



# Guillaume Michel

Senior Distributed Systems Engineer

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## EXPERIENCE

### Shipyards

#### Senior Software Engineer

Remote

Jan 2025 – present

- Architected and built a planetary-scale CRDT-based content routing system end-to-end, including a sharded backend with cross-shard sync, token-metered accounting and billing, cutting DHT content announcements by 30×–3,000,000× (reduction scaling with catalog size).
- Authored and managed the [IPFS Kademlia DHT specification](#) and its [Go/Rust](#) implementations, used by 15,000–150,000 nodes daily.
- Designed and shipped [Reprovide Sweep](#), a key-space-sweeping redesign of DHT content announcements: ~97% fewer lookups, and modest nodes can advertise 10M+ CIDs, up from ~1K. Default provider system in [Kubo](#) since [v0.39](#).
- Drove code quality, performance, and technical-debt reduction across the Go stack ([kubo](#), [boxo](#), [kad-dht](#)) through 400+ authored and 500+ reviewed pull requests.

### ProbeLab

#### Senior Research Engineer

Remote

Jan 2024 – Jan 2025

- Co-founded the company: shaped business strategy, scoped service offerings for prospects, and led 4 customer projects to completion.
- Owned and operated the company [website](#) and AWS infrastructure behind the weekly network-measurement reports on blockchain networks, cutting report generation time 4×.
- Investigated the Ethereum [discv5 DHT](#) by examining 10,000+ peers, assessing network reliability, and publishing [statistical findings](#).
- Developed tooling to monitor the [DHT client population](#) and detect [DHT eclipse attacks](#).

### Protocol Labs

#### Research Engineer

Remote

Mar 2022 – Jan 2024

- Led security of the [libp2p DHT](#): ran coordinated disclosure for externally-reported CVEs, shipped discreet fixes to protect a network taking 6+ months to upgrade, and hardened the protocol to reduce attack surface and improve resilience.
- Proposed a privacy-enhancing [IPFS DHT upgrade](#) that decouples requester identity from content identifiers, improving reader privacy, published at [SAC '25](#).
- Measured the IPFS network, capturing and analyzing billions of peer-to-peer requests, then publishing reports on [DHT routing-table health](#) and [Bitswap discovery efficiency](#).
- Led a team of three building a [novel DHT implementation](#) from scratch, replacing unconstrained concurrency with a modular, deterministic, single-threaded state machine engineered for maintainability and performance.

### Open Systems

#### Network Engineer

Zürich, Switzerland

May 2021 – Feb 2022

- Architected, installed, and operated globally deployed network security solutions: SD-WAN, MDR, VPN, firewalls, and secure proxies.
- Served in the 24x7 Mission Control support rotation for enterprise customers.

## EDUCATION

### EPFL - ETH Zürich

MSc. in Computer Science –

Cybersecurity

Distributed Systems & Cryptography

Sep 2018 – Apr 2021

### EPFL

BSc. in Communications Systems

Exchange year at HKUST (Hong Kong)

Sep 2015 – May 2018

## SKILLS

### PROGRAMMING

Go · Rust · Python

### EXPERTISE

Distributed Systems · Cryptography ·

Privacy · P2P Networking · PubSub ·

CRDTs · Web Protocols · HTTP APIs

### STACK

Linux · Docker · Kubernetes · AWS ·

PostgreSQL · Prometheus · libp2p

### WORKFLOW

Open source · CI/CD (GitHub Actions) ·

AI-assisted development

## SELECTED TALKS

### Bridging networks: DHT interoperability

IPFS Camp 2024

### Breakdown of the FAA's Privacy ICAO Address Program

DEF CON 28, 2020

All recorded talks:

[guillaume.michel.id/resume](https://guillaume.michel.id/resume)

## LANGUAGES

### English

Fluent

### French

Native

### German

Business fluent

## IBM Research Europe

Zürich, Switzerland

### Security Researcher

Sep 2020 – Mar 2021

- Completed a [master's thesis](#) on cryptographic agility in the post-quantum era, cataloging 13 requirements and evaluating 4 production crypto libraries (JCA, GPGME, Qt SSL, OpenSSL) against the framework.
- Developed a Go SBOM and cryptographic-inventory tool mapping a package's crypto usage via static call-graph analysis, flags deprecated algorithms, and renders as interactive dependency diagrams.

## Armasuisse S+T

Zürich, Switzerland

### Student Researcher

Feb 2020 – Jun 2020

- Analyzed the FAA's Privacy ICAO Address (PIA) program, meant to anonymize US General Aviation, and re-identified and tracked all 16 aircraft that used it over 5 months using only public crowdsourced ADS-B data.
- Built a privacy simulator showing ~69% of a hypothetical 100-aircraft fleet stays trackable even at the program's fastest address-rotation rate; proposed fixes cutting that to under 1% ([DEF CON talk](#), [paper](#)).

## Cisco Systems

Kraków, Poland

### Network Engineer Intern

Jul 2019 – Sep 2019

- Provisioned and configured BGP/OSPF lab topologies on Cisco IOS for Professional Services customer engagements, automating repetitive device setup in Python.

## PUBLICATIONS

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### Improving Kademia Lookup Privacy through Query Obfuscation [\[PDF\]](#)

Erik Daniel, Guillaume Michel, and Florian Tschorsch

*SAC '25: Proceedings of the 40th ACM/SIGAPP Symposium on Applied Computing*, 14 May 2025, pp. 1345-1352. DOI: [10.1145/3672608.3707703](https://doi.org/10.1145/3672608.3707703)

### Flying in Private Mode: Understanding and Improving the Privacy ICAO Address Program [\[PDF\]](#)

Guillaume Michel and Martin Strohmeier

*Journal of Aerospace Information Systems*, vol. 18, no. 8, 2021, pp. 530-538. DOI: [10.2514/1.I010938](https://doi.org/10.2514/1.I010938)