

# MILOŠ ŠOLAJA

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## EDUCATION

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**TU Munich** | *M.Sc. Robotics, Cognition, Intelligence*

**2021 - 2023**

Master thesis in cooperation with Fraunhofer IGCV

Topic of the thesis: Development of a Chatbot for the Detection of Human Support Level for Cognitive Assistance Systems in Manual Assembly (Grade: 1,0)

- Developed a dialog system that leverages voice and text inputs to improve the handling and configuration of CAS
- Performed research and comparison of NLP and dialog system approaches, selecting the most suitable ones for this use case
- Compared various sentiment analysis techniques and fine-tuned a BERT model
- Integrated the dialog system into the existing infrastructure

**TU Munich** | *B.Sc. Mechanical Engineering*

**2017 - 2021**

Bachelor thesis in cooperation with Filics GmbH

Topic of the thesis: Design, Specification, and Implementation of Different Operating Modes for an Autonomous Guided Vehicle for Intralogistics (Grade: 1,0)

- Defined and implemented measures to ensure the safety and stability of an autonomous guided vehicle in different situations
- The measures involved various modes for safety sensors, triggers for their activation, and safety constraints for the vehicle's control system

## EXPERIENCE

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**Fraunhofer IGCV**

**August 2023 - January 2024**

Student Research Assistant and Master Thesis

Augsburg, Germany

- Developed custom software used for coordination between cognitive assistance systems (CAS) within manual assembly

Python | PyQt5 | PyTorch | Rasa

**BMW AG**

**February 2021 - September 2022**

Working Student - Research Department

Munich, Germany

- Conducted technology scouting and research in the field of emerging software technologies
- Led the research, analysis, and evaluation of new technologies relevant to the BMW ecosystem, including prototype development
- Developed prototypes:
  - SSI Login Integration: Integrated Self-Sovereign Identity (SSI) login into the existing infrastructure to enhance authentication processes
  - Dynamic Ambient Light for In-Car Gaming: Designed a prototype to synchronize ambient lighting with in-car gaming experiences

Android | React | Python | Hyperledger | Powerpoint

## SKILLS

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### Technical

- OS: Microsoft Windows, Mac OS, Ubuntu Linux
- Machine Learning/Deep Learning Tools: PyTorch, Pandas, Scikit-learn, Numpy, Matplotlib

- Cloud Platforms: Azure and AWS (basic knowledge and hands-on experience)
- Mobile: Android Kotlin/Java, React Native
- Automotive: Android Auto and Automotive OS
- Web: React.js, HTML/CSS
- Databases: MySQL, MongoDB (NoSQL)
- Backend Frameworks: Flask, FastAPI
- Development Tools: Git, Docker, VS Code
- Prototyping: Protopie
- Engineering Tools: MATLAB/Simulink, Autodesk Inventor, CATIA
- Arduino, Raspberry Pi
- Microsoft Office

## Languages

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|-----------|-------------------------------|
| • Serbian | Native                        |
| • German  | Full Professional Proficiency |
| • English | Full Professional Proficiency |
| • Italian | Elementary Proficiency        |

## PROJECTS

### PROJECT "THE INTELLIGENT ANAMNESIS" September 2023 - December 2023 Data Scientist Munich, Germany

- Part of TUM.AI Industry Phase 5
- Project goal was to train a model that determines patient's diagnosis based on answers from a predefined questionnaire
- Developed a pipeline based on various NLP techniques (pattern matching, word embeddings, LLMs) for creating the dataset essential for model training

Python | PyTorch | LLMs | NLP | Docker

### PROJECT "HYPERAUTOMATION FOR MARKETING" October 2022 - March 2023 Project Lead Munich, Germany

- Completed a project as part of the Advanced Practical Course at the Chair of Robotics, Artificial Intelligence, and Real-Time Systems, TU Munich
- Led a team that developed a prototype used to hyper-automate the creation and posting process of social media content with a self-improvement mechanism
- The prototype takes text input and generates visually and content-wise appealing posts for social media, including images, short text, and hashtags

Python | PyTorch | MongoDB | GenAI | ML/DL Models

## PUBLICATIONS

Klaus Fink, Miloš Šolaja, Rüdiger Daub. Empowering Manual Assembly: Dialog System for Enhanced Customization and Efficiency of Cognitive Assistance Systems, 18th CIRP Conference on Intelligent Computation in Manufacturing Engineering, 10-12 July, Naples, Italy.

## OTHER ACTIVITIES

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| • CDTM InnoLabs participant              | 2024      |
| • Model United Nations (MUNTUM) Delegate | 2021-2022 |