

Curriculum vitae of Tomáš Valla

Name: RNDr. Tomáš Valla, Ph.D.
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Education

- in 2012 obtained the Ph.D. degree, defended the thesis “Combinatorial Games Theory”
- in 2010 obtained the RNDr. degree
- 2006–2012: Ph.D. student at the Department of applied mathematics, Faculty of mathematics and physics, Charles University Prague, advisor: prof. RNDr. Jaroslav Nešetřil, DrSc.
- 2000–2006: Faculty of mathematics and physics, Charles University, Prague, computer science, discrete mathematics and optimization. Obtained masters degree. Graduated with honors.
- 1993–2000: Secondary school gymnázium A. Dvořáka, Kralupy n. Vlt. Graduated with honors.

Research interests

- combinatorial game theory
- algorithmic game theory
- complexity and algorithms
- graph theory
- Ramsey theory

Employment

- 2015–2016 employed as a researcher in the project TH01010737 of TAČR
- since 2012 assistant professor at the Faculty of Information Technology, Czech Technical University
- since 2012 employed as a researcher at the Computer Science Institute of Charles University under CE-ITI (Centre of Excellence – Institute for Theoretical Computer Science, grant number P202/12/G061)
- 2006–2011 employed as a researcher at the ITI (Institute for Theoretical Computer Science), Charles University, Prague, grant number 1M0021620808.
- 2010–2011: main researcher and administrator of the GAUK Project 66010 of Charles University Prague.
- since 2003 cooperation with the Centrum Holdings company: developer and lecturer
- since 2003 teaching at the Faculty of Mathematics and Physics, Charles University Prague

Teaching experience

- since 2014, instructor of the self designed course Combinatorial game theory, at Czech Technical University
- 2013, instructor of the Graph Algorithms course at Czech Technical University

- since 2013, coach of the ACM contestants at Czech Technical University, instructor of the ACM training course
- in 2012 awarded as one of the 10 best teachers at Faculty of Mathematics and Physics, Charles University, by students' voting
- 2012, instructor of the Automata and Grammars course at Czech Technical University
- since 2012, instructor of the Effective algorithms course at Czech Technical University
- 2009, 2010, instructor of the self-designed course Combinatorial game theory at Charles University Prague
- 2007, 2010–2012 teaching assistant of Algorithms and data structures course at Charles University Prague
- 2005–2010, teaching assistant of Discrete mathematics course and Graph theory course at Charles University Prague
- 2006–2013, advisor of several bachelor thesis and software projects at Charles University Prague
- 2007–2011, programming and algorithmic courses for the NetCentrum company.
- 2006–2012, instructor of the course Introduction into Problem Solving at Charles University Prague
- 2009, teaching assistant of Linear algebra course at Charles University Prague
- 2003–2006, teaching assistant of programming courses for mathematicians at Charles University Prague

Publications

- V. Blažej, O. Suchý, T. Valla: *A Simpler Bit-parallel Algorithm for Swap Matching*, submitted.
- P. Dvořák, T. Valla: *Automorphisms of the Cube n^d* , accepted to COCOON 2016.
- F. Cicalese, B. Keszegh, B. Lidický, D. Pálvölgyi, T. Valla: *On the Tree Search Problem with Non-uniform Costs*, (full paper), to appear in Theoretical Computer Science.
- F. Cicalese, B. Keszegh, B. Lidický, D. Pálvölgyi, T. Valla: *On the Tree Search Problem with Non-uniform Costs*, to appear in WG 2015 proceedings.
- P. Dvořák, T. Valla: *On the Computational Complexity and Strategies of Online Ramsey Theory*, Electronic Notes in Discrete Mathematics, Volume 49, November 2015, pp. 729–736.
- J. Cibulka, P. Gao, M. Krčál, T. Valla, P. Valtr: *Polynomial Bounds on Geometric Ramsey Numbers of Ladder Graphs*, Discrete & Computational Geometry 2014, Springer US, pp. 1–16.
- T. Valla, P. Veselý: *WALTZ: A Strong Tzaar-Playing Program*, Workshop on Computer Games, CGW 2013, Held in Conjunction with the 23rd International Conference on Artificial Intelligence, IJCAI 2013, Beijing, China, August 3, 2013, Revised Selected Papers, Series: Communications in Computer and Information Science, vol. 408 (eds: Cazenave, Winands, Iida), Springer, ISBN 978-3-319-05427-8, (2014), pp. 81–96.
- J. Cibulka, P. Gao, M. Krčál, T. Valla, P. Valtr: *Polynomial Bounds on Geometric Ramsey Numbers of Ladder Graphs*, (extended abstract), The Seventh European Conference on Combinatorics, Graph Theory and Applications, Eurocomb 2013, Series: Publications of the Scuola Normale Superiore, Vol. 16, Subseries: CRM Series (eds: J. Nešetřil, M. Pellegrini), Springer, ISBN 978-88-7642-474-8, pp. 171–176.
- G. Piliouras, T. Valla, L. Végh: *LP-based Covering games with low Price of Anarchy*, (full paper), Theory of Computing Systems 2014, Springer US, pp. 1–23.

- A. Ferber, R. Glebov, M. Krivelevich, H. Liu, C. Palmer, T. Valla, M. Vizer: *The biased odd cycle game*, Electronic Journal of Combinatorics **20**, Issue 2 (2013).
- R. Šámal, T. Valla: *The guarding game is E-complete*, Theoretical Computer Science, Volume 521 (2014), ISSN 0304-3975, pp. 92–106.
- Doctoral thesis *Combinatorial Games Theory*, advisor: prof. RNDr. Jaroslav Nešetřil, DrSc., defended in August 2012.
- G. Piliouras, T. Valla, L. Végh: *LP-based Covering games with low Price of Anarchy*, (extended abstract), Proceedings of WINE 2012, Lecture Notes in Computer Science 7695 (2012), pp. 184–197.
- R. Šámal, R. Stolař, T. Valla: *Complexity of the cop and robber guarding game*, Proceedings of IWOCOA 2011, Lecture Notes in Computer Science 7056 (2011), pp. 361–373.
- some chapters in the book *Programátorské kuchařky*, (eds: Böhm, Lánský, Veselý), MatfyzPress Praha, 2011, ISBN 978-80-7378-181-1.
- J. Nešetřil, T. Valla: *On Ramsey-type Positional Games*, Journal of Graph Theory **64** (2010), Issue 4, pp. 343–354.
- V. Jelínek, J. Kynčl, R. Stolař, T. Valla: *Monochromatic triangles in two-colored plane*, Combinatorica **29** (2009), Issue 6, 699–718.
- Z. Dvořák, R. Škrekovski, T. Valla: *Planar graphs of odd-girth at least 9 are homomorphic to Petersen graph*, SIAM Journal on Discrete Mathematics **22** (2008), Issue 2, pp. 568–591.
- Z. Dvořák, R. Škrekovski, T. Valla: *Four gravity results*, Discrete Mathematics **307** (2007), Issue 2, pp. 181–190.
- Master thesis *Ramsey theory and combinatorial games*, advisor: prof. RNDr. Jaroslav Nešetřil, DrSc., defended in May 2006.
- young Czech and Slovak researcher’s contest SVOČ 2006: work titled *Ramsey theory and combinatorial games*, awarded by 3rd place in category Combinatorics.
- T. Valla, J. Matoušek: *Kombinatorika a grafy I.*, ITI Series (2005).
- D. Král’, M. Mareš, T. Valla: *Recepty z programátorské kuchařky Korespondenčního semináře z programování - II. část*, Rozhledy matematicko-fyzikální **80** (2005), Issue 2, pp. 25–35.

Successful bachelor’s students

- Josef Malík: Persistent data structures and their applications
- Jiří Stránský: Scheduling problems and applications
- Pavel Dvořák: Advanced methods of searching the game tree of 3-dimensional Tic-Tac-Toe. Awarded by the dean of MFF UK as the best thesis of 2013.
- Maroš Kasinec: Social Network Desktop Client
- Pavel Veselý: Artificial intelligence in abstract 2-player games. Awarded by the dean of MFF UK as the best thesis of 2012.
- Jitka Novotná: Algorithms for solving strong positional games with high symmetry
- František Haas: Recognition of symbols in digitalized mathematical expressions
- Tomáš Kuča: Visualization algorithms for graphs

Notable software projects participation

- Mail Daemon 2, a large-scale heavy-duty distributed mail system (for Centrum Holdings)
- Sherlock Holmes fulltext websearch engine (for Centrum Holdings)
- VRR, a vector editor especially designed for mathematical illustrations, released in 2006, <http://vrr.ucw.cz/>

- Lestrade, a lightweight fulltext search library (for Centrum Holdings)
- Kibitz, the system for fast search query hinting (for Centrum Holdings)
- LIBUCW, the C programmer's toolkit

Organizing scientific activities

- in 2015,2016 organized School on Theoretical Informatics, Graphs and Mathematics student conference
- since 2013 organizing Correspondence seminar in Computer science at Czech Technical University
- in 2001–2010 organizing Correspondence seminar in programming of Charles University Prague,
<http://ksp.mff.cuni.cz/>
- in 2003–2005 organized Summer and winter school of mathematics and physics of Charles University Prague, <http://smf.mff.cuni.cz/>
- in 2003, 2004, 2005 organized Spring school on combinatorics, KAM Charles University Prague,
<http://kam.mff.cuni.cz/~spring/>
- in 2007 organized Prague Midsummer Combinatorial Workshop
- 2006–2010 editor of the KAM Series
- regular referee of papers for several journals and conferences

Notable experiences, conferences and talks

- WG 2015, München. Given the talk “On the Tree Search Problem with Non-uniform Costs”.
- University of Twente seminar, 2014. Given the talk “LP-based covering games with low price of anarchy”.
- LATD 2014, Vienna. Talk “Constructing many-valued logical functions with small influence of their variables”, joint work with T. Kroupa.
- Algorithmic Game Theory Workshop 2013, London School of Economics. Given the talk “Complexity of the guarding game”
- EuroComb 2013, Pisa, Italy. Given the talk “Polynomial Bounds on Geometric Ramsey Numbers of Ladder Graphs”.
- STTI 2013: Conference on current trends in computer science. Given the talk “Pokrývací hry s nízkou cenou anarchie”.
- finalist of the Antonín Svoboda prize for the best dissertation thesis in 2012
- WINE 2012: The 8th Workshop on Internet & Network Economics, December 9–12, University of Liverpool, UK. Given the talk “LP-based covering games with low price of anarchy”.
- in October 2011 worked 16 days on a research project at the Georgia Tech, Atlanta, USA as a guest of László Végh. Given the talk “On the positional Ramsey-type games” at the seminar.
- IWOCA 2011, University of Victoria, Canada, June 19–14, given the talk “On the complexity of the cops and robber guarding game”.
- GRASTA 2011, Leibniz-Centrum für Informatik, Dagstuhl, February 12–18, given the talk “On the cops and robber guarding game”.
- in December 2010 worked one week on a research project at the Eotvos University Budapest, Hungary, as a guest of László Végh. Given a talk at the EGRES seminar.

- in June 2007 worked for two weeks on a research project at the University of Ljubljana, Slovenia, as a guest of R. Škrekovski.
- MEMICS 2007, October 26-28, 2007, Znojmo, given the talk “On Ramsey-type Positional Games”.
- Midsummer Combinatorial Workshop 2007, Prague, given the talk “On Ramsey-type Positional Games”.
- Second Czech-Catalan Conference in Mathematics, Barcelona, September 21–23, 2006, given the talk “Ramsey theory and combinatorial games”.
- in May 2004 worked for two weeks on a research project at the University of Ljubljana, Slovenia, as a guest of B. Mohar and R. Škrekovski.

Skills

- language skills: Czech (native), English (advanced), German (basic)
- driving licence, type B
- Unix-like OSes: advanced administrator/developer/user capabilities
- programming in C, Perl, shellsript, x86 assembler, and few more languages and technologies
- typography, typesetting in $\text{T}_{\text{E}}\text{X}$, $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$

Hobbies and other activities

- playing the guitar (acoustic, electric) for over 20 years
- instructor of the associations *Prázdninová škola Lipnice* and *Velký vůz*, preparing experience courses
- nature, traveling and hiking