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Europass Curriculum Vitae

Personal information

Surname(s) / First name(s)	**Ráth, István, PhD.**
Telephone(s)	+36 1 463 35 79
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Email(s)	rath@mit.bme.hu
Nationality(-ies)	Hungarian
Date of birth	July 13, 1982
Mother tongue(s)	**Hungarian**

Self-assessment *European level*(*)	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user
German	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user
Polish	A1 Basic user	A1 Basic user	A1 Basic user	A1 Basic user	A1 Basic user

(*) *Common European Framework of Reference (CEF) level*

Language certificates

English	Hungarian State Proficiency certificate
German	Hungarian State Intermediate certificate

Education

PhD in Software Engineering 2006-2011	Budapest University of Technology and Economics, Faculty of Electrical Engineering and Informatics, Department of Measurement and Information Systems. Supervisor: Dr-habil. Dániel Varró. Title of thesis: *Event-driven Model Transformations in Domain-specific Modeling Languages*
MSc in Computer Engineering 2001-2006	Budapest University of Technology and Economics, Faculty of Electrical Engineering and Informatics
International Baccalaureate 1996-2001	Karinthy Frigyes High School, 43 out of 45 points (excellent)

Scholarships and awards

2011	ACM Distinguished Paper Award at the 26th IEEE/ACM International Conference On Automated Software Engineering (ASE'11)
2010	Visiting scholar at the University of Waterloo, Canada, at the Generative Software Development Lab led by Dr. Krzysztof Czarnecki
2009	ACM Distinguished Paper Award and IEEE Best Paper of the Conference Award, at the 12th International Conference on Model Driven Engineering Languages and Systems (MODELS'09)
2009-2011	PhD Doctoral Candidate Scholarschip of the Budapest University of Technology and Economics
2007	Pro Scientia Award by the National Council of the Hungarian Scientific Students' Association
2007	First Prize at the 2007 National Scientific Students' Association conference
2005	First Prize at the 2005 BUTE Scientific Students' Association conference
2005/2006	Scholarship of the Republic of Hungary

Memberships

2005 -	Association for Computing Machinery (ACM), member no. 7198179
2012 -	Institute of Electrical and Electronics Engineers (IEEE), member no. 90393762

Research

2004-	Since 2004 I have been involved in the VIATRA2 research project of BUTE's Department of Measurement and Information Systems. I am currently the chief technological architect of the developer team behind the open source VIATRA2 modeling and model transformation framework, which is being used in various international and EU-funded academic and industrial research projects (DECOS, SENSORIA, DIANA, MOGENTES, SecureChange).
	`http://eclipse.org/gmt/VIATRA2`
	`http://viatra.inf.mit.bme.hu`

2010-	I am the leader of the EMF-IncQuery open source project, a spin-off of the VIATRA2 research project that targets a broader industrial audience with our state-of-the-art incremental model query technology applied to the Eclipse Modeling Framework. `http://viatra.inf.mit.bme.hu/incquery`
2007-2008	I was a software developer for the BlueSpot project, an early social media experiment that allowed groups of people to interact with each other using a special mobile phone application. `http://www.aether.hu/bluespot`

Professional experience

2010 -	OptXware Research & Development Ltd. Vice president in charge of strategy development. `http://optxware.com`
2006 -	Budapest University of Technology and Economics, Fault Tolerant Systems Research Group. Research associate. `http://www.inf.mit.bme.hu/en`

Competitions

ACM International Collegiate Programming Contest	
2004	Central European Finals, Honorable Mention
2004	Hungarian National Finals, 3. place
2003	BUTE Finals, 4. place

Management skills

Most important focus	Agile software project management
I like to	participate in innovative r&d projects
I have experience in	deadline management, requirements analysis, decision making, fostering talent
I have worked in	EU research projects, software development projects in the embedded industry (US/Germany), international open source tool development and integration projects

Tech skills

Most important focus	Java, Eclipse, OSGi, model-driven/assisted engineering
I am also experienced in	C/C++ (STL), C#, Prolog, SQL, PL/SQL, PHP, Javascript
I developed software for	Eclipse/RCP, Linux/Qt, Windows/.NET, Symbian, J2EE, J2ME, Android, iOS
My research interests include	model-driven software engineering with domain-specific modeling languages, code generation and generative programming, scalability, graph algorithms

Educational activity

2010-	Model-driven software design (BUTE course contributor, three semesters)
2010-	Service integration (BUTE course contributor), three semesters)
2010-	Eclipse-based Development and Integration (BUTE course lecturer, three semesters)

2009-	Eclipse Technologies (BUTE course lecturer, three semesters)
2007-2009	UML-based modeling and analysis (BUTE course instructor, 3 semesters)
2006-	Eclipse software development (industrial courses for OptxWare Research and Development Ltd., 6 courses)
2005-	Open Development Systems (BUTE course instructor and lecturer, 4 semesters)
2005-2006	Declarative programming (BUTE course instructor, 3 semesters)
2005-2006	Computer Programming 5 (BUTE course instructor, 2 semesters)
Fall 2004	Computer Networks (BUTE course)

Publications

Journal papers

SoSym 2011	Gábor Bergmann, István Ráth, Gergely Varró, and Dániel Varró. Change-driven model transformations. *Software and Systems Modeling*, pages 1–31, 2011. 10.1007/s10270-011-0197-9
SoSym 2010	István Ráth, András Ökrös, and Dániel Varró. Synchronization of abstract and concrete syntax in domain-specific modeling languages. *Software and Systems Modeling*, 9:453–471, 2010. 10.1007/s10270-009-0122-7
STTT 2009	Ákos Horváth, Gábor Bergmann, István Ráth, and Dániel Varró. Experimental assessment of combining pattern matching strategies with viatra2. *International Journal on Software Tools for Technology Transfer (STTT)*, 12:211–230, 2010. 10.1007/s10009-010-0149-7

Book chapters

SENSORIA-2 2011	Gábor Bergmann, Artur Boronat, Reiko Heckel, Paolo Torrini, István Ráth, and Dániel Varró. *Rigorous Software Engineering for Service-Oriented Systems - Results of the SENSORIA project on Software Engineering for Service-Oriented Computing*, volume 6582 of *Lecture Notes in Computer Science*, chapter Advances in model transformation by graph transformations: Specification, Analysis and Execution. Springer, 2011
SENSORIA-1 2011	István Ráth and Philip Mayer. *Rigorous Software Engineering for Service-Oriented Systems - Results of the SENSORIA project on Software Engineering for Service-Oriented Computing*, volume 6582 of *Lecture Notes in Computer Science*, chapter The SENSORIA Development Environment. Springer, 2011
FMN 2010	András Balogh, Gábor Bergmann, György Csertán, László Gönczy, Ákos Horváth, István Majzik, András Pataricza, Balázs Polgár, István Ráth, Dániel Varró, and Gergely Varró. Workflow-driven tool integration using model transformations. In Gregor Engels, Claus Lewerentz, Wilhelm Schaefer, Andy Schuerr, and Bernhard Westfechtel, editors, *Graph Transformations and Model-Driven Engineering*, volume 5765 of *Lecture Notes in Computer Science*, pages 224–248. Springer Berlin / Heidelberg, 2010. 10.1007/978-3-642-17322-6_11

International conference papers

MODELS 2012	Ábel Hegedüs, Ákos Horváth, István Ráth, and Dániel Varró. Query-driven soft interconnection of emf models. In *ACM/IEEE 15th International Conference on Model Driven Engineering Languages & Systems*, Innsbruck, Austria, 2012. Springer, Springer. Accepted. Acceptance rate: 23%
ICGT 2012	Gábor Bergmann, István Ráth, Tamás Szabó, Paolo Torrini, and Dániel Varró. Incremental pattern matching for the efficient computation of transitive closures. In *Sixth International Conference on Graph Transformation*, Bremen, Germany, 2012. Accepted
ECMFA 2012	István Ráth, Ábel Hegedüs, and Dániel Varró. Derived features for EMF by integrating advanced model queries. In *8th European Conference on Modelling Foundations and Applications*, Kgs. Lyngby, Denmark, 2012. Springer, Springer. To appear
TOOLS 2012	Gábor Bergmann, Ábel Hegedüs, Ákos Horváth, Zoltán Ujhelyi, István Ráth, and Dániel Varró. Integrating efficient model queries in state-of-the-art EMF tools. In *TOOLS Europe 2012*, Prague, 2012. Springer, Springer. To appear
VL/HCC 2011	Ábel Hegedüs, Ákos Horváth, István Ráth, Moisés Castelo Branco, and Dániel Varró. Quick fix generation for DSMLs. In *IEEE Symposium on Visual Languages and Human-Centric Computing, VL/HCC 2011*, Pittsbourgh, PA, USA, 09/2011 2011. IEEE Computer Society, IEEE Computer Society. Acceptance rate: 33%

ASE 2011	Ábel Hegedüs, Ákos Horváth, István Ráth, and Dániel Varró. A model-driven framework for guided design space exploration. In *26th IEEE/ACM International Conference on Automated Software Engineering (ASE 2011)*, Lawrence, Kansas, USA, 11/2011 2011. IEEE Computer Society, IEEE Computer Society. ACM Distinguished Paper Award, Acceptance rate: 15%
ICMT 2011	Gábor Bergmann, Zoltán Ujhelyi, István Ráth, and Dániel Varró. A Graph Query Language for EMF models. In *International Conference on Model Transformation, ICMT'11*. Springer, 2011. Accepted
MODELS 2010	Gábor Bergmann, Ákos Horváth, István Ráth, and Dániel Varró. Incremental evaluation of model queries over EMF models. In Dorina Petriu, Nicolas Rouquette, and Øystein Haugen, editors, *Model Driven Engineering Languages and Systems*, volume 6394 of *Lecture Notes in Computer Science*, pages 76–90. Springer Berlin / Heidelberg, 2010. Acceptance rate: 21%; DOI: 10.1007/978-3-642-16145-2_6
SEFM 2010	Ábel Hegedüs, Gábor Bergmann, István Ráth, and Dániel Varró. Back-annotation of simulation traces with change-driven model transformations. In *Proceedings of the Eighth International Conference on Software Engineering and Formal Methods*, pages 145–155, Pisa, 09/2010 2010. IEEE Computer Society, IEEE Computer Society. Acceptance rate: 22%
ASMTA 2010	Ajab Khan, Reiko Heckel, Paolo Torrini, and István Ráth. Model-based stochastic simulation of P2P VoIP using graph transformation. In *Proceedings of the 17th International Conference on Analytical and Stochastic Modeling Techniques and Applications*, 2010
FASE 2010	Paolo Torrini, Reiko Heckel, and István Ráth. Stochastic simulation of graph transformation systems. In David Rosenblum and Gabriele Taentzer, editors, *Fundamental Approaches to Software Engineering*, volume 6013 of *Lecture Notes in Computer Science*, pages 154–157. Springer Berlin / Heidelberg, 2010. Acceptance rate: 24%; DOI: 10.1007/978-3-642-12029-9_11
MODELS 2009	István Ráth, Gergely Varró, and Dániel Varró. Change-driven model transformations. In Andy Schürr and Bran Selic, editors, *Model Driven Engineering Languages and Systems, 12th International Conference, MODELS 2009, Denver, CO, USA, October 4-9, 2009. Proceedings*, volume 5795 of *Lecture Notes in Computer Science*, pages 342–356. Springer, Springer, 2009. Springer Best Paper Award and ACM Distinguished Paper Award; Acceptance rate: 18%
ICMT 2009	Gábor Bergmann, Ákos Horváth, István Ráth, and Dániel Varró. Efficient model transformations by combining pattern matching strategies. In Richard Paige, editor, *Theory and Practice of Model Transformations*, volume 5563 of *Lecture Notes in Computer Science*, pages 20–34. Springer Berlin / Heidelberg, 2009. Acceptance rate: 23%; DOI: 10.1007/978-3-642-02408-5_3
VL/HCC 2008	István Ráth, Dávid Vágó, and Dániel Varró. Design-time simulation of domain-specific models by incremental pattern matching. In *IEEE Symposium on Visual Languages and Human-Centric Computing, VL/HCC 2008, Herrsching am Ammersee, Germany, 15-19 September 2008, Proceedings*, pages 219–222. IEEE, IEEE, 2008. Acceptance rate: 29%
ICGT 2008	Gábor Bergmann, Ákos Horváth, István Ráth, and Dániel Varró. A benchmark evaluation of incremental pattern matching in graph transformation. In Hartmut Ehrig, Reiko Heckel, Grzegorz Rozenberg, and Gabriele Taentzer, editors, *Graph Transformations*, volume 5214 of *Lecture Notes in Computer Science*, pages 396–410. Springer Berlin / Heidelberg, 2008. Acceptance rate: 40%; DOI: 10.1007/978-3-540-87405-8_27
ICMT 2008	István Ráth, Gábor Bergmann, András Ökrös, and Dániel Varró. Live model transformations driven by incremental pattern matching. In Antonio Vallecillo, Jeff Gray, and Alfonso Pierantonio, editors, *Proc. First International Conference on the Theory and Practice of Model Transformations (ICMT 2008)*, volume 5063/2008 of *Lecture Notes in Computer Science*, page 107–121. Springer Berlin / Heidelberg, Springer Berlin / Heidelberg, 2008. Acceptance rate: 31%
Invited international paper	
WCSQ 2009	András Balogh, András Pataricza, and István Ráth. Automated verification and validation of domain specific languages and their applications. In *Proceedings of the 4th World Congress for Software Quality*, pages 1–6, Bethesda, USA, 2009
National conference presentations	
Tavaszi Szél 2009	István Ráth. Modelltranszformációk integrált alkalmazása domain-specifikus nyelvekben. In *Tavaszi Szél Konferenciakiadvány*, 2009
BUTE MiniSy 2009	István Ráth. Enhancing design-time model execution in domain-specific languages by incremental pattern matching. In *Proceedings of the 16th PhD Minisymposium*, pages 16–20. Budapest University of Technology and Economics, Department of Measurement and Information Systems, 2009
BUTE MiniSy 2008	István Ráth. Design-time simulation of domain-specific modeling languages by interactive model transformation. In *Proceedings of the 15th PhD Minisymposium*, pages 58–62. Budapest University of Technology and Economics, Department of Measurement and Information Systems, 2008

BUTE MiniSy 2007 — István Ráth. Challenges for advanced domain-specific modeling frameworks. In *Proceedings of the 14th PhD Minisymposium*, pages 118–120. Budapest University of Technology and Economics, Department of Measurement and Information Systems, 2007

CSCS 2006 — István Ráth. Declarative mapping between abstract and concrete syntax of domain-specific visual languages. In *The Proceedings of the Fifth Conference of PhD Students in Computer Science*, 2006

Tutorials and workshops

ASE 2011 — Gábor Bergmann, Ábel Hegedüs, Ákos Horváth, István Ráth, Zoltán Ujhelyi, and Dániel Varró. Implementing efficient model validation in EMF tools: Tool demonstration. In *26th IEEE/ACM International Conference on Automated Software Engineering (ASE 2011)*, Lawrence, Kansas, USA, 11/2011 2011. IEEE Computer Society, IEEE Computer Society

ECMFA 2011 — Gábor Bergmann, Ákos Horváth, István Ráth, and Dániel Varró. *Incremental Evaluation of Model Queries over EMF Models: A Tutorial on EMF-IncQuery*, volume 6698 of *Lecture Notes in Computer Science*, pages 389–390. Springer Berlin / Heidelberg, 2011. 10.1007/978-3-642-21470-7_32

MODELS 2010 — Gábor Bergmann, Ákos Horváth, István Ráth, and Dániel Varró. Incremental pattern matching over EMF: a tutorial on EMF-INCQuery, October 2010. Tutorials track of the ACM/IEEE 13th International Conference on Model Driven Engineering Languages and Systems (MODELS), `http://models2010.ifi.uio.no/tutorials.shtml\#Bergmann`

ASMTA 2010 — Ábel Hegedüs, István Ráth, and Dániel Varró. From bpel to sal and back: a tool demo on back-annotation with viatra2. *SEFM Posters and Tool Demo Session Track*, pages 35–42, 09/2010 2010

Grabats 2010 — Ábel Hegedüs, Zoltán Ujhelyi, István Ráth, and Ákos Horváth. Visualization of traceability models with domain-specific layouting. In *Proceedings of the Fourth International Workshop on Graph-Based Tools*, 2010

GT-VMT 2010 — Paolo Torrini, Reiko Heckel, István Ráth, and Gábor Bergmann. Stochastic graph transformation with regions. *Electronic Communications of the EASST, Proceedings of the Ninth International Workshop on Graph Transformation and Visual Modeling Techniques*, 2010

MDTPI 2009 — Balázs Polgár, István Ráth, Zoltán Szatmári, and István Majzik. Model-based Integration, Execution and Certification of Development Tool-chains. In *2nd ECMDA Workshop on Model-Driven Tool and Process Integration*, 2009

GT-VMT 2009 — Gábor Bergmann, István Ráth, and Dániel Varró. Parallelization of graph transformation based on incremental pattern matching. *Electronic Communications of the EASST, Proceedings of the Eighth International Workshop on Graph Transformation and Visual Modeling Techniques*, 18, 2009

GRaMoT 2008 — Gábor Bergmann, András Ökrös, István Ráth, Dániel Varró, and Gergely Varró. Incremental pattern matching in the VIATRA transformation system. In *GRaMoT'08, 3rd International Workshop on Graph and Model Transformation*. 30th International Conference on Software Engineering, 2008

DSPD 2006 — István Ráth and Dániel Varró. Challenges for advanced domain-specific modeling frameworks. In *International Workshop on Domain Specific Program Development (DSPD 2006)*, Nantes, France, July 2006

ECMDA 2005 — András Balogh, Attila Németh, András Schmidt, István Ráth, Dávid Vágó, Dániel Varró, and András Pataricza. The VIATRA2 model transformation framework. *Tool demo at the First European Conference on Model Driven Architecture - Foundations and Applications*, 2005