Curriculum vitae of Jan Hubička

Name: Jan Hubička
Born: 01/04/1978, Tábor, Czech Republic
Home address: Dukelských bojovníků 1944, Tábor, 390 03
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Education:

Master Degree in Computer Science, 2002
Faculty of Mathematics and Physics, Charles University in Prague
Concentrations: Discrete Mathematics, Compiler Design
Thesis: Ramsey Properties of Universal Sets, advisor Jaroslav Nešetřil

PhD Student, Computer Science, 2002–2010
Faculty of Mathematics and Physics, Charles University in Prague
Concentrations: Graph Homomorphisms, Universal and Generic Structures
Thesis: Combinatorial Properties of Finite Models, advisor Jaroslav Nešetřil

Employment history::

- Senior software developer at SUSE ČR s.r.o, Prague, 2000–2013
- Research fellow at Institute of Theoretical Computer Science, Charles University, Prague, 2003–2011
- PIMS Postdoctoral Fellow, University of Calgary, 2014–2015
- Senior manager at SUSE ČR s.r.o, Prague, 2016–
- Research fellow at Computer Science Institute, Charles University, Prague, 2012–

Teaching experience:

- Teaching assistant of discrete mathematics in 2002–2004
- Teaching assistant of algorithms in 2004–2007, 2009
- Lecturer of seminar about advanced code optimization techniques used in industral strength compilers 2003–2008
- Lectures on advanced code optimization techniques used in industral strength compilers 2008–2010
- Lecturer of workshops on digitizing historical photography 2009-2010
- Lecturer of Math 211 — Linear Methods I, University of Calgary, 2014

- Lecturer of Math 311 — Linear Methods II, University of Calgary, 2015
- Co-lecturer of Ramsey Theory course (with Jaroslav Nešetřil), Charles University, Prague, 2016

Master degree students (Finished):

- Martin Jambor: Optimizations in the GNU Compiler Collection targeted at scientific computing, 2005–2007
- Ondřej Bílka: Pattern Matching in Compilers, 2011–2012
- Martin Liška: Optimizing large applications, 2012–2013

Current students:

- Ondrej Bílka: Optimizing dynamic and functional languages, PhD degree, 2013–present
- Ladislav Láska: Scalable link-time optimization, master degree, 2014–present

Membership in program committees:

- GREPS: International Workshop on GCC for Research in Embedded and Parallel Systems, 16th International Conference on Parallel Architectures and Compilation Techniques (PACT), Brasov, Romania, 2007
- Legacy of three color photography, Prague, 2008
- GCC Research Opportunities, 4th International Conference on High-Performance Embedded Architectures and Compilers (HiPEAC), Paphos, CYPRUS, January 25-28, 2009
- 2nd International Workshop on GCC Research Opportunities, HiPEAC 2010, Pisa, 2010
- GROW 2011: 3rd International Workshop on GCC Research Opportunities, CGO, Chamonix 2011
- GNU Cauldron, Prague, 2012
- GNU Cauldron, Prague, 2015

Presentations (selected):

- x86-64 support in GCC. Paper presentation at GCC Summit conference, Ottawa, 2003
- Call graph module in GCC (framework for intraprocedural optimization). Paper presentation at GCC Summit conference, Ottawa, 2004
- Profile driven optimizations in GCC. Paper presentation at GCC Summit conference, Ottawa, 2005
- Interprocedural optimization on function local SSA form in GCC. Paper presentation at GCC Summit conference, Ottawa, 2006
- Profile Driven Optimizations in GCC. Tutorial talk at Moscow GCC on Itanium Improvement Workshop, 2006
- Finite Paths are Universal. Presentation of joint result with Jaroslav Nešetřil, COMBSTRU final workshop, Barcelona, 2006
- Preparing of Albumen Paper. Tutorial talk at Historické fotografické techniky/Edeldrucke, Jindřichův Hradec, 2006
- Interprocedural Optimization Framework. Tutorial talk at GCC track of Gelato ICE, 2007
- Interprocedural optimization framework in GCC. Paper presentation at GCC Summit conference, Ottawa, 2007
- Color works of Bohumil Štastný, Legacy of three color photography, Prague, 2008
- Digitizing Historical Negatives, 9. konference Archivy, knihovny, muzea v digitálním světě, Prague, 2008
- Universal structures as shadows of ultrahomogeneous structures, Fete of Combinatorics and Computer Science 2009, Keszthely, Hungary
- Optimizing real world applications with GCC Link Time Optimization, Paper presentation at GCC Summit conference, Ottawa, 2010
- Some examples of universal and generic partial orders. Presentation of joint results with Jaroslav Nesetril at Young Researchers Forum, MFCS, 2010
- Link time optimization in GCC. Talk at OpenSUSE conference, Nuernberg, 2011
- Explicit construction of universal structures as shadows of ultrahomogeneous structures. Presentation of joint results with Jaroslav Nesetril at LMS Northern Regional Meeting and Workshop on Homogeneous Structures, Leeds 2011

- Digital processing of early color photography. Talk at OpenSUSE conference, Nuernberg, 2011
- Ranná barvná fotografie. Talk at Archivy, knihovny a muzea v digitálním světě.
- Constrained homomorphism orders. Presentation of joint results with J. Fiala and Y. Long at ČS Grafy, Litomyšl, 2012
- Constrained homomorphism orders. Presentation of joint results with J. Fiala and Y. Long at 2012 Shanghai Conference on Algebraic Combinatorics, Shanghai, 2012
- Locally injective homomorphisms are universal. Presentation of joint results with J. Fiala and Y. Long at 2nd Workshop on Homogeneous Structures, Prague, 2012
- Constrained homomorphism orders. Presentation of joint results with J. Fiala and Y. Long at Bordeaux Graph Workshop, Bordeaux, 2012
- Collection of Finlay-Color negatives from the American Colony in Jerusalem, Space, Color, Motion, Prague, 2013
- Combinatorial bounds on relational complexity. Presentation of joint results with D. Hartman and J. Nešetřil, EUROCOMB, Pisa, 2013
- Bowtie-free graphs have Ramsey lift. Universality and Homogeneity Hausdorff Trimester Program, Bonn, 2013
- Devirtualization in GCC. GNU Cauldron, Cambridge, 2014
- Interprocedural and link-time optimization in GCC. IBM Colloquia, New York, 2014
- Ramsey classes with algebraical closure and forbidden homomorphisms. Presentation of joint results with J. Nešetřil, Algebraic and Model Theoretical Methods in Constraint Satisfaction, Banff, 2014
- Ramsey Classes by Partite Construction. 2 lectures, Permutation Groups and Transformation Semigroups, EPSRC Durham Symposium, 2015
- An universality argument for graph homomorphisms. Presentation of joint results with J. Fiala and Y. Long, Eurocomb, 2015
- Ramsey classes with forbidden homomorphisms and a closure. Presentation of joint results with J. Nešetřil, Eurocomb, 2015
- Ramsey classes with forbidden homomorphisms and a closure. Presentation of joint results with J. Nešetřil, Shanghai Jiao Tong University, 2015

- Ramsey lifts of classes of intersection graphs. Presentation of joint results with J. Nešetřil, A. Aranda, S. Chaplick and J. Jasinski CanaDAM, 2015
- Ramsey classes with algebraic closure and forbidden homomorphisms. Logic Seminar, University of Illinois at Urabana-Champaign, 2015
- Examples of Ramsey lifts. Combinatorial Seminar, University of Illinois at Urabana-Champaign, 2015
- Types and type based optimizations in GCC. GNU Tools Cauldron, 2015
- Multiamalgamation classes are Ramsey. Homogeneous Structures, Banff 2015
- Ramsey classes — properties, examples and constructions. Combinatorial seminar, Iowa State University. 2015

Software projects (selected):

- Koules (game), 1993–1995
- XaoS (realtime fractal zoomer), 1995–1999
- AA-project (ASCII art library and tools), 1997–2000
- GNU Compiler Collection (GCC) i386 backend improvements, 1997–2000
- Profile driven optimizations in GCC, 1998–2003
- Port of GCC to x86-64 architecture, Architecture Binary Interface design, 2000–2010
- Interprocedural optimization framework in GCC, 2004–2010
- Incremental scalable link time optimization framework in GCC, 2009–

Papers accepted to refereed international journals:

- J. Hubička, J. Nešetřil: Finite Paths are Universal, Order 21 (2004), 181–200.
- J. Hubička, J. Nešetřil: On universal posets represented by means of trees and other simple graphs, European J. Comb. 26 (2005), 765–778
- J. Hubička, J. Nešetřil: Finite presentation of homogeneous graphs, posets and Ramsey classes, Israel J. Math 149 (2005), 21–44
- J. Hubička, J. Nešetřil: A Finite Presentation of the rational Urysohn Space, Topology and its Applications 155 (14) (2008), 1483-1492

- J. Hubicka, J. Jost, Y. Long, P. F. Stadler, L. Yang: Relations between grpahs, Ars Mathematica Contemporanea 6 (2) (2012),
- J. Fiala, J. Hubička, Y. Long: Universality of intervals of line graph order, European Journal of Combinatorics 41 (2014), 221-231
- D. Hartman, J. Hubicka, D. Masulovc: Homomorphism-homogeneous L-colored graphs, European Journal of Combinatorics 35 (2014), 313-323
- J. Hubička, J. Nešetřil: Homomorphism and embedding universal structures for restricted classes, to appear in Journal of Multiple-Valued Logic and Soft Computing (2015)
- D. Hartman, J. Hubička, J. Nešetřil: Complexities of relational structures, Mathematica Slovaca 65 (2) (2015), 229-246

Papers accepted to international conferences:

- J. Hubička: Porting GCC to the AMD64 architecture. GCC Developers' Summit Proceedings 2003
- J. Hubička: Call graph module in GCC. GCC Developers' Summit Proceedings 2004
- J. Hubička: Profile driven optimizations in GCC. GCC Developers' Summit Proceedings 2005
- J. Hubička: Interprocedural optimization on function local SSA form. GCC Developers' Summit Proceedings 2006
- J. Hubička: Interprocedural optimization framework in GCC. GCC Developers' Summit Proceedings 2007
- J. Hubička, T. Glek: Optimizing real world applications with GCC Link Time Optimization. GCC Developers' Summit Proceedings 2010
- D. Hartman, J. Hubička, J. Nešetřil: Combinatorial bounds on relational complexity (extended abstract), EUROCOMB, 2013
- D. Hartman, J. Hubička, J. Nešetřil: Towards bounds of relational complexity (extended abstract), Bordeaux Graph Workshop, 2014
- J. Hubička, J. Nešetřil: Ramsey classes with forbidden homomorphisms and a closure (extended abstract), Electronic Notes in Discrete Mathematics, 2015
- J. Fiala, J. Nešetřil, Y. Long: An universality argument for graph homomorphisms (extended abstract), Electronic Notes in Discrete Mathematics, 2015

Submitted:

- J. Hubička, J. Nešetřil: Bowtie-free graphs have a Ramsey lift, submitted to Advances in Applied Mathematics, 2015

Book chapters:

- J. Hubička, J. Nešetřil: Universal structures with forbidden homomorphisms, Logic Without Borders: Essays on Set Theory, Model Theory, Philosophical Logic and Philosophy of Mathematics (2015), 241-264
- J. Hubička, J. Nešetřil: Some examples of universal and generic partial orders, Model Theoretic Methods in Finite Combinatorics: AMS-ASL Special Session, 2009
- J. Hubička, Z. Kovács, Z. Kovács: Visualizations on the complex plane, Algebra systems and dynamic geometry systems in mathematics teaching, 12-27

Other publications (selected):

- Diploma thesis J. Hubička, Ramsey Properties of Universal Sets (Czech language), Charles University 2002
- Paper Z. Dvořák, J. Hubička, P. Nejedlý and J. Zlomek: Infrastructure for Profile Driven Optimizations in GCC Compiler, 2003
- Specification J. Hubička, A. Jaeger, M. Mitchel (ed.): System V Application Binary. Interface. x86-64 Architecture Processor Supplement, 2000–2007
- Paper J. Hubička, Šechtl and Voseček Studios (Czech language), Historická fotografie, 2007
- Paper J. Hubička, Digitizing historical photograph in Šechtl and Voseček Musuem of Photography (Czech language), Digitalizace aneb konec oslích uší, 2010

Participation in schools and programs for university students:

- Spring school on Combinatorics, 1999, 2000, 2003, 2006, Borová Lada,
- DocCourse: Permutation groups, structures, and polynomials, P. J. Cameron, Prague, 2004
- DocCourse: Modern Methods in Ramsey Theory, Ehud Friedgut, Vojtěch Rodl, Matias Schacht, 2005
- MiniDocCourse: Ergodic Ramsey Theory: A Dynamical Approach to Static Theorems, Vitaly Bergelson, Borová Lada, 2007

Participation in research programmes:

- Universality and Homogeneity, Hausdorff Trimester Program, Bonn, 2013

Award:

- IBM Faculty Award 2015

Other activities:

Digitization of archive Šechtl and Voseček
Software, web pages, historical research, co-authoring texts for exhibitions, preparing digital prints from historical negatives and cooperating on preparing the exhibitions