Kristóf Marussy

Curriculum Vitæ

Education

Doctoral Scool of Informatics, *February 2018–January 2022*
Budapest University of Technology and Economics (BME)
- Advisor: Dr. István Majzik

Computer Engineering MSc, BME *February 2016–January 2018*

Computer Engineering BSc, BME *September 2012–January 2016*

Professional experience

Research fellow, *February 2023–*

Assitant research fellow, *February 2020–February 2023*
Critical Systems Research Group, Department of Measurement and Information Systems,
Budapest University of Technology and Economics, Hungary
- Research and tool development to address *formal verification* and *model-driven engineering* challenges in the development of critical systems motivated by case studies and collaborations with industry partners
- Formally verified a *critical automotive subsystem* in a Hungarian national project (2019-1.3.1-KK-2020-00004) with thyssenkrupp Ltd.
- Developed *Refinery*, a cloud-based graph model and test data generator in the research project "Graph solver as a service" supported by the *2022 Amazon Resarch Award*

Assistant research fellow, *February 2018–December 2019*
MTA-BME Lendület Cyber-Physical Systems Research Group
- Created reliability models for *distributed railway interlocking systems* in a Hungarian national project (2018-1.3.1-VKE-2018-00040) with Prolan Zrt.
- Investigated case studies from the automotive, railway, and areospace (NASA JPL) domains
- Proposed model-based dependability verification techniques for cyber-physical production systems in the EFOP-3.6.2-16-2017-00013 project

Research trainee, **BioIntelligence Research Group,** *September 2014–June 2015*
Institute of Genomic Medicine and Rare Disorders, Semmelweis University, Budapest, Hungary
- Developed semi-supervised classification algorithms for EEG time series data in the Hungarian national project OTKA 91269 "BioMining: Machine Learning for Biomedical Tasks"

Talks and research visits

Invited talk at the **LowCoMote Industrial Workshop** (Budapest) *December 2022*
- **Kristóf Marussy**, Oszkár Semeráth. "Model Abstraction, Model Management and Graph Generation in the Cloud".

Graduate Resarch Trainee, **McGill University,** Montreal, Canda, *May–June 2019, October 2022*
Department of Electrical and Computer Engineering (Prof. Dániel Varró)

Invited talk at the **Linked Data Benchmark Council** (LDBC) Technical User Group *June 2022*
Meeting Workshop at the ACM SIGMOD 2022 conference (remote)
- Oszkár Semeráth, **Kristóf Marussy**. "Generation techniques for consistent, realistic, diverse and scalable graphs".

Research visit at the **University of L'Aquila,** Italy, *March 2019*
Department of Electrical and Computer Engineering (Prof. Vittorio Cortellessa)

Teaching and mentoring

Course coordinator, Critical Systems Laboratory *February 2024–*

- Hands-on laboratory course for MSc students on the design, verification, deployment, and maintenance of critical distributed services

Teaching assistant, BME *2014 September–January 2022*

- Over 9 years of experience with courses at the Department of Measurement and Information Systems (including *Formal Methods, Software Engineering*) and at the Department of Computer Science and Information Theory (including *Probability Theory, Algorithms*)

Supervised 7 × BSc, 4 × MSc student thesis works and numerous Hungarian Scientific Students' Assocation research works (5 × 1st prize, 4 × 2nd prize, 1 × 3rd prize, 1 × merit at the university level, 1 × 2nd prize, 1 × merit and the national level)

Academic service

Reviewer for journals including *Science of Computer Programming* and *Journal of Logical and Algebraic Methods in Programming*

Program Committee member at the *First Large Language Models for Model-Driven Engineering Workshop* (LLM4MDE 2024) at the Software Technologies: Applications and Foundations (STAF 2024) conference

Extended Review Committee member at OOPSLA '23 (Core ranking A* programming languages conference) and ECOOP '22 and '23 (Core ranking A)

Artifact Evaluation Committee member at OOPSLA '23, ECOOP '23 and '22, FASE '23 and '24, ESOP '22

Sub-rewier at ACM SAC, DDECS, DEPCOS, DSN, FASE, FTSCS, iFM, MODELS, and QEST conferences

Scholarships and awards

New National Excellence (ÚNKP) scholarship *Won 4 times*

- Awarded by the *Natioanl Research, Development and Innovation Office* (NRDI) of Hungary to approximately 700 recipients per year
- Won in 2016 (MSc), 2018 (PhD student), 2021 (PhD candidate), and 2023 (postdoc)

Josef Heim Innovation Award *2023*

- Awarded by the *László Schnell Foundation* to 1 member of the *Department of Measurement and Information Systems* per year for exceptional work in innovation

OOPSLA Distinguished Artifact Reviewer Award *2021*

- Awarded by the *ACM Object-Oriented Programming, Systems, Languages & Applications* (OOPSLA 2021) conference to 2 members of the Artifact Evaluation Committee

László Schnell Publication Award *2021*

- Awarded for the paper Márton Búr, **Kristóf Marussy**, Brett H. Meyer, and Dániel Varró. "Worst-Case Execution Time Calculation for Query-Based Monitors by Witness Generation". In: *ACM Trans. Embed. Comput. Syst.* 20.6 (2021), pp. 1–36. DOI: 10.1145/3471904. arXiv: 2102.03116 [cs.SE] by the *László Schnell Foundation*

László Schnell Award *2020*

- Awarded by the *László Schnell Foundation* to 1 member of the *Department of Measurement and Information Systems* per year for exceptional work in research

Hungarian National Higher Education Scholarship *September 2013–January 2018*

- Awarded to up to 0.8% of Hungarian university students based on merit in studies and research

Language skills

Hungarian: *native* English: *fluent, advanced (CEFR C1) certification* French: *threshold (CEFR B1)*

Selected publications

- **Kristóf Marussy**, Attila Ficsor, Oszkár Semeráth, and Dániel Varró. "Refinery: Graph Solver as a Service". In: *46th International Conference on Software Engineering*. ACM, 2024. DOI: 10.1145/3639478.3640045
  - Forthcoming in leading software engineering conference, **CORE ranking: A***
  - Tool demonstration and more information: https://conf.researchr.org/details/icse-2024/icse-2024-demonstrations/23/Refinery-Graph-Solver-as-a-Service
- Boqi Chen, **Kristóf Marussy**, Sebastian Pilarski, Oszkár Semeráth, and Dániel Varró. "Consistent Scene Graph Generation by Constraint Optimization". In: *37th IEEE/ACM International Conference on Automated Software Engineering*. ACM, 2022. DOI: 10.1145/3551349.3560433
  - Published in leading software engineering conference, **CORE ranking: A***
  - Independent citations: 1
- **Kristóf Marussy**, Oszkár Semeráth, and Dániel Varró. "Automated Generation of Consistent Graph Models with Multiplicity Reasoning". In: *IEEE Trans. Softw. Eng.* 48.5 (2022), pp. 1610–1629. DOI: 10.1109/TSE.2020.3025732
  - Published in leading software engineering journal, **impact factor: 7.4**
  - Independent citations: 3
- Márton Búr, **Kristóf Marussy**, Brett H. Meyer, and Dániel Varró. "Worst-Case Execution Time Calculation for Query-Based Monitors by Witness Generation". In: *ACM Trans. Embed. Comput. Syst.* 20.6 (2021), pp. 1–36. DOI: 10.1145/3471904. arXiv: 2102.03116 [cs.SE]
  - Independent citations: 2
- **Kristóf Marussy**, Oszkár Semeráth, Aren A. Babikian, and Dániel Varró. "A Specification Language for Consistent Model Generation based on Partial Models". In: *J. Obj. Technol.* 19.3, 12 (2021). DOI: 10.5381/jot.2020.19.3.a12
  - Independent citations: 3
- **Kristóf Marussy**, Oszkár Semeráth, and Dániel Varró. "Incremental View Model Synchronization Using Partial Models". In: *Proceedings of the 21th ACM/IEEE International Conference on Model Driven Engineering Languages and Systems*. ACM, 2018, pp. 323–333. DOI: 10.1145/3239372.3239412
  - Independent citations: 5
- **Kristóf Marussy** and Krisztián Buza. "SUCCESS: A New Approach for Semi-supervised Classification of Time-Series". In: *ICAISC 2013*. LNCS 7894. Springer, 2013, pp. 437–447. DOI: 10.1007/978-3-642-38658-9_39
  - Independent citations: 31

All publications

DBLP	https://dblp.org/pid/130/6479.html
Google Scholar	https://scholar.google.com/citations?user=E9CKNYoAAAAJ
Hungarian Science Bibliography (MTMT)	https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=10062709
h-index	7
Independent citations	126