Robin Steiger

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EXPERIENCE

- **Institute for Systems and Robotics** IST Lisbon, Portugal
  Software Development & Research (Internship) *Oct. 2023 - Oct. 2024*
  - **Autonomous Robot Navigation**: Development and testing of ROS-based software modules for SLAM, local planning and enhancement of pose estimation in mobile robotics.
    Tools and Languages: *C++, Python, ROS*

- **JobRad GmbH** Freiburg, Germany
  Software Engineer *Mar. 2023 - Nov. 2023*
  - **ERP System Development and Maintenance**: Worked with *Odoo ERP* to manage contract workflows, automate processes, optimize business operations and provide second-level support.
    Technologies: *Python, Odoo, SQL*

- **JW Froehlich Maschinenfabrik GmbH** Leinfelden-Echterdingen, Germany
  Software Engineer & UI Design (Internship then Job) *Sep. 2020 - Sep. 2021*
  - **Requirements Analysis and UI Design**: Conducted a comprehensive requirements analysis in collaboration with cross-functional teams. Developed a user-centric design concept for a Windows-based application, enabling dynamic and semi-automated archiving and sorting of documents throughout the corporate infrastructure.
    Technologies: *UML, Draw.io*
  - **WPF Application Development and Company-Wide Rollout**: Designed and implemented a .NET-based WPF application, overseeing seamless integration into the company's existing infrastructure and managing the organization-wide software rollout.
    Technologies: *VB.NET, SQL, Python, JavaScript, HTML*

- **University of Freiburg** Freiburg, Germany
  Project Manager *2018, and 2021 - 2022*
  - **Leading and Tutoring of approximately 30 Students**: Coordination of project milestones, deliverables, and task assignments while ensuring a harmonious team environment by settling interpersonal conflicts.

SKILLS

- **Programming Languages**: C, C++, C#, Python, VB.NET, SQL, JavaScript

- **Frameworks/Libraries**: ROS, WPF, .NET, numpy, tikz, LaTeX, Matplotlib

- **Methods**: Agile (Scrum), OOAD, UML, Test-Driven Development (TDD)

- **Tools/IDEs**: Visual Studio, Git, SVN, Atom, Vim

- **Operating Systems**: Linux (Ubuntu, Xubuntu, Raspberry Pi OS), Windows

- **Languages**: Native: *German*. Advanced: *English*. Upper Intermediate: *Portuguese, Spanish*.

FOCUS AREAS

- **AI & Robotics**: hands-on experience with ROS, C++ for autonomous systems

- **Software Engineering**: full-stack development, WPF application from scratch

- **Teamwork**: enjoy collaborative, multicultural environments

Education

- **University of Freiburg** — Freiburg, Germany
  Master of Science in Computer Science (Specialization in AI) — Oct. 2021 - Feb. 2025
  - **Master Thesis**
    Thesis Title: *Adaptive Local Planning for Improved Pose Certainty in Active SLAM*
    Description: *Focus is on autonomous navigation in unknown environments, integrating an enhanced DWA Planner within ROS to simultaneously achieve navigation goals and improve SLAM accuracy. A novel pose certainty assessment method dynamically adjusts trajectories by balancing goal-directed motion with pose correction actions. Validations in both simulated and real-world settings confirm improved navigation reliability and accuracy.*
    Supervisors: *Prof. Dr. Christian Schindelhauer (CoNe, Freiburg), Prof. Dr. Pedro Lima (ISR, Lisboa), Dr. Lukas Luft (AIS, Freiburg), Rui Bettencourt (ISR, Lisboa), D. Adriana Gómez Rosal (RLL, Freiburg)*
  - **Master Project**
    Thesis Title: *Adaptive Local Planning for Improved Pose Certainty in Active SLAM*
    Description: *Implemented a frontier-based exploration algorithm that optimizes movements to maximize information gain in both map coverage and pose accuracy employing an enhanced map representation.*
    Supervisors: *Prof. Dr. Abhinav Valada (RLL, Freiburg), Dr. Lukas Luft (AIS, Freiburg)*
  - **Courses Completed:** Machine Learning, AI Planning, Mobile Robotics, ML in Life Science, Knowledge Representation and Reasoning, Robot Mapping, Statistical Pattern Recognition, Advanced Topics in Requirements Engineering
    Courses attended out of interest: Gender in the Brain, Media Criticism, Dynamic Websites, Video Journalism, Portuguese (B1, B2.1), Spanish (C1)

- **University of Freiburg** — Freiburg, Germany
  Bachelor of Science in Computer Science — Oct. 2015 - Jun. 2021
  - **Bachelor Thesis**
    Position: *Software Developer*
    Description: *Developed an ECM filing tool from scratch, intelligently linking metadata with projects and actively guiding users through the archiving process. Integrated an SQL database and Microsoft Outlook, and took charge of UX design and requirements engineering.*
    09/2018 - 08.2021
    Supervisors: *Prof. Dr. Andreas Podelski (SoTec, Freiburg), Walter Kummer (JWF, Stuttgart)*
  - **Courses Completed:** Logic, Stochastic, Graph Theory & Optimization, Mathematics, Discrete Algebra, Programming (Python), Programming (C++), Algorithms and Data Structures, Theoretical Computer Science, Operating Systems, Computer Networks, Technical Computer Science, System Design Project, Databases and Information Systems, Software Engineering, Brain-Computer Interfaces, Information Retrieval, Artificial Intelligence, Computer Architecture, Hardware Lab, Software Lab
    Courses attended out of interest: Spanish (B2.1, B2.2, Identity of Women, Literature, Eras of Literature), Gender Equality in STEM, Audio Technology, Rhetoric and Presentation

International & Social Engagement

- **reha assist** — Unterschneidheim, Germany
  Assistance and care for a paraplegic patient — *2020 – 2021*
- **SWFr Freiburg** — Freiburg, Germany
  Support and coordination for Erasmus students — *2018 - 2020*
- **University of Freiburg** — Freiburg, Germany
  Support for a Computer Science student with Autism Spectrum Disorder — *2017 - 2018*
- **Sonflora** — León, Nicaragua
  Tutoring, organization, and care — *2015*
- **Nepal Schulprojekt** — Dadhikot, Nepal
  High School Teacher: English & Computer Science — *2014*