

I am passionate about nurturing young minds through teaching and mentoring students at various levels. This not only contributes to the community by fostering a new generation of engineers and independent researchers but also serves as an effective means for me to stay current and refreshed. Over the years, I have taught various courses in industry, delivered lectures in academia, and served as a guest speaker in research communities. Additionally, I have mentored bachelor's, master's, and PhD students during my doctoral studies. My extensive experience in the software industry, working as a developer, designer, architect, and team lead, provides valuable insights that enrich the content of the courses I teach.

## Course Offering

During my Ph.D. and postdoc, my research focused on program synthesis and program analysis in the intersection of software architecture, software security, and formal methods. Consequently, I am well-equipped to teach introductory and advanced topics in program synthesis, program analysis, software architecture, formal methods, and compilers for graduate and PhD students. Furthermore, with a bachelor's degree in software engineering and 14 years of industry experience, I am capable of teaching fundamental software engineering courses such as introduction to software engineering, software development, software design, and algorithms.

## Teaching Philosophy and Methodology

In essence, teaching involves understanding complex concepts and transferring learned knowledge efficiently and comprehensibly to the audience. To keep students engaged and encourage research skills, I believe in teaching the core of the topic and allowing students to explore certain aspects through practical applications. The teaching method may vary based on the students' maturity and self-sufficiency.

For undergraduates, I typically cover the majority of the topic in class and encourage exploration through assignments and semester-wide projects. In graduate-level courses, research-related activities become integral. Depending on the composition of the class, teams with leaders (likely PhD students) conduct original research, leading to preliminary results or a proof-of-concept by the end of the semester.

## Teaching/Lecturing Experience

I have experience teaching and lecturing in both academia and industry:

- **Teaching in industry:** Taught Java programming and software design patterns to colleagues, covering both introductory and advanced topics with a focus on practical applications in software development.
- **Guest lecturer in academia:** Taught an introduction to program synthesis to graduate-level students (PhD and Masters) at Rochester Institute of Technology as a guest lecturer. The session included interactions, teamwork, and problem-solving activities. [Video Link: <https://www.youtube.com/watch?v=wvbqBAWnMgY>]
- **Invited speaker:** Privileged to be invited for talks in various research groups in academia (e.g., CHAATS talks and Ph.D. Colloquium at RIT) and industry (e.g., Palo-Alto Research Center).

## Mentorship Philosophy and Methodology

Mentorship is about helping students learn how to find their path to achieve their goals rather than showing them a direct path. A competent mentor guides mentees to become the best

version of themselves, not necessarily a replication of the mentor. Mentorship requires flexibility and a tailored approach for students with different backgrounds. For undergraduates, detailed planning, task breakdowns, step-by-step interactions, and frequent office hours are crucial. In contrast, PhD students are mentored to become independent researchers, exposing them to activities such as grant proposal write-ups, junior student mentorship, and light-weight teaching based on their career goals. Graduate students (masters) receive mentorship based on their career preferences closer to undergraduates or PhDs.

## Student Mentorship Experience

During my Ph.D., I had the privilege of providing mentorship to students with diverse backgrounds, encompassing various degrees and career aspirations:

- **Undergraduate:** Mentored Denis Zhenilov, a dedicated software developer from Budapest, Hungary, throughout his engagement with the lab as an undergraduate student in 2019. The objective was to ensure he could effectively carry out tasks and, ultimately, produce tangible outcomes from his studies.
- **Masters:** Mentored four Masters students, each with distinct career trajectories: Chinmay Singh (Salesforce), Viral Parmar (Microsoft), Ishika Parasad (Motive), and Lorena Mendes (GoTo). The mentorship approach was tailored to their individual needs. For Chinmay and Lorena, the focus was on research-oriented critical thinking, fostering their ability to approach challenges analytically. For Viral and Ishika, with a career emphasis on industry, the mentorship centered on enhancing creativity, algorithmic planning, and execution.
- **Ph.D. student:** Contributed significantly to the mentorship of junior Ph.D. student Mohamad Fazelnia. Beyond providing research-focused feedback and sharing innovative ideas, I maintained regular meetings with Mohamad. These sessions were designed to assist him in improving his research skills, discussing potential future choices, and charting a strategic path toward his academic and professional goals. The mentorship extended beyond the academic realm, encompassing motivation and encouragement to propel him forward confidently.