

DJORDJE ZIKELIC (ĐORĐE ŽIKELIĆ)

PERSONAL INFORMATION

Address: Am Campus 1, 3400 Klosterneuburg, Austria

Email: dzikelic@ist.ac.at

Date of Birth: 12. 7. 1995.

EDUCATION

Institute of Science and Technology (IST) Austria

2018 - Present

Ph.D. in Computer Science

Advisor: Krishnendu Chatterjee

Co-advisor: Petr Novotný, Masaryk University, Czech Republic

Research Interests: Verification, Program analysis, Probabilistic programming, AI safety, Game theory

University of Cambridge, UK

2014 - 2018

Mathematical Tripos, Gonville & Caius College

Bachelor of Arts (BA) and Master of Mathematics (MMath)

Part III essay: *Lagrangians of Hypergraphs*, supervised by Imre Leader

Mathematical High School, Belgrade, Serbia

2010 - 2014

INTERNSHIPS

Amazon, UK (virtual)

October 2020 - January 2021

Position: Applied Science Intern

Supervisor: Pauline Bolignano, Bor-Yuh Evan Chang

Project: Differential cost analysis in programs (continued working together towards a paper)

Programming: Python, OCaml

University of Cambridge, UK

July 2017 - September 2017

Position: Research Intern

Supervisor: Alexei Kovalev

Project: Morse theory and related topics in differential geometry and algebraic topology

Institute of Science and Technology (IST) Austria

June 2016 - September 2016

Position: Research Intern

Supervisor: Krishnendu Chatterjee, Petr Novotný

Project: Safety analysis in probabilistic programs (POPL 2017), planning under uncertainty (AAAI 2017)

Programming: Matlab

PUBLICATIONS

1. *Bidding Games with Imperfect Information.*
Guy Avni, Ismaël Jecker, Đorđe Žikelić.
Submitted.
2. *Stability Verification in Stochastic Control Systems via Neural Network Supermartingales.*
Mathias Lechner*, Đorđe Žikelić*, Krishnendu Chatterjee, Thomas A. Henzinger.
Submitted.
3. *Social balance on networks: local minima and Best Edge Dynamics.*
Krishnendu Chatterjee, Andreas Pavlogiannis, Jakub Svoboda, Josef Tkadlec, Đorđe Žikelić.
Submitted.
4. *Infinite Time Horizon Safety of Bayesian Neural Networks.*
Mathias Lechner*, Đorđe Žikelić*, Krishnendu Chatterjee, Thomas A. Henzinger.
To appear in NeurIPS 2021.
5. *On Lexicographic Proof Rules for Probabilistic Termination.*
Krishnendu Chatterjee, Ehsan Kafshdar Goharshady, Petr Novotný, Jiří Závřůcký, Đorđe Žikelić.
To appear in FM 2021.

6. *Proving Non-termination by Program Reversal*.
Krishnendu Chatterjee, Ehsan Kafshdar Goharshady, Petr Novotný, Đorđe Žikelić.
PLDI 2021.
7. *Scalable Verification of Quantized Neural Networks*.
Thomas A. Henzinger, Mathias Lechner, Đorđe Žikelić.
AAAI 2021.
8. *Infinite-Duration All-Pay Bidding Games*.
Guy Avni, Ismaël Jecker, Đorđe Žikelić.
SODA 2021.
9. *Bidding Mechanisms in Graph Games*.
Guy Avni, Thomas A. Henzinger, Đorđe Žikelić.
MFCS, 2019 (journal version in JCSS).
10. *Optimizing Expectation with Guarantees in POMDPs*.
Krishnendu Chatterjee, Petr Novotný, Guillermo A. Perez, Jean-Francois Raskin, Đorđe Žikelić.
AAAI, 2017.
11. *Stochastic invariants for probabilistic termination*.
Krishnendu Chatterjee, Petr Novotný, Đorđe Žikelić.
POPL, 2017.
12. *Theorems about quadrilaterals and conics*.
Đorđe Baralić, Branko Grbić, Đorđe Žikelić.
Int. J. Comput. Math. 91(7), 2014.

TEACHING AND SUPERVISION

Supervision of interns at IST Austria:

- Ehsan Kafshdar Goharshady (Ferdowsi University of Mashhad, Iran), summer 2019.

Teaching at IST Austria:

- Computer Science Track Core Course, TA for Spring 2021.
- Formal Methods, TA for Spring 2020.
- Computer Science Track Core Course, TA for Spring 2020.
- Mathematics Track Core Course, Spring 2019, 4 lectures on Brownian motion and aspects of probability.

Prior to enrolling university, I taught in several preparation classes for mathematical olympiads at the Mathematical High School, Belgrade, as well as at the Mathematical Society "Arhimedes", Belgrade.

CONFERENCE AND INVITED TALKS

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| • PLDI 2021, virtual (recorded talk and poster) | June 2021 |
| • Infer Practitioners Workshop (co-located with PLDI 2021), virtual | June 2021 |
| • IST/FORSYTE joint seminar, virtual | May 2021 |
| • AAI 2021, virtual (poster) | January 2021 |
| • Mathematical Institute of the Serbian Academy of Science and Arts, Belgrade, Serbia | December 2019 |
| • MFCS 2019, Aachen, Germany (talk) | August 2019 |

HONOURS AND AWARDS

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| Marie Skłodowska-Curie Fellowship
Awarded to best candidates for the IST Austria PhD program. | <i>2018 - 2020</i> |
| Gonville & Caius College Scholarship and Cambridge Trust Scholarship
Full university fees, tuition fees, and maintenance costs. | <i>2014-2018</i> |
| Stephen Hawking Fund Award
Awarded by Gonville & Caius College, Cambridge to mathematics students proceeding to Part III. | <i>October, 2017</i> |
| Scholar of the Gonville & Caius College, Cambridge
High performance in the examinations of the Mathematical Tripos. | <i>June 2015, 2016</i> |
| International High School Olympiads
Participated in international high school olympiads in mathematics, physics, and astronomy. Most notable results: | <i>2010-2014</i> |

- International Olympiad in Astronomy and Astrophysics (IOAA) 2014 (bronze medal)
- International Mathematical Competition Arhimede 2013 (gold medal), 2012 (silver medal)
- International Junior Science Olympiad (IJSO) 2010 (bronze medal)
- International Astronomy Olympiad (IAO) 2010 (bronze medal)
- International Mathematical Olympiad (IMO) 2014 (first reserve for the Serbian team)

National High School Competitions

2010-2014

- Serbian Mathematical Olympiad: second prize in 2014, third prize on 2013, 2012
- Mathematics (national): **first overall** in my year in 2014, 2012, 2010, **second overall** in 2013
- Physics (national): first prize in 2013, second prize in 2012, 2011, third prize in 2014
- Astronomy (national): second prize in 2014, 2012

PROFESSIONAL SKILLS

- Python, C++
- English (fluent), Serbian (native), German (elementary)

PERSONAL SKILLS

Strong analytical skills (developed through research and degree activities, maths competitions), hard working
 Good organizing skills, value teamwork:

- Co-organized **Young Scientist Symposium 2019** at IST Austria May, 2019
- President of the **Cambridge University Serbian Society** 2017-2018

REFERENCES

Krishnendu Chatterjee

Institute of Science and Technology (IST) Austria
 krishnendu.chatterjee@ist.ac.at

Petr Novotný

Masaryk University, Czech Republic
 petr.novotny@fi.muni.cz

Bor-Yuh Evan Chang

University of Colorado Boulder & Amazon
 byec@amazon.com

Thomas A. Henzinger

Institute of Science and Technology (IST) Austria
 tah@ist.ac.at

Pauline Bolignano

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 pln@amazon.co.uk