

Kevin Vermeulen
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CNRS researcher

RESEARCH INTERESTS

Networks and networks measurements. Building measurement systems and techniques for a better Internet.

EDUCATION

2017 – 2020

Doctorate in Computer Science, “Improved Algorithms for capturing Internet maps”, supervised by Olivier Fourmaux and Timur Friedman, Sorbonne Université, Paris, France

2012 - 2016

MSc in Engineering, specialization in Computer Science, Institut Mines-Telecom Atlantique *grande école*, Brest, France

2010 - 2012

Prépa maths sup' et maths spé (non-degree **Bachelor's** level program), intensive advanced mathematics studies for entry into the *grandes écoles*, Lycée Henri IV, Paris, France

2009 - 2010

Baccalaureate (French national diploma), scientific option, with honors, Lycée Baudelaire, Roubaix, France

EMPLOYMENT

October 2021 – Current

CNRS Researcher (tenured position), LAAS-CNRS, Toulouse, France

October 2020 – October 2021

Postdoctoral researcher with professor Ethan Katz-Bassett, Columbia University, New York, NY, USA

Septembre 2017 – Septembre 2020

Research assistant with Professor Timur Friedman, Sorbonne Université, Paris, France

July 2019 - September 2019

Visiting research scholar with professor Robert Beverly and Justin P. Rohrer, Naval Postgraduate School (NPS), Monterey, CA, USA

September 2016 - August 2017

Software database engineer, Murex (leading company in fintech), Paris, France

March 2016 – September 2016

Software database engineer intern, French Ministry of Armies, Paris, France

PUBLICATIONS

Note: In my domain of research on Internet measurements, the ACM Internet Measurement Conference (IMC) is the leading venue, with acceptance rates of around 25%. The PAM and TMA conferences are the next best venues for Internet measurements, with higher acceptance rates. In the more general field of computer networks, the ACM SIGCOMM and USENIX NSDI conferences are the leading venues with acceptance rates of around 20%. The ACM HotNets is the leading for hot topics and new or controversial ideas in computer networks, with acceptance rates around 30%. IMC, SIGCOMM, and NSDI are classified as top conferences in their domain by the csranking.org website which gives the top conferences of different domains of computer science.

These conferences and workshops are the best places to publish my work, although journals with excellent reputations exist, such as IEEE/ACM Transactions of Networking and ACM SIGCOMM Computer Communication Review. Following the preferences of my research community, I tend to prefer publishing in the top conferences of my domain, that are as prestigious as the journals in my domain and better for dissemination.

Refereed conference publications

- **An explainable-by-design ensemble learning system to detect unknown network attacks**
Céline Minh, **Kevin Vermeulen**, Cédric Lefebvre, Philippe Owezarski, William Ritchie
IEEE/IFIP CNSM 2023 (Acceptance rate: 19%).
- **Replication: Towards a Publicly Available Internet Scale IP Geolocation Dataset**
Omar Darwich, Hugo Rimlinger, Milo Dreyfus, Matthieu Gouel, **Kevin Vermeulen**.
ACM IMC 2023 (Acceptance rate: 25%).
Awarded best artifact award.
- **RPKI Time-of-Flight: Tracking Delays in the Management, Control, and Data Planes**
Romain Fontugne, Amreesh Phokeet, Cristel Pellser, **Kevin Vermeulen**, Randy Bush
PAM 2023 (Acceptance rate: 34%).
- **Internet Scale Reverse Traceroute**
Kevin Vermeulen, Ege Gurmericililer, Italo Cunha, David Choffnes, Ethan Katz-Bassett.
ACM IMC 2022 (Acceptance rate: 26%).
- **The Best of Both Worlds: High Availability CDN Routing Without Compromising Control**
Jiangchen Zhu, **Kevin Vermeulen**, Italo Cunha, Ethan Katz-Bassett, Matt Calder.
ACM IMC 2022 (Acceptance rate: 26%).
Awarded best short paper.
- **IP Geolocation Database Stability and Implications for Network Research**
Matthieu Gouel, **Kevin Vermeulen**, Olivier Fourmaux, Timur Friedman, Robert Beverly.
IEEE/IFIP TMA 2021 (Acceptance rate: 43%).
- **Alias Resolution Base on ICMP Rate Limiting**
Kevin Vermeulen, Burim Ljuma, Vamsi Addanki, Olivier Fourmaux, Timur Friedman, Reza Rejaie.
PAM 2020 (Acceptance rate: 29%).
- **Diamond-Miner: Comprehensive Discovery of the Internet's Topology Diamonds**
Kevin Vermeulen, Justin P. Rohrer, Robert Beverly, Olivier Fourmaux, Timur Friedman.
USENIX NSDI 2020 (Acceptance rate: 17%).
- **Multilevel MDA-Lite Paris Traceroute**
Kevin Vermeulen, Stephen D. Strowes, Olivier Fourmaux, Timur Friedman.
ACM IMC 2018 (Acceptance rate: 25%).

Refereed journal publications

- **Zeph & Iris map the Internet: A Resilient Reinforcement Learning Approach to Distributed IP Route Tracing**
Matthieu Gouel, **Kevin Vermeulen**, Maxime Mouchet, Justin P. Rohrer, Olivier Fourmaux, Timur Friedman.
ACM SIGCOMM CCR, January 2022.

Refereed workshop publications

- **The Central Problem with Distributed Content**
Kevin Vermeulen, Loqman Salamatian, Sang Hoon Kim, Matt Calder, Ethan Katz-Bassett.
ACM HotNets 2023 (Acceptance rate: 27%).
- **Towards a Traffic Map of the Internet**
Tom Koch, Weifan Jiang, Tao Luo, Petros Gigis, Yunfan Zhang, **Kevin Vermeulen**, Emile Aben, Matt Calder, Ethan Katz-Bassett, Lefteris Manassakis, Georgios Smaragdakis, Narseo Vallina-Rodriguez.
ACM HotNets 2021 (Acceptance rate: 31%).
- **Internet Measurements on EdgeNet**

Demo and extended abstract.

Kevin Vermeulen, Burim Ljuma, Olivier Fourmaux, Timur Friedman.
IEEE INFOCOM CNERT Workshop 2019.

STUDENTS

Ph.D. student

- Omar Darwich (LAAS-CNRS): started in October 2022 (French MITT doctoral school grant), co-advised with Philippe Owezarski
- Hugo Rimlinger (Sorbonne Université): starting in October 2023 (French Ministry for the Armed Forces grant), co-advised with Timur Friedman

TEACHING

- Internet measurements course, Master's degree program, Sorbonne Université
Fall 2017, Fall 2018, Fall 2019, Fall 2022, Fall 2023
- C++ programming, Master's degree program, course, lab creation and supervision, Sorbonne Université
Fall 2019
- Programming project, undergraduate program, lab supervision, Sorbonne Université
Spring 2019
- Java programming, undergraduate program, lab supervision, Sorbonne Université
Spring 2018

SERVICE

Technical Program Committee Member:

- ACM IMC (2023)
- ACM SIGMETRICS (2023)
- PAM (2022, 2024)

External Reviewer

- ACM SIGMETRICS (2024)
- Transactions on Networking (2022)
- ACM IMC (2019)
- IEEE INFOCOM CNERT Workshop (2019)

Technical Program Committee Member (Shadow PC):

- ACM IMC (2018)
- IFIP/IEEE TMA (2018)

LANGUAGES

French: native speaker. English: fluent. German: working knowledge.

ACTIVITIES AND INTERESTS

Sports: club-level soccer player, former club-level basketball player

Music: former violinist and gold medalist in music theory, Music Conservatory of Roubaix, France