

# MARKUS SCHMITZ

Ready to take the next steps towards AGI

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## EXPERIENCE

### Specialist and Consultant for AI and ML

#### BMW Group

March 2021 – ongoing    Munich, Germany

- Group-wide consulting on development of ML applications
- Management of international Start-Ups in the field of AI
- Management of department-wide cloud resources (Azure and AWS)
- Machine Learning special operations team
- Workshops and training for upper Management on AI and ML

Consulting    Machine Learning    Cloud Computing

### PhD student Industrial Machine Learning

#### BMW Group

May 2018 – March 2021    Munich, Germany

- Research and development on several Industrial ML Applications
- Unsupervised Anomaly Detection for logistics Ramp-Up (deployed)
- Multi-Model Quality Inspection System for Laser Welding (deployed)
- Autonomous robotic assembly using Deep Reinforcement Learning (prototype)
- Machine Teaching self-service application for Computer Vision (deployed)

Project Management    Machine Learning    Research

### Research Associate

#### Chair of IT-Management, Friedrich-Alexander Universität

May 2018 – ongoing    Germany, Nuremberg

- Dissertation "Machine Learning in Industrial Applications" (Submitted, Disputation in November)
- Yearly lecture on "Machine Learning for Business (ML4B)"
- Exercises for "Managing Projects successfully" and "Managing Tech. Change"

Research    Project Management    University Teaching

### Innovation Project Management and Consulting

#### BMW USA

May 2019 – August 2019    USA, Spartanburg

- Management of digitization- and innovation Projects
- Consulting on the application of AI in several projects
- Initiation of research projects with Georgia Tech University

Project Management    Consulting

### Projekt Predictive Maintenance in the Brownfield (Master Thesis)

#### BMW Group

Oct 2017 – April 2018    Germany, Munich/Regensburg

- Development of Semi-Supervised and Unsupervised Predictive Maintenance
- Integration of ML in a production process
- Project management and communication with management and stakeholders

Machine Learning    Production Deployment

## CERTIFICATES

**Computer Vision Nanodegree**  
Link Certificate (Udacity)

**Deep Learning Nanodegree**  
Link Certificate (Udacity)

**Deep Reinforcement Learning Nanodegree**  
Link Certificate (Udacity)

**Basic Consulting Skills**  
Internal Training

**Professional Scrum Master**  
Link Certificate (Scrum.org)

## SKILLS

### Machine Learning

- Designed and developed applications with Supervised, Unsupervised and Reinforcement Learning
- Design of Machine Learning Applications in Computer Vision, Natural Language Processing and Automated Decision Making

### Information Technology

- Experienced Software Developer
- Experience with managing enterprise cloud (AWS, Azure)

### Projects and Consulting

- Management of ML research projects
- Consulting for several ML projects
- Experience in Agile und traditional project management
- Experience in Technology management for startup evaluation

### Research

- Design Science Research
- Prototyping
- Coordinating research projects

### Teaching

- Teaching AI and ML concepts to students and management
- Design und execution of management workshops und trainings

# EDUCATION

## Master International Information Systems

### Friedrich-Alexander University

Oct 2015 – April 2018 Germany, Nuremberg

- Software project management
- Data and Analytics
- Software architecture

## Semester Abroad

### Kwansai Gakuin University

March 2017 – Aug 2017 Japan, Osaka

- Innovation International Management
- Japanese Business Culture
- Ethics

## Bachelor Economics

### Friedrich-Alexander University

Oct 2011 – Feb 2015 Germany, Nuremberg

- IT Management
- Innovation Management
- Technology Management

# PUBLICATIONS

**Enabling of Predictive Maintenance in the Brownfield through Low-Cost Sensors, an IIoT-Architecture and Machine Learning**  
Patrick Strauß; Markus Schmitz; René Wöstmann; Jochen Deuse  
2018 IEEE International Conference on Big Data

**Enabling Rewards for Reinforcement Learning in Laser Beam Welding processes through Deep Learning**  
Markus Schmitz, Florian Pinsker, Alexander Ruhri, Beibei Jiang, Georgij Safronov  
19TH IEEE International Conference on Machine Learning and Applications

**Towards RealWorld ForceSensitive Robotic Assembly through Deep Reinforcement Learning in Simulations**  
Marius Hebecker, Jens Lambrecht, Markus Schmitz  
IEEE/ASME International Conference on Advanced Intelligent Mechatronics (Accepted for publication)

**Verifying the Applicability of Synthetic Image Generation for Object Detection in Industrial Quality Inspection**  
Majid Shirazi, Markus Schmitz, Simon Jannsen, Georgij Safronov, Anabelle Thies  
20TH IEEE International Conference on Machine Learning and Applications (Under review)

**Deep Reinforcement Learning for Robotic Control in HighDexterity Assembly Tasks - A Dual Curriculum Approach**  
Lars Leyendecker, Markus Schmitz, Hans Zhou, Vladimir Samsonov, Marius Rittstiege  
2021 Fifth IEEE International Conference on Robotic Computing (Under review)

**Industrial Artificial Intelligence – A Systematic Literature Review**  
Markus Schmitz, Dilara Yesilbas  
Proceedings of the 30th European Conference on Information Systems (ECIS)(Planned for submission)

**Toward Interpretable Supervised search space selection in AutoML**  
Majid Shirazi, Markus Schmitz  
WACV 2022 (Planned for submission)

# LANGUAGES

English	TOEFL (114)
German	Native
Japanese	Basic
French	Basic

# CODING LANGUAGES

Python	Very Experienced
Javascript	Experienced
C#	Experienced
Java	Intermediate
Kotlin	Beginner

# OTHER INTERESTS

Volleyball

Philosophy & Ethics

Hiking

Yoga

Coding

Flowers