

# Alexei Zamyatin

alexei.zamyatin@gmail.com · [www.alexeizamyatin.me](http://www.alexeizamyatin.me)

## WORK EXPERIENCE

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### Interlay

Director and Co-Founder

- R&D and consultancy services, focusing on interoperability of distributed ledgers.

### SBA Research

Researcher (Decentralized Systems Group)

- Research security, scalability and sustainability of Proof-of-Work blockchains

Intern (IT Security)

- Highlighted centralization issues in Bitcoin, Litecoin and merge-mined cryptocurrencies
- Implemented a generic data extraction tool for Bitcoin-like blockchains

### Imperial College London

Research Assistant (Centre for Cryptocurrency Research and Engineering)

- Researched security and interoperability of distributed ledgers
- Coordinated the Blockchain.com research program
- Supervised BEng, MEng and MSc theses and group projects

Intern (Cryptocurrency Research)

- Identified queueing-related vulnerabilities in an Ethereum mining pool, derived exploits, observed real-world attacks and proposed mitigations

### Accenture

Intern (Technology Consulting)

- Developed the technical architecture and release planning concepts, and the Java prototype for the largest public sector project in Austria
- Helped develop and test the Xtext DSL for automatic code generation in public sector projects and held workshops for new junior developers

### United Nations Office in Vienna

Conference Assistant (Short-term contracts)

- Conference registration and meeting support

*London, United Kingdom*

Nov 2019 – Present

*Vienna, Austria*

Oct 2016 – Oct 2019

Jul 2016 – Sep 2016

*London, United Kingdom*

Sep 2017 – Jun 2019

Feb 2017 – Sep 2017

*Vienna, Austria*

Feb 2016 – Jun 2016

*Vienna, Austria*

Oct 2012 – Jan 2017

## TEACHING

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### Imperial College London

Teaching Assistant

- *Principles of Distributed Ledgers (CO 467)*, taught by Arthur Gervais (Spring '18, Spring '19)

### Technische Universität Wien

Teaching Assistant

- *Advanced Software Engineering*, taught by Stefan Biffl (Fall '15, Summer '16, Fall '16)
- *Requirements Engineering and Specification*, taught by Paul Grünbacher (Fall '15)
- *Software Engineering and Project Management*, taught by Stefan Biffl (Fall '14, Summer '15)

*London, United Kingdom*

Jan 2018 - Mar 2018

*Vienna, Austria*

Oct 2015 - Feb 2017

## EDUCATION

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### Imperial College London

PhD in Computer Science

- Advised by William Knottenbelt and Arthur Gervais.
- Thesis topic: "Towards Secure and Scalable Communication Across Distributed Ledgers"

### Technische Universität Wien

MSc Software Engineering and Internet Computing – 1.26/5.0 (1.0 best grade)

- MSc Thesis "Merged Mining: Analysis of Effects and Implications" (published)

### Technische Universität Wien

BSc Software and Information Engineering – 1.9/5.0 (1.0 best grade)

- BSc Thesis "Name-Squatting in Namecoin"

### Vienna University of Economics and Business

BSc Economics (secondary studies, interrupted) – 1.94/5.0 (1.0 best grade)

- Took courses in economics and finance worth 110 ECTS credits (180 ECTS total for BSc)

### Theresianische Akademie Wien

Higher School Certificate – 1.0/5.0 (1.0 best grade)

- Passed C++ course at University of Vienna during final year as part of Austria's talent program

### Secondary School at the Russian Embassy in Austria

Russian Unified State Exam (equiv. SAT)

- Took all mandatory school subjects as evening courses in Russian

*London, United Kingdom*

Sept 2017 – Present

*Vienna, Austria*

Oct 2015 – Nov 2017

*Vienna, Austria*

Oct 2012 – Oct 2015

*Vienna, Austria*

Sep 2012 – Oct 2016

*Vienna, Austria*

Sep 2004 – Jul 2012

*Vienna, Austria*

Sep 1999 – Jul 2010

## AWARDS AND SCHOLARSHIPS

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### **Binance-X Research Fellowship**

USD 15.000 grant for open source research on blockchain interoperability

*London, United Kingdom*

Oct 2019 - Dec 2019

### **“KUWI” Research Fellowship - Technische Universität Wien**

Scholarship for international research projects and stays abroad

*Vienna, Austria*

Jan 2017 - Jun 2017

### **Merit Scholarship - Technische Universität Wien**

Scholarship for outstanding academic performance

*Vienna, Austria*

Oct 2016

### **High Potential Program - Technische Universität Wien**

Accepted into the industry-focused High Potential Program (TuTheTop)

*Vienna, Austria*

Oct 2015 – Jun 2016

### **Merit Scholarship - Technische Universität Wien**

Scholarship for outstanding academic performance

*Vienna, Austria*

Oct 2015

## PUBLICATIONS

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[SoK: Communication Across Distributed Ledgers](#). **Alexei Zamyatin**, Mustafa Al-Bassam, Dionysis Zindros, Eleftherios Kokoris-Kogias, Pedro Moreno-Sanchez, Aggelos Kiayias, and William J. Knottenbelt. *Cryptology ePrint Archive: Report 2019/1128* (under submission). 2019

[Commit-Chains: Secure, Scalable Off-Chain Payments](#). Rami Khalil, **Alexei Zamyatin**, Guillaume Felley, Pedro Moreno-Sanchez, Arthur Gervais. *Cryptology ePrint Archive: Report 2018/642* (under submission). 2019

[Pay-To-Win: Incentive Attacks on Proof-of-Work Cryptocurrencies](#). Aljosha Judmayer, Nicholas Stifter, **Alexei Zamyatin**, Itay Tsabary, Ittay Eyal, Peter Gazi, Sarah Meiklejohn, and Edgar Weippl. *Cryptology ePrint Archive: Report 2019/775* (under submission). 2019

[A Deep Dive into Bitcoin Mining Pools: An Empirical Analysis of Mining Shares](#). Matteo Rommitti, Aljosha Judmayer, **Alexei Zamyatin**, and Bernhard Haselhofer. *Workshop on the Economics of Information Security (WEIS)*. 2019

[XCLAIM: Trustless, Interoperable, Cryptocurrency-backed Assets](#). **Alexei Zamyatin**, Dominik Harz, Joshua Lind, Panayiotis Panayiotou, Arthur Gervais and William J. Knottenbelt. *IEEE Symposium on Security and Privacy (S&P)*. 2019

[Uncle Traps: Harvesting Rewards in a Queue-based Ethereum Mining Pool](#). Sam Werner, Paul Pritz, **Alexei Zamyatin**, William J. Knottenbelt. *EAI International Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS)*. 2019

[Echoes of the Past: Recovering Blockchain Metrics From Merged Mining](#). Nicholas Stifter, Philipp Schindler, Aljosha Judmayer, **Alexei Zamyatin**, Andreas Kern, and Edgar Weippl. *International Conference on Financial Cryptography and Data Security (FC)*. 2019

[Multisignatures for Cryptocurrency-Backed Tokens \(Poster\)](#). **Alexei Zamyatin**, Dominik Harz, Joshua Lind, Panayiotis Panayiotou, Arthur Gervais and William J. Knottenbelt. *International Workshop on Cryptocurrencies and Blockchain Technology (CBT)*. 2018

[Committing to Quantum Resistance: A Slow Defence for Bitcoin Against a Fast Quantum Computing Attack](#). Iain Stewart, Dragos Ilie, **Alexei Zamyatin**, Sam Werner, Maryam F. Torshizi, and William J. Knottenbelt. *Royal Society open science*, 5(6), 180410. 2018

[Flux: Revisiting Near Blocks for Proof-of-Work Blockchains](#). **Alexei Zamyatin**, Nicholas Stifter, Philipp Schindler, Edgar Weippl, and William J. Knottenbelt. *Cryptology ePrint Archive: Report 2018/415*. 2018

[Agreement with Satoshi- On the Formalization of Nakamoto Consensus](#). Nicholas Stifter, Aljosha Judmayer, Philipp Schindler, **Alexei Zamyatin**, and Edgar Weippl. *Cryptology ePrint Archive: Report 2018/400*. 2018

[A wild velvet fork appears! Inclusive blockchain protocol changes in practice \(Short Paper\)](#). **Alexei Zamyatin**, Nicholas Stifter, Aljosha Judmayer, Philipp Schindler, Edgar Weippl, and William J. Knottenbelt. *Workshop on Bitcoin and Blockchain Research, Financial Cryptography and Data Security*. 2018

[Merged Mining: Curse or Cure?](#). Aljosha Judmayer, **Alexei Zamyatin**, Nicholas Stifter, Artemios G Voyiatzis, and Edgar Weippl. *In Data Privacy Management, Cryptocurrencies and Blockchain Technology*. 2017

[Swimming with Fishes and Sharks: Beneath the Surface of Queue-based Ethereum Mining Pools](#). **Alexei Zamyatin**, Katinka Wolter, Sam Werner, Catherine E.A. Mulligan, Peter G. Harrison, and William J. Knottenbelt. *Annual Meeting of the IEEE International Symposium on Modelling, Analysis and Simulation of Computer and Telecommunication Systems*. 2017

[Bitcoin-Cryptocurrencies and Alternative Applications](#). Aljosha Judmayer, **Alexei Zamyatin**, Nicholas Stifter, and Edgar Weippl. *ERCIM News 110, Special theme: Blockchain Engineering*. 2017

## SKILLS AND CERTIFICATIONS

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**Languages:** German (Native), Russian (Native), English (Fluent), French (Basic)

**Programming Skills:** Proficient in Java, Python, Javascript (AngularJS), Solidity; Experience with C and Xtext.

**Other Technical Skills:** Spring, Maven, Gradle, Docker, Vagrant, (PL/pg)SQL, JPA (Hibernate), SPARQL, Git, L<sup>A</sup>T<sub>E</sub>X, Excel

**Certifications:** IELTS Academic (8.5/9), 2018; European Business Competence\* License (EBC\*L), 2010

## VOLUNTEERING & EXTRACURRICULAR ACTIVITIES

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- PC member: [MARBLE](#) ('19); External reviewer: [Performance Evaluation](#), [Royal Society Open Science](#) ('19), [BPM](#) ('19), [ESORICS](#) ('17,'18,'19), [BSCT](#) ('18), [VALUETOOLS](#) ('17), [TrustBus](#) ('17)
- Organizer of the UK Blockchain Research meetup (incl. Imperial, KCL, UCL, Cambridge, Surrey, Edinburgh, Queen Mary, Ethereum Foundation)
- Organizer of the Vienna Blockchain Research meetup (incl. TU Wien, Vienna University of Economics, Univeristy of Vienna, IST, AIT, SBA Research)
- Help maintain [P2Preview](#), a curated online bibliography of blockchain related papers

## NON-ACADEMIC INTERESTS

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Tennis player (Imperial College Team / Vienna's Tennis League) and skier, recently started scuba diving

Astronomy; Geopolitics and history