

## Kirill Nikitin

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Curriculum Vitae  
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## Education

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**Ph.D. Computer and Communication Sciences** Sep 2015–Nov 2021

*École polytechnique fédérale de Lausanne, Switzerland*

Thesis: “[Integrity and Metadata Protection in Data Retrieval](#)”

**M.S. Communication Systems** Sep 2013–Oct 2015

*KTH Royal Institute of Technology, Sweden*

Thesis: “[DTLS Adaptation for Efficient Secure Group Communication](#)” @ RISE SICS

**Diploma Information Security (with honors)** Sep 2008–Jun 2013

*Kazan (Volga Region) Federal University, Russia*

Thesis: “Cryptographic Key Distribution via Randomness from Multipath Propagation of Radio Waves”

## Publications [\[Google Scholar\]](#)

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6. [K. Nikitin](#), G. Gürsoy. “Private information leakage from polygenic risk scores”. *Under submission*, 2025. ([IEEE S&P 2025 Best Poster Award](#))
5. S. Colombo, [K. Nikitin](#), B. Ford, D. Wu, H. Corrigan-Gibbs. “[Authenticated private information retrieval](#)”. In *USENIX Security Symposium*, 2023.
4. J. Lee, [K. Nikitin](#), S. Setty. “[Replicated state machines without replicated execution](#)”. In *IEEE Symposium on Security and Privacy*, 2020.
3. [K. Nikitin](#), L. Barman, W. Lueks, M. Underwood, J.-P. Hubaux, B. Ford. “[Reducing Metadata Leakage from Encrypted Files and Communication with PURBs](#)”. *Proceedings on Privacy Enhancing Technologies*, 2019(4), 2019.
2. [K. Nikitin](#), E. Kokoris-Kogias, P. Jovanovic, N. Gailly, L. Gasser, I. Khoffi, J. Cappos, and B. Ford. “[CHAINIAC: Proactive Software-Update Transparency via Collectively Signed Skipchains and Verified Builds](#)”. In *USENIX Security Symposium*, 2017.
1. M. Tiloca, [K. Nikitin](#), S. Raza. “[Axiom: DTLS-Based Secure IoT Group Communication](#)”. In *ACM Transactions on Embedded Computing Systems (TECS), Special Issue on Embedded Computing for IoT*, 16(3), 66, 2017.

### Reports and manuscripts:

- C. Basescu, M. Nowlan, [K. Nikitin](#), J. Faleiro, and B. Ford, “[Crux: Locality-Preserving Distributed Services](#)”. Technical report, in *CoRR*, 1405.0637, arXiv, 2018.
- M. Tiloca, S. Raza, [K. Nikitin](#), and S. Kumar. “[Secure Two-Way DTLS-Based Group Communication in the IoT \(work in progress\)](#)”. *IETF*, 2015.

## Professional Experience

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**Post-Doctoral Researcher** May 2023–now  
*G<sup>2</sup> lab, Columbia University & New York Genome Center*, New York, NY

- Privacy-preserving analysis and sharing of biomedical data.

**Post-Doctoral Researcher** Mar 2022–April 2023  
*Cornell Tech, Cornell University*, New York, NY

- Protecting network metadata in online communication.

**Doctoral Researcher** Sep 2015–Aug 2021  
*Decentralized and Distributed Systems laboratory, EPFL*, Lausanne, Switzerland

- Exploiting and protecting metadata in encrypted files and communications;
- Security and transparency of software-distribution systems.

**Research Intern** Aug–Oct 2019  
*Confidential Computing Group, Microsoft Research*, Cambridge, UK

- Information-flow control for confidentiality in smart contracts.

**Research Intern** Aug–Nov 2018  
*Systems Security and Privacy Group, Microsoft Research*, Redmond, US

- Improving scalability of smart contracts via off-chain execution and verifiable computation.

**External Master's Thesis** Jan–Jun 2015  
*Security Lab, RISE Swedish Institute of Computer Science*, Stockholm, Sweden

- Designing a protocol for secure group communication for the Internet-of-Things.

**Research Intern** Jun–Aug 2014  
*Laboratory for Cryptologic Algorithms, EPFL*, Lausanne, Switzerland

- Integer factorization and analysis of public-key ecosystem weaknesses.

## Academic Service and Extracurricular Activities

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- A member of the program committee or the editorial board
  - [USENIX Security 2025, 2026](#): USENIX Security Symposium
  - [ACM CCS 2023, 2024](#): ACM Conference on Computer and Communications Security
  - [RECOMB-PRIEQ 2024](#): Satellite Conference on Biomedical Data Privacy and Equity
  - [JSys 2021](#): Journal of Systems Research
  - [ACM CCS 2021 Posters & Demos](#)
  - [CryBlock 2019, 2020](#): Workshop on Cryptocurrencies and Blockchains for Distributed Systems
  - [BlockSys 2019](#): Workshop on Blockchain-enabled Networked Sensor Systems
  - [ICBC 2019](#): IEEE International Conference on Blockchain and Cryptocurrency
- An external reviewer for ISMB 2025, RECOMB 2024, 2025, Eurocrypt 2022, IEEE Transactions on Industrial Informatics 2019, IEEE Transactions on Parallel and Distributed Systems 2020, and ACM CCS 2017, 2021.
- I served as the president of the graduate student association at IC EPFL where I organized invited talks, student activities, and helped with the organization of PhD Open Houses.

## Teaching and Supervision

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### [CS-438 Decentralized Systems Engineering](#) (Fall 17, 18, 20)

As a part of a team, designed, implemented and graded homework assignments, gave guest lectures, supervised semester group projects, and evaluated student progress throughout the semester. *Student reviews*: “The course is very demanding as time is concerned but the topics and the assignments are very fascinating”, “The TAs are awesome. I can’t imagine the problems they went through preparing these testcases”.

### [ICC Information, Computation and Communication](#) (Spring 20)

Guided students during exercise solving.

### [CS-234 Technologies of societal self-organization](#) (Fall 19)

Participated in the design of the brand-new course: guiding projects and creating assignments, quizzes, and the exam.

### [COM-402 Information Security and Privacy](#) (Spring 17, 18)

As a part of a team, designed and implemented CTF-style exercise labs from scratch, contributed to creating lectures and guided students. *Student reviews*: “Best homeworks I’ve ever had at EPFL so far”, “Oscillating between ‘These exercises are insufferable!’ (before you get your token) and ‘These exercises are so fun!’ (after you get your token!)”, “The exercises are not always easy, but they are fun to do and give a good practical insight into security”.

### [MATH-101 Analyse I](#) (Fall 16)

Guided students during exercise solving.

### [COM-102 Advanced information, computation, communication II](#) (Spring 16)

Designed exercises on basic cryptography (part of the course) and guided students.

## Supervision:

Fernando Monje Real. “Traffic analysis of real-time collaborative editors”. M.S. thesis (2020).

Carlos Villa Sánchez. “Secure management of browser extensions and their dependencies”. M.S. thesis (2020).

Charles Parzy-Turlat. “Tree-based Group Key Agreement”. M.S. project (2019).

Simone Colombo. “DecenArch: a decentralized system for privacy-conscious Web archiving against censorship”. M.S. thesis (2018).

Nicolas Plancherel. “Decentralized Internet Archive”. M.S. thesis (2017).

Nicolas Ritter. “Access Control In Real-Time Peer-to-Peer Collaboration”. M.S. project (2017).

Damien Aymon. “Implementation of an Algorithm for Peer-to-Peer Collaborative Editing”. B.S. project (2017).

Rehan Mulakhel. “Web Interface for Secure Decentralized Collaboration”. B.S. project (2017).

Gaspard Zoss. “Enhancing Debian Update Service”. M.S. project (2017).

## Awards

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- 2020: [The Doc.Mobility Fellowship](#) from the Swiss National Science Foundation (declined)
- 2015: EPFL EDIC Fellowship for Doctoral Studies
- 2013-2015: [The Swedish Institute Scholarship](#)
- 2009, 2011, 2012: Triple scholar of [The Vladimir Potanin Fellowship Program](#)