

# CURRICULUM VITÆ

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## Personal data

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**Name** Marek Cygan  
**Born** 10th July 1984 in Bydgoszcz, Poland  
**Citizenship** Polish  
**Address** Institute of Informatics, Banacha 2, 02-097 Warszawa, Poland  
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## Education

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2008-now pursuing Ph.D. in Computer Science, University of Warsaw  
Research areas: fixed parameter tractability, approximation algorithms,  
exact exponential algorithms.  
Thesis advisor: Krzysztof Diks (diks@mimuw.edu.pl).  
Expected graduation date: 06/2012

2008 M.Sc. in Computer Science, University of Warsaw  
M.Sc. Thesis *New algorithms solving the Bandwidth problem*  
Thesis coauthor: Marcin Pilipczuk.  
Thesis advisor: Łukasz Kowalik.

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## Positions

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01/2008-12/2008 half-time software engineer in Advanced Digital Broadcast Poland (Research & Development), Warsaw, Poland

07/2007-09/2007 summer internship, Google, Mountain View, USA

07/2006-09/2006 summer internship, NVIDIA, Santa Clara, USA

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## Awards

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2010 „Doktoraty dla Mazowsza” scholarship

2009 „Nowoczesny Uniwersytet” scholarship

Dec 2008 M.Sc. thesis (co-author Marcin Pilipczuk) was awarded the first prize in the 25th Contest of the Polish Information Processing Society for the best M.Sc. thesis in computer science

Jul 2008 Best student paper award for the *Faster Exact Bandwidth* (co-author Marcin Pilipczuk) at the 34th Workshop on Graph-Theoretic Concepts in Computer Science (WG 2008)

2004–2008 Ministry of Education scholarship (2004/2005, 2005/2006, 2006/2007, 2007/2008)

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## Programming competitions

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2010	Google Code Jam 2010 – 5th place
2009	TopCoder Open Finals 2009 – 3rd place
2007	World Finals of the ACM International Collegiate Programming Contest – 1st place
2004–2007	Central European Regional Contest of ACM ICPC: 2004 – 2nd place, 2005 – 2nd place, 2006 – 1st place, 2007 – 1st place
2005	Google Code Jam 2005 – 1st place

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## Researcher in grants

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2009–Present	Grant no. N206 491238 <i>Moderately exponential time exact and approximation algorithms</i> , coordinator: Krzysztof Diks
2009–Present	Grant no. N206 355636 <i>Approximation algorithms with limited resources</i> , coordinator: Piotr Sankowski
2008–2009	Polish-Slovenian bilateral project <i>Graph colorings and their applications</i> , coordinator: Łukasz Kowalik
2007–2009	Grant no. N206 005 32/0807, <i>New techniques in graph algorithms: exact algorithms for NP-hard problems, sparse graphs and their applications</i> , coordinator: Łukasz Kowalik

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## Publications

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### Journals

1. *Exact and Approximate Bandwidth*, (co-author: Marcin Pilipczuk), Theoretical Computer Science, 411 (2010), 3701-3713 (published also at ICALP 2009).
2. *Even Faster Exact Bandwidth*, (co-author: Marcin Pilipczuk), to appear in ACM Transactions on Algorithms (published also at WG 2008).
3. *Exponential-Time Approximation of Weighted Set Cover*, (co-authors: Łukasz Kowalik and Mateusz Wykurz), Information Processing Letters, 109 (2009), 957-961.
4. *Relation between Randić index and average distance of trees*, (co-authors: Michał Pilipczuk, Riste Škrekovski), to appear in MATCH Communications in Mathematical and in Computer Chemistry.

### Conferences

5. *The stubborn problem is stubborn no more (a polynomial algorithm for 3-compatible colouring and the stubborn list partition problem)*, (co-authors: Marcin Pilipczuk, Michał Pilipczuk and Jakub Onufry Wojtaszczyk), accepted for ACM-SIAM Symposium on Discrete Algorithms (SODA 2011).
6. *Improved FPT algorithm and quadratic kernel for Pathwidth One Vertex Deletion*, (co-authors: Marcin Pilipczuk, Michał Pilipczuk and Jakub Onufry Wojtaszczyk), accepted for International Symposium on Parameterized and Exact Computation (IPEC 2010).

7. *Fast Approximation in Subspaces by Doubling Metric Decomposition*, (co-authors: Łukasz Kowalik, Marcin Mucha, Marcin Pilipczuk and Piotr Sankowski), Proc. 18th European Symposium on Algorithms (ESA 2010), LNCS 6346, 2010, 72-83.
8. *Kernelization hardness of connectivity problems in  $d$ -degenerate graphs* (co-authors: Marcin Pilipczuk, Michał Pilipczuk and Jakub Onufry Wojtaszczyk), Proc. 36th Workshop on Graph-Theoretic Concepts in Computer Science (WG 2010), LNCS 6410, 2010, 147-158.
9. *Capacitated Domination Faster Than  $O(2^n)$* , (co-authors: Marcin Pilipczuk and Jakub Onufry Wojtaszczyk), Proc. 12th Scandinavian Symposium on Algorithm Theory (SWAT 2010), LNCS 6139, 2010, 74-80.
10. *Algorithms for Three Versions of the Shortest Common Superstring Problem*, (co-authors: Maxime Crochemore, Costas S. Iliopoulos, Marcin Kubica, Jakub Radoszewski, Wojciech Rytter and Tomasz Walen), Proc. 21st Annual Symposium on Combinatorial Pattern Matching (CPM 2010), LNCS 6129, 2010, 299-309.
11. *A Planar Linear Arboricity Conjecture*, (co-authors: Łukasz Kowalik and Borut Luzar), Proc. 7th International Conference on Algorithms and Complexity, (CIAC 2010), LNCS 6078, 2010, 204-216.
12. *Irredundant Set Faster Than  $O(2^n)$* , (co-authors: Marcin Pilipczuk and Jakub Onufry Wojtaszczyk), Proc. 7th International Conference on Algorithms and Complexity, (CIAC 2010), LNCS 6078, 2010, 288-298.
13. *Exact and Approximate Bandwidth*, (co-author: Marcin Pilipczuk), Proc. 36th International Colloquium on Automata, Languages and Programming (ICALP 2009), LNCS 5555, 2009, 304-315.
14. *Faster Exact Bandwidth*, (co-author: Marcin Pilipczuk), Proc. 34th Workshop on Graph-Theoretic Concepts in Computer Science (WG 2008), LNCS 5344, 2008, 101-109.

## Technical reports

15. *Subset feedback vertex set is fixed parameter tractable*, (co-authors: Marcin Pilipczuk, Michał Pilipczuk and Jakub Onufry Wojtaszczyk), arXiv:1004.2972, 2010.
16. *Dominating Set is Fixed Parameter Tractable in Claw-free Graphs* (co-authors: Geevarghese Philip, Marcin Pilipczuk, Michał Pilipczuk and Jakub Onufry Wojtaszczyk), arXiv:1011.6239, 2010.

## Popular science

17. Article *Approximation algorithms*, Delta, 7 / 2009.

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## Short research visits (1-3 weeks)

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| 09.2010 | La Sapienza University of Rome, Italy, Scientific collaboration with Stefano Leonardi and Fabrizio Grandoni |
| 05.2010 | University in Ljubljana, Slovenia, Scientific collaboration with Riste Škrekovski                           |
| 03.2010 | La Sapienza University of Rome, Italy, Scientific collaboration with Stefano Leonardi and Fabrizio Grandoni |
| 09.2009 | La Sapienza University of Rome, Italy, Scientific collaboration with Stefano Leonardi and Fabrizio Grandoni |
| 03.2009 | University in Ljubljana, Slovenia, Scientific collaboration with Riste Škrekovski                           |