

# PÉTER SZKUPIEN

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## Education

### Budapest University of Technology and Economics (BUTE) 🔗

*Master of Science in Computer Science Engineering (Critical Systems major)*

February 2021 – January 2023

Budapest, Hungary

- Current GPA: 5.0 / 5.0

### Budapest University of Technology and Economics (BUTE) 🔗

*Bachelor of Science in Computer Science Engineering (Systems Engineering major)*

September 2017 – May 2021

Budapest, Hungary

- Honours degree, GPA: 5.0 / 5.0
- Thesis: Generating Real-Time Tests from Timed Behavioral Models 🔗

## Relevant Coursework

Algorithms and Data Structures • Database Theory • Computing Theory • Software Engineering • Formal Methods • Model-based Systems Design • Artificial Intelligence • Machine Learning • Linear Algebra • Probability Theory • Calculus

**Technical skills:** Java, C#, C++, C • Git • Eclipse, EMF, Xtext • JUnit • UML, SysML •  $\text{\LaTeX}$

## Experience

### Critical Systems Research Group 🔗, BUTE

*Research Assistant • Java, JUnit, Gamma 🔗, Theta 🔗*

March 2021 – Present

Budapest, Hungary

- Tested an industrial-to-low-level model transformation by creating 15 test models and a test framework
- Implemented a model transformation for transition systems to split the transitions into deterministic micro-steps [1]

### Prolan Process Control Co. 🔗

*Software Engineer Intern • Java, Eclipse, EMF, Xtext, Xtend*

June 2020 – Present

Budakalász, Hungary

- With 3 colleagues, introduced model-based engineering in the development of 15 industrial communication protocols
- Developed a domain-specific language, a simulator, and an Eclipse-plugin-based debugger for state-machine-based systems, and implemented the generation of dynamic Java code and  $\text{\LaTeX}$  documentation from models
- Reached 80% code coverage (with reasonable misses) in the state machine simulation by creating 174 unit tests

## Project

### Railway Interlocking Systems Simulator 🔗 • C#, WCF

May 2014 – August 2020

- Improved the training of 400 children at the Children's Railway, Budapest for 3 years by developing a railway interlocking system simulator and integrating it into the training program of the institution

## Publication

[1] P. Szkupien and V. Molnár, “The Effect of Transition Granularity in the Model Checking of Reactive Systems”, in Proceedings of the 29th Minisymposium of the Dept. of MIS BUTE, 2022, p. 54. 📄

## Leadership / Activities

### The Cornell, Maryland, Max Planck Pre-Doctoral Research School 2022 🔗

1 – 6 August, 2022

### Budapest University of Technology and Economics • C++, C

February 2019 – June 2022

- As Teaching Assistant, held 85+ classes for groups of 20-40 in various fields (programming, system modeling, databases)
- Wrote and reviewed 30 midterm test exercises, participated in the correction of 3000 tests, held 100 oral exams

### Szent István Secondary School • C++, C#

February 2019 – June 2022

- Taught programming to a group of 20 students on a weekly basis, wrote 15 pages of lecture notes in  $\text{\LaTeX}$  🔗
- Starting as beginners, some of my students reached the top 20 in the national programming contest (OKTV)

### Children's Railway

September 2014 – August 2020

- With 2-3 colleagues, organized weekly free time activities, summer camps, and family days for a group of 30 children
- Led the 3-member committee of the 60-person youth leader community for 3 years as a contact person to the management, checking the schedule and budget of events, monitoring workgroups, and organizing trainings

## Awards

National Higher Education Scholarship (x2) from the Min. of Innovation and Tech.

September 2021 – May 2023

Faculty Scholarship (x8) from BME VIK

September 2018 – June 2022

IMSC Scholarship (x6) from BME VIK

February 2018 – June 2021

- Awarded to the 5 top-performing students out of more than 300 in every semester during BSc studies