

# Jakub Kowalski

Research Assistant  
Institute of Computer Science, University of Wrocław  
ul. Joliot-Curie 15  
50-383 Wrocław, Poland

E-mail: [jakub.kowalski@cs.uni.wroc.pl](mailto:jakub.kowalski@cs.uni.wroc.pl)  
WWW: [jakubkowalski.tech](http://jakubkowalski.tech)

## Research interests

AI algorithms for Games, General Game Playing, Procedural Content Generation, Černý conjecture

## Work experience

from 2016 RESEARCH ASSISTANT, University of Wrocław, Institute of Computer Science  
2014 – 2016 COMPUTER SCIENCE TEACHER, 3rd High School in Wrocław

## Education

2011 – 2016 PHD STUDIES, Computer Science, University of Wrocław, Department of Mathematics and Computer Science  
2009 – 2011 MASTER STUDIES, Computer Science, University of Wrocław, Department of Mathematics and Computer Science  
Master Thesis: *Programming games management system „Meridius”* (supervisor prof. dr hab. Krzysztof Loryś)  
2006 – 2009 BACHELOR STUDIES, Computer Science, University of Wrocław, Department of Mathematics and Computer Science  
Bachelor Project: *AI fight environment „QUAIKE”*

## Grants and scholarships

2016 – 2019 Contractor in the National Science Centre, Poland, grant number 2015/17/B/ST6/01893: *Algorithmic aspects of synchronization.*  
2015 – 2018 Head of the National Science Centre, Poland, grant number 2014/13/N/ST6/01817: *Languages and Learning in General Game Playing.*  
2014 Scholarship in the 7th edition of *Rozwój potencjału i oferty edukacyjnej Uniwersytetu Wrocławskiego szansą zwiększenia konkurencyjności Uczelni*, European Social Fund.  
2013 – 2015 Contractor in the Iuventus Plus grant number IP2012 052272: *Finite automata synchronization - theory, algorithms, tools, and applications.*  
2013/2014 Scholarship in the 6th edition of *Rozwój potencjału i oferty edukacyjnej Uniwersytetu Wrocławskiego*

szansą zwiększenia konkurencyjności Uczelni, European Social Fund.

## Peer-reviewed publications

- 2017 B. Kostka, J. Kwiecień, J. Kowalski, P. Rychlikowski, *Text-based Adventures of the Golovin AI Agent*, IEEE Conference on Computational Intelligence and Games (*best paper nominee*).
- 2017 J. Kowalski, Ł. Żarczyński, A. Kisielewicz, *Evaluating Chess-like Games Using Generated Natural Language Descriptions*, Fifteenth International Conference on Advances in Computer Games (to appear).
- 2017 J. Kowalski, A. Roman, *A New Evolutionary Algorithm for Synchronization*, EvoApplications 2017: Applications of Evolutionary Computation, Volume 10199 of LNCS, pages 620–635.
- 2016 A. Kisielewicz, J. Kowalski, M. Szykuła, *Experiments with Synchronizing Automata*, Implementation and Application of Automata, Volume 9705 of LNCS, pages 176–188.
- 2016 J. Kowalski, M. Szykuła, *Evolving Chess-like Games Using Relative Algorithm Performance Profiles*, Applications of Evolutionary Computation, Volume 9597 of LNCS, pages 574–589.
- 2016 J. Kowalski, A. Kisielewicz, *Towards a Real-time Game Description Language*, Proceedings of the 8th International Conference on Agents and Artificial Intelligence, Volume 2, pages 494–499.
- 2015 J. Kowalski, A. Kisielewicz, *Game Description Language for Real-time Games*, Proceedings of the IJCAI-15 Workshop on General Game Playing (GIGA'15), pages 23–30.
- 2015 J. Kowalski, A. Kisielewicz, *Testing General Game Players Against a Simplified Boardgames Player Using Temporal-difference Learning*, IEEE Congress on Evolutionary Computation, pages 1466–1473.
- 2015 A. Kisielewicz, J. Kowalski, M. Szykuła, *Computing the shortest reset words of synchronizing automata*, Journal of Combinatorial Optimization, Volume 29, Issue 1, pages 88–124.
- 2014 J. Kowalski, *Embedding a Card Game Language into a General Game Playing Language*, Frontiers in Artificial Intelligence and Applications, Volume 264: STAIRS 2014, pages 161–170
- 2013 J. Kowalski, M. Szykuła, *Game Description Language Compiler Construction*, Proceedings of 26th Australasian Joint Conference on Artificial Intelligence, volume 8272 of LNCS, pages 234–245.
- 2013 A. Kisielewicz, J. Kowalski, M. Szykuła, *A Fast Algorithm Finding the Shortest Reset Words*, Computing and Combinatorics, volume 7936 of LNCS, pages 182–196.

# Teaching

## INSTITUTE OF COMPUTER SCIENCE, UNIVERSITY OF WROCLAW

2016/2017	Lua Course (lecture; laboratory, 1 group).
2016/2017	Artificial Intelligence for Games: group projects (project, 1 group).
2016/2017	Artificial Intelligence for Games (lecture; laboratory, 2 groups).
2016/2017	Introduction to Python Programming (laboratory, 2 groups).
2015/2016	Artificial Intelligence (exercises+laboratory, 1 group).
2015/2016	Extended Python Course (laboratory, 1 group).
2015/2016	Introduction to Python Programming (laboratory, 1 group).
2014/2015	Introduction to Python Programming (laboratory, 2 groups).
2013/2014	Introduction to Python Programming (laboratory, 1 group).
2013/2014	Artificial Intelligence (in English) (exercises+laboratory, 1 group).
2012/2013	Seminar: General Game Playing (seminar, 1 group).
2012/2013	Introduction to Python Programming (laboratory, 2 groups).
2011/2012	Creating Interactive Applications in Python (laboratory, 2 groups).
2011/2012	Introduction to Python Programming (laboratory, 2 groups).

## 3RD HIGH SCHOOL IN WROCLAW

2015/2016	Computer Science, III year (2 groups).
2014/2015	Computer Science, II year (2 groups).