

DJORDJE ZIKELIC (ĐORĐE ŽIKELIĆ)

PERSONAL INFORMATION

Address: Am Campus 1, 3400 Klosterneuburg, Austria
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EDUCATION

Institute of Science and Technology Austria (ISTA) *2018 - Present*
Ph.D. in Computer Science
Advisors: Krishnendu Chatterjee, Petr Novotný
Research Interests: Verification, Static program analysis, Neural network verification, Safe reinforcement learning, Probabilistic programming, 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*

Mathematical Grammar School, Belgrade, Serbia *2010 - 2014*

INTERNSHIPS

Amazon, UK *August 2022 - October 2022*
Position: Applied Scientist Intern
Project: Ongoing

Amazon, UK (virtual) *October 2020 - January 2021*
Position: Applied Scientist Intern
Project: Differential cost analysis in programs (PLDI 2022)
Programming: Python, OCaml

University of Cambridge, UK *July 2017 - September 2017*
Position: Research Intern
Supervisor: Alexei Kovalev
Project: Aspects of Morse Theory (study of topics in differential geometry and algebraic topology)

Institute of Science and Technology Austria (ISTA) *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

9 out of 11 conference publications accepted at premier venues according to CSRankings

* equal contribution, † authors ordered alphabetically

1. *Sound and Complete Certificates for Quantitative Termination Analysis of Probabilistic Programs.*
Krishnendu Chatterjee, Amir Kafshdar Goharshady, Tobias Meggendorfer, Đorđe Žikelić[†].
34th International Conference on Computer Aided Verification (**CAV 2022**)
2. *Differential Cost Analysis with Simultaneous Potentials and Anti-potentials.*
Đorđe Žikelić, Bor-Yuh Evan Chang, Pauline Bolignano, Franco Raimondi.
44th ACM SIGPLAN Conference on Programming Language Design and Implementation (**PLDI 2022**)
Featured in an **Amazon Science blog post**
3. *Learning Stabilizing Policies in Stochastic Control Systems.*
Đorđe Žikelić*, Mathias Lechner*, Krishnendu Chatterjee, Thomas A. Henzinger.
ICLR 2022 Workshop on Socially Responsible Machine Learning (**SRML@ICLR 2022**)
4. *Stability Verification in Stochastic Control Systems via Neural Network Supermartingales.*
Mathias Lechner*, Đorđe Žikelić*, Krishnendu Chatterjee, Thomas A. Henzinger.
36th AAAI Conference on Artificial Intelligence (**AAAI 2022**), **oral presentation**

5. *Infinite Time Horizon Safety of Bayesian Neural Networks*.
Mathias Lechner*, Đorđe Žikelić*, Krishnendu Chatterjee, Thomas A. Henzinger.
35th Conference on Neural Information Processing Systems (**NeurIPS 2021**)
6. *On Lexicographic Proof Rules for Probabilistic Termination*.
Krishnendu Chatterjee, Ehsan Kafshdar Goharshady, Petr Novotný, Jiří Závřický, Đorđe Žikelić†.
24th International Symposium on Formal Methods (**FM 2021**)
7. *Proving Non-termination by Program Reversal*.
Krishnendu Chatterjee, Ehsan Kafshdar Goharshady, Petr Novotný, Đorđe Žikelić†.
43rd ACM SIGPLAN Conference on Programming Language Design and Implementation (**PLDI 2021**)
8. *Scalable Verification of Quantized Neural Networks*.
Thomas A. Henzinger, Mathias Lechner, Đorđe Žikelić†.
35th AAAI Conference on Artificial Intelligence (**AAAI 2021**)
9. *Infinite-Duration All-Pay Bidding Games*.
Guy Avni, Ismaël Jecker, Đorđe Žikelić†.
ACM-SIAM Symposium on Discrete Algorithms (**SODA 2021**)
10. *Bidding Mechanisms in Graph Games*.
Guy Avni, Thomas A. Henzinger, Đorđe Žikelić†.
44th International Symposium on Mathematical Foundations of Computer Science (**MFCS, 2019**)
Journal version in Journal of Computer and System Sciences (**JCSS, 2021**)
11. *Optimizing Expectation with Guarantees in POMDPs*.
Krishnendu Chatterjee, Petr Novotný, Guillermo A. Perez, Jean-Francois Raskin, Đorđe Žikelić†.
31st AAAI Conference on Artificial Intelligence (**AAAI, 2017**)
12. *Stochastic invariants for probabilistic termination*.
Krishnendu Chatterjee, Petr Novotný, Đorđe Žikelić†.
44th ACM SIGPLAN Symposium on Principles of Programming Languages (**POPL, 2017**)
13. *Theorems about quadrilaterals and conics*.
Đorđe Baralić, Branko Grbić, Đorđe Žikelić†.
International Journal of Computer Mathematics 91 (7) (**Int. J. Comput. Math., 2014**)

HONOURS AND AWARDS

Meta PhD Research Fellowship - finalist 2022
Shortlisted as one of the 4 finalists for the programming languages category.

Gonville & Caius College Scholarship and Cambridge Trust Scholarhip 2014-2018
Full university fees, tuition fees, and maintenance costs.

Stephen Hawking Fund Award October, 2017
Awarded by Gonville & Caius College, Cambridge to mathematics students proceeding to Part III.

Scholar of the Gonville & Caius College, Cambridge June 2015, 2016
High performance in the examinations of the Mathematical Tripos.

International High School Olympiads 2010-2014
Participated in international high school olympiads in mathematics, physics, and astronomy. Most notable results:

- 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 in 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

TEACHING

Teaching at ISTA:

- 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

• CAV 2022, Haifa, Israel	August 2022
• EPFL, Lausanne, Switzerland	July 2022
• PLDI 2022, San Diego, US	June 2022
• Masaryk University, Brno, Czech Republic	April 2022
• AAI 2022, virtual (recorded talk and poster)	February 2022
• NeurIPS 2021, virtual (recorded talk and poster)	December 2021
• ISTA/FORSYTE joint seminar, virtual	December 2021
• FM 2021, virtual (talk)	November 2021
• PLDI 2021, virtual (recorded talk and poster)	June 2021
• Infer Practitioners Workshop (co-located with PLDI 2021), virtual	June 2021
• ISTA/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

SERVICE

- Program Committee: AAI 2023
- Artifact Evaluation Committee: CAV 2022
- Reviewer: FoSSaCS 2022, AAMAS 2022, ICML 2022

PROFESSIONAL SKILLS

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

PERSONAL SKILLS AND INTERESTS

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 ISTA May, 2019
- President of the **Cambridge University Serbian Society** 2017-2018

Hobbies and interests: History, travelling, sports (football and tennis), politics, gaming, D&D

REFERENCES

Krishnendu Chatterjee
 Institute of Science and Technology Austria (ISTA)
 krishnendu.chatterjee@ist.ac.at

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 Masaryk University, Czech Republic
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