



Introduction to Scientific Writing

Advisor: **Formal Methods Area**

Motivation

We research mathematical methods and tools to ensure that systems have no functional or security bugs. This includes test case generation, model checking, automatic debugging, and automatic synthesis of systems from properties. Our interests include safe AI and formal side-channel security.

Example Topics

- 💡 Probabilistic Model Checking
stefan.pranger@tugraz.at
- 💡 **LLMs meet formal argumentation**
bettina.koenighofer@tugraz.at
- 💡 Reactive Synthesis - Playing games to create systems
bettina.koenighofer@tugraz.at
- 💡 Automatic tools for software verification.
benedikt.maderbacher@tugraz.at
- 💡 **LLMs meet Program Synthesis**
benedikt.maderbacher@tugraz.at

Literature

- > [Bettina Könighofer](#)
- > [Filip Cano](#)
- > [Stefan Pranger](#)
- > [Johannes Haring](#)
- > [Benedikt Maderbacher](#)

Courses & Deliverables

- Introduction to Scientific Working**
Short report on background
Short presentation

Note: You can select these topics *only* for the ISW course. If you are considering to combine ISW with a bachelor's thesis at ISEC (highly recommended), check the full list of topics: <https://www.isec.tugraz.at/bachelor-thesis>

Recommended if you're studying

- CS
- ICE
- SEM

Prerequisites

- > Interest in **logic, AI, security**
- > (Optional) *Logic and Computability*
- > (Optional) *Machine Learning 1*
- > (Optional) *Information Security*
- > (Optional) *Software Paradigms*

Advisor Contact

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