Michael Borkowski

Public Curriculum Vitae

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Profile

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

Skillset

Concepts	Distributed information systems Cloud computing, decentralized consensus DevOps, continuous integration, testing 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, LaTeX

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 (DevOps)
- 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 19 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, development of flight control systems for RC 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: 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: 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, pp. 204–207. Demo paper.

[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: 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. DOI: 10.1109/INDIN.2018.8472038.

[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: 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: 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: 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: 10.1109/MobServ.2016.17.

[10] 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.

[11] 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

[12] Michael Borkowski, Christoph Ritzer, Stefan Schulte. *Deterministic Witnesses for Claim-First Transactions*. 2018. URL: http://dsg.tuwien.ac.at/staff/mborkowski/pub/tast/tast-white-paper-3.pdf. White Paper, Technische Universität Wien.

[13] Marten Sigwart, Christoph Hochreiner, Michael Borkowski, Stefan Schulte. *FakeLoad: An Open-Source Load Generator*. Tech. rep. TUV-1942-2018-01. Distributed Systems Group, Technische Universität Wien, 2018.

[14] 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.

[15] 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.