

Michael Borkowski

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Public Curriculum Vitae

Profile

Residence	Vienna, Austria	Degrees	Dipl.-Ing. (equivalent to MSc), BSc
Nationality	Austrian	Experience	6 years in professional software development, 3 years in research
Field	Enterprise and Distributed Systems Engineering		

Skillset

Concepts	Distributed information systems Cloud computing, decentralized consensus Software testing, continuous integration Embedded systems, RISC programming	Technologies (Selection)	Java, C#/.NET, Maven, Git, Docker Linux system administration, C/C++ AVR-GCC, AVR-ASM, Arduino JavaScript, Python, HTML/CSS, L ^A T _E X
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Languages

English: Proficient (C1/C2)

German: Native

Polish: Native

French: Intermediate (A2)

Austrian Sign Language: Elementary (A1)

Professional Activities

Since 2015 **Research Assistant**, *Technische Universität Wien, Information Systems Institute, Distributed Systems Group*, Vienna, Austria.

Research and development in various projects, teaching

- Project "Token Atomic Swap Technology" (TAST) commissioned by Pantos GmbH
 - Research and development of atomic cross-blockchain token transfers (Solidity)
 - Operational research project lead
- Project "Cloud-Based Rapid Elastic Manufacturing" (CREMA) within the European Commission *Horizon 2020 Research and Innovation Actions* (H2020 RIA) Programme
 - Co-lead of component implementation and validation (Java/Spring, Docker)
 - Scientific dissemination, deliverables
 - Technical administration of component infrastructure (Linux, Docker)
- Project "SIMPLI-CITY – The Road User Information System of the Future" within the European Commission *7th Framework Programme for Research and Innovation* (FP7): dissemination, implementation (Java, OSGi)
- Project "VISP – An Ecosystem for Elastic Data Stream Processing for the Internet of Things"
 - Co-supervision of two master theses, teaching assistance in the following courses:
 - Advanced Internet Computing (graduate course)
 - Distributed Systems (graduate course)
 - Internet of Things for Smart Systems (graduate course)

2015 **Software Developer**, *EclipseSource Services GmbH*, Vienna, Austria.

Development within the Eclipse Modeling Framework (EMF)

2013–2015 **Systems Architect & DevOps**, *Flatout Technologies GmbH*, Vienna, Austria.

Technical project management, coordination and interlocking of development and business aspects

Software architecture and design

Development and operations, continuous integration, management of testing and deployment lifecycles

Backend development within a cloud-based smart home system (Java, Z-Wave)

2010–2014 **Tutor**, *Technische Universität Wien, Institute of Computer Aided Automation*, Vienna, Austria.

Teaching assistance, lab supervision, support and assistance for undergraduate students, teaching assistance in the following courses:

- Einführung in das Programmieren (undergraduate course)
- Programmierpraxis (undergraduate course)

2010 **Intern Software Developer**, *ASFINAG Service GmbH*, Vienna, Austria.

Two-month summer internship during my Bachelor's studies. Development of an integrated data consolidation solution and various other technical tasks (.NET/C#, WPF, Big Data and Algorithmics)

- July 2008 **Intern Software Developer**, *Siemens AG Österreich, PSE HPS P&H PS*, Vienna, Austria.
Development, testing and rollout of an existing software project (.NET/C#, Web Services, WPF, WCF)
- July 2007 **Intern Software Developer**, *Siemens AG Österreich, PSE BS BAV*, Vienna, Austria.
Design of an HTML frontend for a web application (XHTML/CSS, Java, Velocity, JSP)
- Training
 - Project Management for Scientists (PMA/IPMA, Peter Birnstingl, MSc, MSD, zSPM, CMC, 2018)
 - Certified Tester Foundation Level (ISTQB, iSQI GmbH – International Software Quality Institute, 2014)

Research

- Fields
 - Cost, performance and resource optimization within cloud computing, cloud manufacturing, Industry 4.0
 - Prediction-based proactive solutions, machine learning, blockchain technologies
- Projects One industry project, two EU projects, various research projects; see *Professional Activities*
- Publications 17 publications (14 peer-reviewed), including two journal articles and 10 conference and workshop papers; see *Selected Publications* for details
- Activities
 - 11th ZEUS Workshop (ZEUS 2019) – Program Committee Member
 - ACM Transactions on the Web (TWEB) – Reviewer
 - IEEE Transactions on Cloud Computing (TCC) – Reviewer
 - IEEE Transactions on Services Computing (TSC) – Reviewer
 - IEEE Communications Surveys and Tutorials (COMST) – Reviewer
 - Wiley Concurrency and Computation: Practice and Experience (CPE) – Reviewer
 - Co-Supervision of students' theses (three master theses, one bachelor thesis)

Education

- Since 2015 **Doctoral (Ph.D.) Studies in Computer Science**, *Technische Universität Wien*, Vienna, Austria.
 - Core Topic Predictive Approaches in the Cloud
 - Supervisor Assistant Prof. Dr.-Ing. Stefan Schulte
- 2012–2015 **Master Studies in Software Engineering**, *Technische Universität Wien*, Vienna, Austria.
 - Degree Diplomingenieur (Dipl.-Ing.), equivalent to Master of Science (MSc)
 - Thesis Smart Prefetching for Mobile Users under Volatile Network Conditions (Grade: 1 – Excellent)
 - Supervisor Assistant Prof. Dr.-Ing. Stefan Schulte
- 2009–2012 **Bachelor Studies in Software & Information Engineering**, *Technische Universität Wien*, Vienna, Austria.
 - Degree Bachelor of Science (BSc)
 - Thesis ACTA in a Nutshell: Das Handelsabkommen ACTA in seinen wichtigsten Zügen (Grade: 1 – Excellent)
 - Supervisor Ao. Univ.-Prof. Dr. Markus Haslinger
- 2001–2009 **Secondary School (AHS)**, *Gymnasium und Wirtschaftskundliches Realgymnasium der Dominikanerinnen Wien 13*, Vienna, Austria.
 - Degree High School Diploma (Matura) with high honors (summa cum laude)

Personal

- Background
 - No remaining military service duties
 - Driver's license categories: B, B/111 (Austria: Motorcycles ≤ 11 kW), AM
 - Unmarried
- Interests
 - Aviation and spaceflight, building and flying remote-controlled model airplanes and drones
 - Photography, videography, audio-visual editing
 - Music (piano, guitar, electric bass, singing), sports (tennis, skiing, running)

Selected Publications

Journal Articles

- [1] Michael Borkowski, Walid Fdhila, Matteo Nardelli, Stefanie Rinderle-Ma, Stefan Schulte. "Event-based Failure Prediction in Distributed Business Processes". In: *Information Systems* n.n (2018), nn–nn (accepted for publication). DOI: <https://doi.org/10.1016/j.is.2017.12.005>.
- [2] Olena Skarlat, Matteo Nardelli, Stefan Schulte, Michael Borkowski, Philipp Leitner. "Optimized IoT Service Placement in the Fog". In: *Service Oriented Computing and Applications (SOCA) Journal* 11.4 (2017), pp. 427–443. DOI: <https://doi.org/10.1007/s11761-017-0219-8>.

Conference and Workshop Proceedings

- [3] Sabine Weninger, Michael Borkowski. "Data Prefetching in Smart Systems". In: *22nd IEEE International Enterprise Distributed Object Computing Conference (EDOC 2018), Stockholm, Sweden*. 2018, nn–nn (Demo paper, accepted for publication).
- [4] Christian Schubert, Michael Borkowski, Stefan Schulte. "Trustworthy Detection and Arbitration of SLA Violations in the Cloud". In: *7th European Conference on Service-Oriented and Cloud Computing (ESOCC 2018), Como, Italy*. LNCS vol. 11116. 2018, pp. 5–16. DOI: https://doi.org/10.1007/978-3-319-99819-0_7.
- [5] Philipp Waibel, Svetoslav Videnov, Michael Borkowski, Christoph Hochreiner, Stefan Schulte, Jan Mendling. "Process Simulation for Machine Reservation in Cloud Manufacturing". In: *16th IEEE International Conference on Industrial Informatics (INDIN 2018), Porto, Portugal*. 2018, pp. 270–277.
- [6] Michael Borkowski, Christoph Hochreiner, Stefan Schulte. "Moderated Resource Elasticity for Stream Processing Applications". In: *Euro-Par 2017: Parallel Processing Workshops, Santiago de Compostela, Spain*. LNCS vol. 10659. 2017, pp. 5–16. DOI: https://doi.org/10.1007/978-3-319-75178-8_1.
- [7] Michael Borkowski, Stefan Schulte, Christoph Hochreiner. "Predicting Cloud Resource Utilization". In: *9th IEEE/ACM International Conference on Utility and Cloud Computing (UCC), Shanghai, China*. 2016, pp. 37–42. DOI: <https://doi.org/10.1145/2996890.2996907>.
- [8] Olena Skarlat, Stefan Schulte, Michael Borkowski, Philipp Leitner. "Resource Provisioning for IoT Services in the Fog". In: *9th IEEE International Conference on Service-Oriented Computing and Applications, SOCA 2016, Macau, China*. 2016, pp. 32–39. DOI: <https://doi.org/10.1109/SOCA.2016.10>.
- [9] Michael Borkowski, Olena Skarlat, Stefan Schulte, Schahram Dustdar. "Prediction-Based Prefetch Scheduling in Mobile Service Applications". In: *2016 IEEE International Conference on Mobile Services, MS 2016, San Francisco, USA*. 2016, pp. 41–48. DOI: <https://doi.org/10.1109/MobServ.2016.17>.
- [10] Christoph Hochreiner, Philipp Waibel, Michael Borkowski. "Bridging gaps in cloud manufacturing with 3D printing". In: *Informatik 2016, 46. Jahrestagung der Gesellschaft für Informatik*. Lecture Notes in Informatics vol. 259. 2016, pp. 1623–1626.
- [11] Olena Skarlat, Michael Borkowski, Stefan Schulte. "Towards a methodology and instrumentation toolset for cloud manufacturing". In: *1st International Workshop on Cyber-Physical Production Systems (CPPS), Vienna, Austria*. IEEE. 2016, pp. 1–4.
- [12] Stefan Schulte, Michael Borkowski, Christoph Hochreiner, Matthias Klusch, Aitor Murguzur, Olena Skarlat, Philipp Waibel. "Bringing Cloud-based Rapid Elastic Manufacturing to Reality with CREMA". In: *Workshop on Intelligent Systems Configuration Services for Flexible Dynamic Global Production Networks (FLEXINET)*. 2016, pp. 407–413.

Unrefereed Papers

- [13] Michael Borkowski, Christoph Ritzer, Daniel McDonald, Stefan Schulte. *Caught in Chains: Claim-First Transactions for Cross-Blockchain Asset Transfers*. 2018. URL: <http://dsg.tuwien.ac.at/staff/mborkowski/pub/tast/tast-white-paper-2.pdf>. White Paper, Technische Universität Wien.
- [14] Michael Borkowski, Daniel McDonald, Christoph Ritzer, Stefan Schulte. *Towards Atomic Cross-Chain Token Transfers: State of the Art and Open Questions within TAST*. 2018. URL: <http://dsg.tuwien.ac.at/staff/mborkowski/pub/tast/tast-white-paper-1.pdf>. White Paper, Technische Universität Wien.