Personal information

Name / Surname	**Oszkár Semeráth**
Personal Email	semerath@mit.bme.hu
Home page	https://oszkarsemerath.github.io/
Nationality	Hungarian

Language

Mother tongue	**Hungarian**
English	B2 degree, 2009
German	B1 degree (writing/reading), 2019

Education

PhD in Software Engineering 2014–2019	Budapest University of Technology and Economics Department of Measurement and Information Systems. Honour: *summa cum laude*, Thesis work: *Formal Validation and Model Generation for Domain-Specific Languages by Logic Solvers* Supervisor: Prof. Dániel Varró
MSc in Software Engineering 2011–2014	Budapest University of Technology and Economics, Specialization: Safety-Critical System Engineering. Thesis work: *Consistency Analysis of Domain-Specific Languages*
BSc in Software Engineering 2007–2011	Budapest University of Technology and Economics, Specialization: Information Technology. Thesis work: *Formal Analysis of Model Transformations* (*hun*)
High school 2007	Török Ignác High School, math specialization

Positions

2021 –	Assistant Professor, Budapest University of Technology and Economics
2020 – 2021	Research Fellow, Budapest University of Technology and Economics
2019 – 2020	Research Fellow, MTA-BME Lendület Cyber-Phisical Systems Research Group
2016 – 2019	Research Assistant, MTA-BME Lendület Cyber-Phisical Systems Research Group
2016 – 2019	3×2 months Graduate Research Trainee, McGill University, Canada
2014 – 2016	PhD student, Budapest University of Technology and Economics

Research Projects

2024-2026	Verification of AI/ML Positioning systems with Improved Reliability, European Space Agency, Researcher
2024-2027	Simulator-based AI testing, ONR Global, Principal Investigator
2022	Amazon Research Award, co-Principal Invisigator (*international, 74 winners*)
2021 – 2022	Research Collaboration with a railway supplier (*testing of AI-based systems*)
2020 – 2021	Research collaboration with Component ltd. (*AI-based manufacturing and cost estimator for engineering blueprints*)
2020 – 2021	Competetiveness and Excellence Collaboration program, Prolan ltd. (*systematic generation of railway architecures for the testing of railway switches*)
2018 –	Higher Education Excellence Program, NRDI Fund (*AI/Future mobility research*)
2014 – 2016	"Verification of Complex Systems" collaboration, Ericsson Hungary
2013	Artemis R3-COP research project (*international, testing of laser-guided autonomous forklift robots*)

Research Visits

2021	ZalaZONE (*Zalaegerszeg, Hungary, autonomous vehicle test track*)
2019	Karr Lab (*New York, USA, molecular simulation for cancer research*)

Awards and Scholarships

2022	Young Researcher Award (*Hungarian Academy of Science, 22 awards/year, all fields*)
2022	John George Kemeny Award (*John von Neumann Computer Society, 2 awards/year*)
2021	Josef Heim Innovation Award (*departmental*)
2018, 2020	2× László Schnell Publication Award (*departmental*)
2017, 2020, 2021	3× New National Excellence Program (ÚNKP) (*national scholarship, published on official channel of the university*)
2016	Best Presentation Award, CSCS Conference (*national*)
2013	IEEE/ACM Best Paper Award, MODELS2013 (*international, 1 out of 48 papers*)
2011, 2013, 2014	Student Research Competition (TDK): university 1^{st}, 2^{nd}, national 1^{st} places

Publication Record

Repositories	Hungarian Scientific Bibliography (10045161), Google Scholar
Citations	200+ independent citations, selected citations: *IEEE Transactions on Software Engineering*, *IEEE Access (1,2)*, Empirical Software Engineering
International presentations	Eindhoven (The Netherlands), Saint-Malo (France), Marburg (Germany), Gothenburg (Sweden), Thessaloniki (Greece), Montreal (Canada), Luxemburg
Hungarian presentations	*Software Testing 2021, Budapest,* `https://www.iir-hungary.hu/` *Formal Methods in Information Technology*, Eszterházy Károly University, 2021
Selected publications	[1] Semeráth, Nagy, Varró: *A Graph Solver for the Automated Generation of Consistent Domain-Specific Models.* International Conference on Software Engineering, 2018. *Citations: 20* (*Previous paper from Hungarian authors was accepted 22 years ago*) [2] Semeráth, Barta, Horváth, Szatmári, Varró: *Formal Validation of Domain-Specific Languages with Derived Features and Well-Formedness Constraints.* Software and System Modeling, 2017. *Citations: 20* [3] Semeráth, Varró: *Iterative Generation of Diverse Models for Testing Specifications of DSL Tools.* Fundamental Approaches to Software Engineering, 2018. *Citations: 11* [4] Semeráth, Varró: *Graph Constraint Evaluation over Partial Models by Constraint Rewriting.* International Conference on Model Transformation, 2017. *Citations: 11* [5] Marussy, Semeráth, Varró: *Automated Generation of Consistent Graph Models with Multiplicity Reasoning.* IEEE Trans. on Software Engineering, 2021. *IF: 9.321* (*Previous paper from Hungarian authors was accepted 12 years ago*)

Teaching and Talent Care

2020 –	Lead lecturer: *Automated Software Engineering* (*150 students*), *Model-based Systems Design* (*120 students*) *Critical Architectures Laboratory,* *Critical Systems Integration Laboratory,* *Project Laboratory, BSc and MSc Thesis Projects* (*administration of 100+ students*)
2013 – 2019	Teaching and Lab Assistant: *System Modeling, Eclipse-Based Development and Integration, Critical Architectures Laboratory, Critical Systems Integration Laboratory, Formal Methods, Model Driven Software Development, System Integration, Languages and Automata*
Supervising	21 thesis works, 1 ongoing PhD student
Student Research Competition	8 thesis works, 6 awards (*Hungary*) *Special Award for the supervision of best woman researcher*
Research Programs	5 co-supervised *Summer Undergraduate Research* projects, (*McGill, Canada*)
Teaching Awards	Departmental award for the development of automated homework generation and evaluation framework (*System Modeling, annually 600+ students, homework in three languages*)
Teaching Awards	Departmental award for the management of IMSC talent care program

Academic Service

Organizing	*Graph Computation Models (GCM@STAF) '25* co-chair *International Conference on Software Engineering '25*, Demo PC member *ACM/IEEE I.C. on Model-Driven Engineering Languages '23*, proceedings chair *Eur. Conf. on Modelling Foundations and Applications '24*, PC member *Language Models for Model-Driven Engineering '24*, PC member *IEEE WS. on Validation and Verification of Future Cyber-Physical Systems '23*, PC member
Reviewing	30+ conference reviews (including *BIS2020, ECMFA2018, 4×FASE, 2×ICGT, 2×ICMT 2×MODELS, SEFM2019, SLE2015*) 4 journal review (*J. Syst. Softw., Int. J. Softw. Tools Technol. Transf., Concurr. Comput. Pract. Exp.*)
2019–	Student research competition (TDK/OTDK) reviewing/scoring (*national/university level*)
2016	Local chair at Minisymposium conference (*departmental*)
2013	Student volunteer at STAF2013 research conference (*international*)