

Experience

Sorbonne Université

Doctoral Student

Paris, France

2020 - Present

Conduct research as a doctoral student in the Network Performance Analysis (NPA) of the LIP6 laboratory and specifically in the Dioptra research group. I'm also affiliated with the LINC3 laboratory. My research field is analyzing features of the internet via active and passive measurements. These features can be the IP-level topology of the internet, as well as other levels such as the router-level or the AS-level topology. I also work on geolocation of infrastructure IP addresses.

- Development of a multi vantage-points measurement platform for IP-level internet topology discovery using *Python*, *ClickHouse*, *Redis* and AWS/GCP cloud infrastructures
- Development of a reinforcement learning algorithm to allocate probing directives more efficiently
- Analysis of the dynamics of an IP geolocation database
- Co-organizer of LINC3 Internet Measurements reading group

LIP6

Research Engineer

Paris, France

2019 - 2020

Worked in the Network Performance Analysis (NPA) of the LIP6 laboratory and specifically in the Dioptra research group. Helped in the engineering of ongoing research projects in *Python*, developed and maintained measurement infrastructure in a production environment using *Docker*, *Kubernetes* and GitHub Actions.

- Participated in ongoing researches about IP-level internet topology, IP geolocation and Alias Resolution
- Building and maintaining network measurement infrastructure

Société Générale

DevOps Engineer

Paris, France

2018 - 2019

Worked inside an agile software development team for a global private cloud development project. This team was responsible for network-oriented capabilities of the cloud. I was the lead developer of the team and built APIs in *Python* which communicate with Avi Networks appliances. I also developed and open-sourced a *Python* package to facilitate API end-to-end testing.

- Development of APIs in Python providing SDN capabilities for the internal private cloud
- CI/CD of programming projects using Github, Ansible and Jenkins
- Organized according to Scrum and SAFe agile methodologies

Ministry of Armed Forces

Network-oriented Software Engineer

Paris, France

2016 - 2018

Worked in a team managing network infrastructure for Data-Centers and Campus. My main role was to bring development skills to automate network infrastructure deployment and maintenance in operational conditions. Developed in *Python*, *Go* and *Javascript*. I also participated to networking troubleshooting and on-call duty periods.

- Development of network automation software in Data-Center and Campus networks
- Deployment with Docker, Kubernetes and Gitlab CI
- Network administration and development in production environment

Ministry of Armed Forces

Network-oriented Software Intern, 6 month

Paris, France

2016

Internship at the end of engineering school. The project was to develop a proof-of-concept networking solution to do routing in Data-Centers with BGP on Cisco/Arista hardware. The solution had to be automated using *Python*, *Ansible* and Zero-Touch provisioning.

- Automation of a BGP "Top of Rack" solution into Data-Centers

EBRC

Software Intern, 3 month

Luxembourg

2015

Internship during the second year of engineering school. The project was to develop a knowledge system to help security operators to keep track of internal procedures. Worked in *Python* and *Javascript*.

- Development of a knowledge database system for security operations in a Security Operation Center
- Integration in a production environment

Education

TELECOM Nancy

Engineering degree (Diplôme d'ingénieur), Nancy, France

Telecommunications, Networks and Security

2013–2016

Classe préparatoire aux grandes écoles

Blaise Pascal School, Rouen, France

Physics, Technology and Engineer Science

2010–2013

Publications

Zeph & Iris map the internet: A resilient reinforcement learning approach to distributed IP route tracing

M Gouel, K Vermeulen, M Mouchet, J P Rohrer, O Fourmaux, T Friedman

ACM SIGCOMM Computer Communication Review, 2022

IP Geolocation Database Stability and Implications for Network Research

M Gouel, K Vermeulen, O Fourmaux, T Friedman, R Beverly

Network Traffic Measurement and Analysis Conference (TMA), 2021

Alias Resolution Based on ICMP Rate Limiting

K. Vermeulen, B. Ljuma, V. Addanki, M. Gouel, O. Fourmaux, T. Friedman, R. Rejaie

Passive and Active Measurement Conference (PAM), 2020

Teaching

Networks Architecture

Master's degree program, Teaching assistant (40h/year)

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Internet Measurements

Master's degree program, Teaching assistant (28h/year)

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2020, 2021, 2022

Routing in networks

Master's degree program, Teaching assistant (36h/year)

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2020

Open source

 <https://github.com/matthieugouel>

IP-level internet topology measurement platform

Iris & Zeph (in *Python*): platform to deliver regular IP-level internet topology dataset (accessible [here](#))

API end-to-end testing

Spintest (in *Python*): package to easily perform functional scenarios to APIs

Hobby projects

Gibica (in *Python*) and Bjorn (in *Rust*): implementation of toy languages

Alchina (in *Python*): implementation of classic machine learning algorithms

Certifications

Cisco Certified Network Associate Routing and Switching (CCNA)

CSCO13183181

Cisco

2017 - 2020

Certified Stormshield Network Expert (CSNE)

99V21CSNE37310

Stormshield

2017 - 2020

Certified Stormshield Network Administrator (CSNA)

99V21CSNA96935

Stormshield

2017 - 2020

Languages

English: Fluent

Full professional proficiency

French: Native speaker

Full professional proficiency