

PÉTER SZKUPIEN

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Skills

Software Engineering • Algorithms and Data Structures • Database Theory • Model-Based Systems Design • Formal Methods
Programming languages: Java (5 years professional experience), Python, C#, C++, C, SQL, PL/SQL
Technical skills: Linux • Git • Jenkins • Oracle • Spring, EJB, JBoss • Eclipse, EMF, Xtext • JUnit • UML, SysML • \LaTeX

Experience

Interactive Brokers ☎

February 2023 – Present

Software Engineer • Java, Spring, EJB, JBoss, Python, PL/SQL, Oracle

Budapest, Hungary

- Developing complex, high-performance server-side logic for dividend reconciliation, processing up to 300K events per day
- Reduced average processing time by 50% by designing and implementing the partial merge of 15 distributed database-based event queues into a single one, preserving existing distributed locking
- Eliminated manual work by automating internal workflows, saving 100+ work hours per month for operators

Critical Systems Research Group ☎

March 2021 – January 2023

Research Assistant • Java, JUnit, Gamma ☎, Theta ☎

Budapest, Hungary

- Enabled observability of non-deterministic decisions of transition systems by implementing a model transformation, splitting transitions into deterministic micro-steps with back-annotation ☎
- Enhanced reliability of an industrial-to-low-level model transformation by creating a test framework and 15 test models, achieving 100% model element coverage

Prolan Process Control Co. ☎

June 2020 – January 2023

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

Budakalász, Hungary

- Automated production of C/Java code and \LaTeX documentation by engineering a domain-specific language and code generators for state-machine-based systems, generating 15K+ LoC and reducing manual coding effort by 90%
- Established verifiable model behavior by developing a state machine simulator with Eclipse-plugin-based debugger and 150+ unit tests, achieving 80%+ code coverage

Education

Corvinus University of Budapest ☎

September 2024 – Present

Information Management Postgraduate Programme

Budapest, Hungary

Budapest University of Technology and Economics ☎

February 2021 – January 2023

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

Budapest, Hungary

- Honours degree, GPA: 5.0 / 5.0
- Scientific Students' Association Report (TDK): *Formal Methods for Better Standards: Validating the UML PSSM Standard About State Machine Semantics* (2nd prize) ☎ ☎
- Thesis: *Step-By-Step Controllable Simulation of Component-Based Reactive Sys. Based on Precise Formal Semantics* ☎

Budapest University of Technology and Economics ☎

September 2017 – January 2021

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

Budapest, Hungary

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

Leadership / Activities

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

August 2022

Teaching Assistant at TU Budapest • C++, C, SysML, SQL

February 2019 – June 2022

- Conducted 85+ classes for groups of 20-40 students across various subjects (programming, system modeling, databases)
- Authored and reviewed 30 midterm test exercises, participated in correcting 3,000 tests, held 100 oral exams

Programming Instructor at Szent István Secondary School • C++, C#

February 2019 – June 2022

- Taught programming to 20 students weekly, authored 15 pages of lecture notes in \LaTeX ☎
- Mentored beginners to achieve top 20 rankings in the national programming contest (OKTV)

Youth Leader at Children's Railway • Teamwork, Leadership, Finance

September 2014 – August 2020

- At age 15, modernized education by developing a simulator for railway interlocking systems
- Led 600+ children with 60 colleagues through weekly activities, summer camps, and family events (500+ attendees)
- Chaired 3-member committee of the 60-person youth leader community for 3 years, serving as management liaison while overseeing schedules, budgets, workgroups, and training coordinations