
ACM Workshop on Buffer Sizing. Stanford, CA, USA (December 2019)

Roland Meier, Thomas Holterbach, Stephan Keck, Matthias Stähli, Vincent Lenders,
Ankit Singla, Laurent Vanbever
(Self) Driving Under the Influence: Intoxicating Adversarial Network Inputs
ACM HotNets'19. Princeton, NJ, USA (November 2019)

Edga Costa Molero, Stefano Vissicchio, Laurent Vanbever
Hardware-Accelerated Network Control Planes
ACM HotNets'18. Redmond, WA, USA (November 2018)

Aaron Gember-Jacobson, Costin Raiciu, Laurent Vanbever
Integrating Verification and Repair into the Control Plane
ACM HotNets'17. Palo Alto, California, USA (November 2017)

Thomas Holterbach, Emile Aben, Cristel Pelsser, Randy Bush, Laurent Vanbever
Measurement Vantage Point Selection Using A Similarity Metric
ACM, IRTF & ISOC Applied Networking Research Workshop. Prague, Czech Republic (July 2017)

Olivier Tilmans, Tobias Bühler, Stefano Vissicchio, Laurent Vanbever
Mille-Feuille: Putting ISP traffic under the scalpel
ACM HotNets'16. Atlanta, Georgia, USA (November 2016)

Nick Shelly, Brendan Tschaen, Klaus-Tycho Forster, Michael Chang, Theophilus Benson, Laurent Vanbever
Destroying networks for fun (and profit)
ACM HotNets'15. Philadelphia, PA, USA (November 2015)

Laurent Vanbever, Oscar Li, Jennifer Rexford, Prateek Mittal
Anonymity on QuickSand: Using BGP to Compromise Tor
ACM HotNets'14. Los Angeles, CA, USA (October 2014)

Stefano Vissicchio, Laurent Vanbever, Jennifer Rexford
Sweet Little Lies: Fake Topologies for Flexible Routing
ACM HotNets'14. Los Angeles, CA, USA (October 2014)

Laurent Vanbever, Stefano Vissicchio
Enabling SDN in old school networks with Software-Controlled Routing Protocols
Open Network Summit (Research Track). Santa Clara, CA, USA (March 2014)

Laurent Vanbever, Joshua Reich, Theophilus Benson, Nate Foster, Jennifer Rexford
HotSwap: Correct and Efficient Controller Upgrades for Software-Defined Networks
ACM SIGCOMM HotSDN'13. Hong Kong, China (August 2013)

Xin Jin, Li Erran Li, Laurent Vanbever, Jennifer Rexford
CellSDN: Software-Defined Cellular Core Networks
Open Network Summit (Research Track). Santa Clara, CA, USA (April 2013)

Laurent Vanbever, Bruno Quoitin, Olivier Bonaventure
A Hierarchical Model for BGP Routing Policies
ACM SIGCOMM PRESTO. Barcelona, Spain (August 2009)

Laurent Vanbever, Grégory Pardoën, Olivier Bonaventure
Towards Validated Network Configurations with NCGuard
Internet Network Management. Orlando, FL, USA (October 2008)

Theses

[SIGCOMM & UCL prize] Methods and Techniques for Disruption-Free Network Reconfiguration
PhD thesis. University of Louvain, Louvain-la-Neuve, Belgium (October 2012)

[CeFIP prize] Liquidity analysis of the Belgian non-regulated stock market. How to improve it?
Master thesis. Solvay Brussels School of Economics & Management, Brussels, Belgium (June 2010)

[Alcatel prize] Design and implementation of a software enabling the validation and the generation of network configurations
Master thesis. University of Louvain, Louvain-la-Neuve, Belgium (June 2008)

Demos

Philipp Mao, Rüdiger Birkner, Thomas Holterbach, Laurent Vanbever
Boosting the BGP convergence in SDXes with SWIFT
ACM SIGCOMM'17. Los Angeles, CA, USA (August 2017)

Olivier Tilmans, Stefano Vissicchio, Laurent Vanbever, Jennifer Rexford
Fibbing in action: On-demand load-balancing for better video delivery
ACM SIGCOMM'16. Florianopolis, Brazil (August 2016)

Michael Alan Chang, Brendan Tschaen, Theophilus Benson, Laurent Vanbever
Chaos Monkey: Increasing SDN Reliability through Systematic Network Destruction
ACM SIGCOMM'15. London, UK (August 2015)

Arpit Gupta, Laurent Vanbever, Muhammad Shahbaz, Sean Donovan, Brandon Schlinker, Nick Feamster,
Jennifer Rexford, Scott Shenker, Russ Clark, Ethan Katz-Bassett
SDX: A Software Defined Internet Exchange
ACM SIGCOMM'14. Chicago, IL, USA (August 2014)

Presentations and invited talks

Staying engaged—slides, video and the professor: my experience teaching online

Academia Refresh Teaching at ETH Zürich. Online (April 2021)

Programmable, hardware-based routing and scheduling

Keynote 3rd P4 Workshop in Europe (EuroP4). Online (December 2020)

Self-Driving Networks: Breaking new ground in network automation

Academia ETH Zurich. Zurich, Switzerland (May 2019)

Keynote Forum Numerica. INRIA Sophia-Antipolis, Valbonne, France (October 2019)

Industry Applied Machine Learning Days. EPFL. Lausanne, Switzerland (January 2020)

European Organization for Nuclear Research (CERN). Meyrin, Switzerland (October 2019)

Cyber-Defence Workshop (Armasuisse). Thun, Switzerland (September 2019)

Programmable network monitoring and what to do with it

Academia TU Berlin. Berlin, Germany (May 2019)

Network monitoring in the age of “deep” network programmability

Keynote Network Traffic Measurement and Analysis Conference (TMA), Paris (June 2019)

Self-Securing Networks

Industry Armasuisse, Thun, Switzerland (June 2019)

Network Control Planes: What? How? Where?

Academia Dagstuhl Seminar, Germany (April 2019)

Industry Google Networking Summit, CA, California (March 2019)

Provably-Correct Network Operations

Industry ETH Zürich Industry Day (September 2018)

NetComplete: Practical Network-Wide Configuration Synthesis with Autocompletion

Academia Department of Computer Sciences, ETH Zürich (April 2018)

Princeton University (September 2018)

USENIX NSDI (April 2018)

Programming networks. Not your standard API.

Academia NII Shonan Meeting (February 2018)

Improving network security through programmability

Industry Armasuisse, Thun, Switzerland (August 2017)

Hijacking Bitcoin: Routing Attacks on Cryptocurrencies

Academia Summer Research Institute 2017, EPFL, Lausanne, Switzerland (June 2017)

Dagstuhl Seminar, Germany (June 2018)

Industry IBM Research, Zürich, Switzerland (May 2017)

Network programmability. A primer on routing synthesis

Academia Dagstuhl Seminar, Germany (January 2017)

SWIFT: Predictive Fast Reroute upon Remote BGP Disruptions

Academia Munich Internet Research Retreat, Germany (November 2016)

Improving the Internet. From Fragility to Resilience

Academia World Web Forum, Zürich, Switzerland (January 2017)
ETH Zürich, Switzerland (December 2015)

The Future of the Internet

General ETH Zürich, "Zürich meets London", London, UK (May 2016)

Boosting existing networks with Software-Defined Networking

Industry ABB corporate research center, Baden-Dättwil, Switzerland (July 2016)
Open Cloud Day 2016, Winterthur, Switzerland (June 2016)
SWITCH, Zürich, Switzerland (November 2015)
Swisscom AG, Ittigen, Switzerland (May 2015)

Academia École polytechnique fédérale de Lausanne (EPFL), Switzerland (June 2016)
Hebrew University, Jerusalem (June 2015)
ETH Zürich, Switzerland (April 2015)

SIGCOMM preview session: SDN track

Academia ACM SIGCOMM 2015, London, UK (August 2015)

SDN Research Directions: Promising problems to invest time on

Academia Summer School on Software-Defined Networks (SDNschool 2015), Greece (July 2015)

Anonymity on QuickSand: Using BGP to Compromise Tor

Conference ACM HotNets 2014 Workshop. Los Angeles, CA, USA (October 2014)
Academia Columbia University, New York City, NY, USA (May 2015)

Making the Internet more scalable and manageable

Academia ETH Zürich, Switzerland (June 2014)

Enabling SDN in old school networks with Software-Controlled Routing Protocols

Industry Open Network Summit, Santa Clara, CA, USA (March 2014)

On integrating Software-Defined Networking within existing routing systems

Industry Applied Communication Sciences (ACS), NJ, USA (August 2014)
Facebook Inc., Menlo Park, CA, USA (November 2013)
Google Inc., Mountain View, CA, USA (November 2013)

Academia Stanford University, Stanford, CA, USA (November 2013)
UC Berkeley, Berkeley, CA, USA (November 2013)

Novel Applications for an SDN-Enabled Internet Exchange Point

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| Industry | AT&T/ON.Lab/Intel SDN retreat, Stanford University, Stanford, CA (October 2014) Workshop on Prototyping and Deploying Experimental SDX, Washington DC, (June 2014) RIPE 67, Plenary Session, Athens, Greece (October 2013) Software Defined Networking Research Group, IETF 87, Berlin, Germany (July 2013) |
| Academia | Fed4FIRE/GENI Research Experiment Summit, FGRE 2014, Ghent, Belgium (July 2014) |

HotSwap: Correct and Efficient Controller Upgrades for Software-Defined Networks

| | |
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| Conference | ACM SIGCOMM HotSDN 2013 Workshop (August 2013) |
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CellSDN: Taking control of cellular core networks

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| Industry | IBM Thomas J Watson Rearch Center, NY, USA (April 2013) |
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Improving Network Agility with Seamless BGP Reconfigurations

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| Industry | IRTF Open Meeting, IETF, Berlin, Germany (July 2013) AT&T Labs Research, Florham Park, NJ, USA (March 2012) |
| Academia | Princeton University, Princeton, NJ, USA (March 2012) |

iBGP Deceptions: More Sessions, Fewer Routes

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| Conference | IEEE INFOCOM 2012, Orlando, FL, USA (March 2012) |
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Seamless Network-Wide (IGP) Migrations

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| Conference | ACM SIGCOMM 2011, Toronto, ON, Canada (August 2011) |
| Industry | Network Automation, Upperside conferences, Paris, France (November 2011) Internet Initiative Japan, Tokyo, Japan (February 2011) |
| Academia | Roma Tre University, Rome, Italy (May 2011) |

Customized BGP Route Selection Using BGP/MPLS VPNs

| | |
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| Industry | Internet Initiative Japan, Tokyo, Japan (February 2010) Routing Symposium, Cisco Systems, San Jose, CA, USA (October 2009) |
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A Hierarchical Model for BGP Routing Policies

| | |
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| Conference | ACM SIGCOMM PRESTO Workshop, Barcelona, Spain (August 2009) |
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Unleashing Network Testing and Troubleshooting

| | |
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| Academia | Trilogy Summer School, Louvain-la-Neuve, Belgium (August 2009) |
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Towards Validated Network Configurations with NCGuard

| | |
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| Conference | Internet Network Management Workshop, Orlando, FL, USA (October 2008) Workshop on Data Networks as Formal Objects, Adelaide, Australia (February 2010) |
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