



# Sebastian Zickau

## Curriculum Vitæ

*"Roads? Where we're going, we don't need roads."  
Dr. Emmett Brown*

### Education

- 2021 **Dissertation (ongoing)**, TECHNISCHE UNIVERSITÄT BERLIN, Berlin, Germany.
- 2014–2016 **Software Campus Alumnus**, TECHNISCHE UNIVERSITÄT BERLIN, TELEKOM INNOVATION LABORATORIES, FEDERAL MINISTRY OF EDUCATION AND RESEARCH, Berlin, Germany.
- 2014 **Training Courses**, SOFTWARE CAMPUS, Germany.
- Details:
- Leadership as a Lifestyle, Deutsche Telekom AG, Berlin, Germany.
  - Conflicts in Leadership Situations, Deutsche Post DHL Group, Bonn, Germany.
  - Creativity & Innovation, Datev eG, Nürnberg, Germany.
  - Foundations of Scenario Planning, Robert Bosch GmbH, Stuttgart, Germany.
  - Intercultural Awareness, SAP, Walldorf, Germany.
  - Reviving Creative Potentials, Software AG, Darmstadt, Germany.
- 1996–2002 **Diploma in Computer Science**, TECHNISCHE UNIVERSITÄT BERLIN, Berlin, Germany.
- 1992–1995 **University-entrance Diploma**, OBERSTUFENZENTRUM FÜR ELEKTRO- UND ENERGIETECHNIK, Berlin, Germany.

### Dissertation

- Title *Privacy-preserving Geofencing (working title)*
- Supervisor Prof. Dr. Axel Küpper
- Description The thesis introduces privacy-preserving and shape agnostic geofencing mechanisms, applies and compares these to different underlying cryptographic approaches. It concludes with an evaluation of their applications for various use-cases with different underlying requirements.

## Experience

### Vocational

2012–2020 **Research Assistant, Doctoral Candidate**, TECHNISCHE UNIVERSITÄT BERLIN, TELEKOM INNOVATION LABORATORIES, Berlin, Germany.

Detailed achievements:

- Dissertation (ongoing)
- Completed six German- and EU-funded research projects successfully
  - Implementation of research and project prototypes
  - Participation and completion of a research project with the Telekom Innovation Laboratory (T-Labs)
  - Working on and submitting over thirty project proposals in Germany (BMBF, BMWi) and the European Union (Horizon 2020 and EIT)
  - Funding for five project proposals received
  - Publication of twenty research papers, including international conferences, national journals, and book chapters
  - Participation and presentations at over ten international research conferences, incl. IEEE
  - Supervising and leading personnel, including new researchers and assistants
  - Communication with national and international funding offices
  - Approaching potential (international) project partners
  - Full project reporting life cycle
- Over €2,568,000 national and international funding attracted
- Projects successfully completed
  - TRESOR - TRusted Ecosystem for Standardized and Open and cloud-based Resources (BMW, including successful project extension, 2012-2015)
  - Curcuma - Cloud Computing Location Metadata (Software Campus, BMBF, including successful proposal, 2014-2016)
  - PARADISE - Privacy-enhancing And Reliable Anti-Doping Integrated Service Environment (BMBF, including successful proposal, 2016-2018)
  - IdentityChain (EIT, 201)
  - DIMS - Decentralized Identity Management System (EIT, including successful proposal, 2019)
  - GRAVITY and CityBeamer (EIT, 2020)
  - SSI4de - Self-Sovereign Identity for Germany (BMW, 2020)
- Teaching and supervising students:
  - Over twenty diploma, bachelor, and master theses
  - Preparation and assessorship of oral and written exams
  - Organization of and teaching in lectures, projects, and seminars:
    - Internet of Services Lab (IoSL)
    - Usable Privacy Seminar
    - Business Processes and IT Services
- Organization of and presentation at public project presentations and national research meetups
- Organization of and presentation at two international hackathons

2008–2010 **Research Assistant**, UNIVERSITY OF READING, Intelligent Media Systems & Services Research Centre (IMSS), School of Systems Engineering, Reading, England.

- Worked in the EU-funded project HYDRA (networked embedded system middleware for heterogeneous physical devices in a distributed architecture)

- 2003–2007 **Employee**, TECHNISCHE UNIVERSITÄT BERLIN, tubIT - IT Service-Center, Berlin, Germany.
- Developing IT administration software and working on the introduction of smartcard services
- 2000–2002 **Student Assistant**, TECHNISCHE UNIVERSITÄT BERLIN, PRZ - Prozessrechner Zentrale, Berlin, Germany.
- Supporting the development of administration software and smartcard services
- Miscellaneous**
- 2010–2011 **Telemarker**, QUANTUM TM, Reading, England.
- 2009–2011 **Tutor**, *STEM subjects for secondary school pupils*, IMAAD/CET, Reading, England.
- 1996–1999 **Shop Assistant**, *specialist shop for juggling equipment*, JONGLERIE, Berlin, Germany.
- 1997 **Journey around the world**, *9 countries - 180 days*.

## Publications

- 2020 Lux, Z. A., Thatmann, D., Zickau, S. and Beierle, F. (2020). Distributed-Ledger-based Authentication with Decentralized Identifiers and Verifiable Credentials. 2nd conference on Blockchain Research and Applications for Innovative Networks and Services (BRAINS'20)
- 2019 Plass, J. and Zickau, S. (2019). PARADISE - Wie Ortungstechnologien den Datenschutz im Anti-Doping verbessern können. Kritik des Anti-Doping - Eine konstruktive Auseinandersetzung zu Methoden und Strategien im Kampf gegen Doping.
- Raschke, P. and Zickau, S. and Kröger, J. L. and Küpper, A. (2019). Towards Real-Time Web Tracking Detection with T.EX - The Transparency EXTension. Privacy Technologies and Policy.
- Lux, Z. A. and Beierle, F. and Zickau, S. and Göndör, S. (2019). Full-text Search for Verifiable Credential Schemas on Distributed Ledgers. Proceedings of the International Symposium on Blockchain Computing and Applications (BCCA 2019).
- Rodriguez Garzon, S. and Pöllabauer, T. and Zickau, S. and Küpper, A. (2019). Interactive Design of Geofences for Proactive Location-based Services in Smart Cities. Proceedings of the 16th IEEE International Conference on Ubiquitous Intelligence and Computing (UIC 2019).
- 2018 Victor, F. and Zickau, S. (2018). Geofences on the Blockchain: Enabling Decentralized Location-based Services. BlockSEA 2018, The 1st Workshop on Blockchain and Sharing Economy Applications.
- 2017 Schanzenbach, M. and Zickau, S. (2017). Identity and Access Management in a Doping Control Use Case. Datenschutz und Datensicherheit.
- Herber, T. and Jentsch, M. and Zickau, S. (2017). Datenschutz und Dopingkontrollen. Datenschutz und Datensicherheit.

- 2016 Zickau, S. (2016). privGardens - Semantic Privacy Areas in Location-based Data Protection Policies. 13. GI/KuVS-Fachgespräch "Ortsbezogene Anwendungen und Dienste".
- Zickau, S. and Thatmann, D. and Butyrtschik, A. and Denisow, I. and Küpper, A. (2016). Applied Attribute-based Encryption Schemes. Proceedings of the 19th IEEE International Conference Innovation in Clouds, Internet and Networks (ICIN 2016).
- 2015 Thatmann, D and Zickau, S. and Förster, A and Küpper, A. (2015). Applying Attribute-based Encryption on Publish Subscribe Messaging Patterns for the Internet of Things. Proceedings of the 8th IEEE International. Conference on Internet of Things (iThings 2015).
- Zickau, S. (2015). Semantic Location Information in Access Control Policy Models. Proceedings of the Location-based Applications and Services (LBAS 2015).
- Denisow, I. and Zickau, S. and Beierle, F. and Küpper, A. (2015). Dynamic Location Information in Attribute-based Encryption Schemes. Proceedings of the 9th International Conference on Next Generation Mobile Applications, Services and Technologies (NGMAST 2015).
- El-Sobhy, J. and Zickau, S. and Küpper, A. (2015). Proximity-based Services in Mobile Cloud Scenarios using Extended Communication Models. Proceedings of the 4th IEEE International Conference on Cloud Networking (IEEE CloudNet).
- Sharhan, S. and Zickau, S. (2015). Indoor Mapping for Location-based Policy Tooling using Bluetooth Low Energy Beacons. Proceedings of the 8th IEEE International Workshop on Selected Topics in Wireless and Mobile computing (STWiMob 2015).
- Roos, A. and Drüsedow, S. and Hosseini, M. I. and Coskun, G. and Zickau, S. (2015). Trust Level Based Data Storage and Data Access Control in a Distributed Storage Environment. Proceedings of the 3rd IEEE International Conference on Mobile Cloud Computing, Services, and Engineering.
- Zickau, S. and Beierle, F. and Denisow, I. (2015). Securing Mobile Cloud Data with Personalized Attribute-based Meta Information. Proceedings of the 3rd IEEE International Conference on Mobile Cloud Computing, Services, and Engineering (Mobile Cloud 2015).
- 2014 Zickau, S. and Thatmann, D. and Ermakova, T. and Repschläger, J. and Zarnekow, R. and Küpper, A. (2014). Enabling Location-based Policies in a Healthcare Cloud Computing Environment. Proceedings of the 3rd IEEE International Conference on Cloud Networking (IEEE CloudNet).
- Raschke, P. and Zickau, S. (2014). A Template-Based Policy Generation Interface for RESTful Web Services. On the Move to Meaningful Internet Systems: OTM 2014 Workshops.
- Zickau, S. and Slawik, M. and Thatmann, D. and Uhlig, S. and Denisow, I. and Küpper, A. (2014). TRESOR - Towards the Realization of a Trusted Cloud Ecosystem. Trusted Cloud Computing.
- 2013 Graf, T. and Zickau, S. and Küpper, A. (2013). Enabling Location-based Services on Stationary Devices using Smartphone Capabilities. Mobile Web Information Systems.

- Thatmann, D. and Slawik, M. and Zickau, S. and Küpper, A. (2013). Deriving a Distributed Cloud Proxy Architecture for Managed Cloud Service Consumption. Proceedings of the 6th Intl. Conference on Cloud Computing (CLOUD 2013).
- 2012 Thatmann, D. and Slawik, M. and Zickau, S. and Küpper, A. (2012). Towards a Federated Cloud Ecosystem: Enabling Managed Cloud Service Consumption. Economics of Grids, Clouds, Systems, and Services, GECON 2012.
- Slawik, M. and Zickau, S. and Thatmann, D. and Repschläger, J. and Ermakova, T. and Küpper, A. and Zarnekow, R. (2012). Innovative Architektur für sicheres Cloud Computing: Beispiel eines Cloud-Ecosystems im Gesundheitswesen. Proceedings of the 42th Annual Conference of the Gesellschaft für Informatik e.V. (INFORMATIK 2012).
- Zickau, S. and Küpper, A. (2012). Towards Location-based Services in a Cloud Computing Ecosystem. Ortsbezogene Anwendungen und Dienste - 9. Fachgespräch der GI/ITG-Fachgruppe Kommunikation und Verteilte Systeme.

## Awards

- 2018 Best paper award, Victor, F. and Zickau, "Geofences on the Blockchain: Enabling Decentralized Location-based Services", BlockSEA 2018, The 1st Workshop on Blockchain and Sharing Economy Applications.

## Research Interests

- Main Location-based services, privacy-enhancing technologies, applied security, and attribute-based access control
- Additional Self-sovereign identity, distributed ledger technologies, and blockchains
- Subsidiary Meta data, linked data, semantic technologies, and ontologies

## Computer Skills

- Algorithms Zero-knowledge proofs, attribute-based encryption, multi-party computation, cryptographic hashing, homomorphic encryption, accumulators, private set intersection, bloom filter, OpenID connect, OAuth, and UMA
- Concepts Positioning, Geohash, S2, MapCode, Open Post Code, personal identifiable information, Authentication, and Authorization
- Languages (Geo)XACML, Python, REST, (Geo)JSON, Java, Kotlin, Javascript, Django, Ruby, LaTeX, and HTML
- Programs PostGIS, QGIS, Docker, Gitlab, Postman, Eclipse, OmniGraffle, Office, Slack, and Rocketchat
- Miscellaneous GDPR, MacOS, iOS, Android, Windows, Linux, Homebrew, and Bluetooth

## Communication Skills

- 2010 Certificate in English Language Teaching to Adults (Cambridge CELTA), Thames Valley University, Reading, England.
- 2009 Certificate of Proficiency in English (Cambridge ESOL), Reading, England.

## Languages

German **Mother tongue**

English **Certificate of Proficiency in English (CPE)**

*Business fluent*

## Personal Interests

- Traveling
- Sailing
- Cinema
- Board games
- Indoor sports
- Volleyball
- Juggling
- Lego