



# Johann Glock

PhD Candidate in Software Engineering

[University of Klagenfurt](#) · Advisor: Prof. Martin Pinzger · Expected graduation: Q4 2026

[glockyco.com](#) · [github.com/glockyco](#) · [LinkedIn](#) · [ORCID](#)

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My research focuses on automated program analysis for regression detection and software test generalization. I develop tools that apply symbolic execution to practical software engineering problems, bridging formal verification techniques and real-world developer workflows.

## EXPERIENCE

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- since 2021 **University Assistant (PhD Candidate)**  
University of Klagenfurt – Software Engineering Research Group · Klagenfurt, Austria
- Research on semantic differencing and software test generalization under Prof. Martin Pinzger.
  - Lab instructor for Software Engineering I & II (7 semesters). Ran lab sections independently.
  - Supervised BSc and MSc theses and projects in software testing, analysis, and engineering.
- 2018–2021 **Research Associate**  
University of Applied Sciences Upper Austria – AIST Research Group · Hagenberg, Austria
- Technical lead for applied research prototypes in FFG-funded projects with industry partners.
  - Designed and built prototypes in security intelligence, data engineering, and augmented reality.
  - Collaborated with industry partners and other research groups across 5 projects.
- 2012–2018 **Web Developer**  
MICROLAB GmbH · Ried im Innkreis, Austria
- Full-stack web development for clients in insurance, agriculture, tourism, and other industries.
  - Managed client relationships from requirements gathering through delivery and support.
  - Built and maintained the company's proprietary CMS using PHP, JavaScript, and HTML/CSS.

## EDUCATION

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- since 2021 **Dr. techn. (PhD) in Informatics**  
University of Klagenfurt · Klagenfurt, Austria  
Thesis: *Formal Guarantees Meet Practical Constraints: From Semantic Differencing to Test Generalization for Regression Detection*  
Advisor: Prof. Martin Pinzger
- 2018–2020 **MSc in Software Engineering**  
University of Applied Sciences Upper Austria · Hagenberg, Austria  
Thesis: *Mining Software Repositories for the Effects of Design Patterns on Software Quality*  
Advisor: Prof. Josef Pichler  
With Distinction · Merit Scholarship
- 2015–2018 **BSc in Software Engineering**  
University of Applied Sciences Upper Austria · Hagenberg, Austria  
Theoretical thesis: *Evaluating and Adapting Trello for Use in Scrum Teams*  
Practical thesis: *Design and Implementation of the System Architecture for a Mixed Reality Board Game*  
Advisor: Prof. Herwig Mayr  
With Distinction · Merit Scholarship
- 2007–2012 **Matura in Electronics — Technical Informatics**  
HTL Braunau · Braunau am Inn, Austria  
With Distinction

## PUBLICATIONS

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1. **Johann Glock**, Clemens Bauer, Martin Pinzger. *Teralizer: Semantics-Based Test Generalization from Conventional Unit Tests to Property-Based Tests*. Under review at TOSEM. arXiv: [2512.14475](https://arxiv.org/abs/2512.14475)
2. **Johann Glock**, Josef Pichler, Martin Pinzger. *PASDA: A Partition-based Semantic Differencing Approach with Best Effort Classification of Undecided Cases*. JSS, 2024. DOI: [10.1016/j.jss.2024.112037](https://doi.org/10.1016/j.jss.2024.112037)
3. Alexander Lercher, **Johann Glock**, Christian Macho, Martin Pinzger. *Microservice API Evolution in Practice: A Study on Strategies and Challenges*. JSS, 2024. DOI: [10.1016/j.jss.2024.112110](https://doi.org/10.1016/j.jss.2024.112110)
4. **Johann Glock**. *Aiding Developer Understanding of Software Changes via Symbolic Execution-based Semantic Differencing*. ICSE Doctoral Symposium, 2024. DOI: [10.1145/3639478.3639783](https://doi.org/10.1145/3639478.3639783)

## SOFTWARE PROJECTS

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### Erenshor Community Tools

Interactive maps, mods, and wiki bot for the Erenshor community  
*SvelteKit, TypeScript, deck.gl, Leaflet, SQLite, Tailwind CSS, Python, C#, MediaWiki, Cloudflare Workers*

### Ancient Kingdoms Compendium

Data-mined compendium and interactive world map for Ancient Kingdoms  
*SvelteKit, TypeScript, deck.gl, SQLite, Tailwind CSS, Python, C#, Cloudflare Workers*

### Personal Website

Portfolio and CV presenting my research and engineering work  
*SvelteKit, TypeScript, Typst, Zod, Cloudflare Workers*

## TEACHING & SUPERVISION

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### LAB INSTRUCTOR

**Software Engineering I** · University of Klagenfurt · 3 semesters  
*Program analysis, software testing (unit, integration, mutation, TDD), refactoring, and code metrics*

**Software Engineering II** · University of Klagenfurt · 4 semesters  
*Agile development (Scrum), multiplayer board/card game Android apps in teams of 4–7*

### TUTOR

**Advanced Image Processing and Analysis** · University of Applied Sciences Upper Austria · 1 semester

**Basic Web Technology** · University of Applied Sciences Upper Austria · 1 semester

### SUPERVISION

3 MSc theses, 2 MSc projects, 4 BSc theses, 3 BSc interns, 3 high-school interns

## SERVICE & OUTREACH

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### PEER REVIEW

**Reviewer** · TOSEM · 1 paper + revision

**Sub-reviewer** · FSE 2026 ×2, FSE 2025, ICSE 2024, SANER 2024

### OUTREACH

**TechTalents** · 3 editions (2022–2023), introducing high-school students to software testing

**Long Night of Research** · Hands-on demos of software engineering research for the public

## SKILLS

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### RESEARCH AREAS

Test Generalization, Test Generation, Regression Test Selection, Property-Based Testing, Symbolic Execution, Constraint Solving, Semantic Differencing, Equivalence Checking, Regression Verification, Fault Localization, Fuzzing, Mining Software Repositories

### LANGUAGES & TOOLS

Java, C#/.NET, Python, PHP, TypeScript, JavaScript, HTML/CSS, SQL, Git, Docker + Compose, GitHub Actions, Agentic Coding, Claude Code, OpenCode