pod vodárenskou věží 271/2 182 07 Prague,Czechia ⊠ dcerna@cs.cas.cz Born: 16.05.1986 ORCID ID: <u>0000-0002-6352-603X</u> Homepage: www.cs.cas.cz/dcerna LinkedIn:linkedin.com/in/dmcerna

# David M. Cerna

Researcher specializing in symbolic artificial intelligence and formal logic. Through my current positions as a junior faculty member and project leader, as well as my previous positions as a postdoctoral researcher, I have demonstrated my analytic, problem solving, collaborative, and mentorship skills.

## • Work Experience

09.2020- Scientist, Czech Academy of Science, Institute of Computer Science (CAS ICS), Prague.

- current Junior faculty member at CAS ICS, equivalent to assistant professor. Currently Leading the GAĉR-FWF Project <u>PANDAFOREST</u> (Czech-side members include <u>Raheleh Jalali</u>). Responsibilities include basic research, project management, funding acquisition, mentoring students, and building research collaborations. (Artificial Intelligence Group)
- 08.2020- **Project Leader**, Research Institute for symbolic computation (RISC), Johannes Kepler 02.2023 University (JKU), Linz, Austria.

Project leader of the Math<sub>LP</sub> project, a basic research project funded by the Linz Institute of Technology (LIT). The project is an international collaboration with Josef Urban's group at the Czech Institute of Informatics, Robotics, and Cybernatics (CIIRC) located in Prague, Czechia. Responsibilities include project management, Postdoc superversion (<u>Michal Buran</u>), and basic research in the areas of symbolic AI and Machine Learning. <u>Math<sub>LP</sub></u>

09.2018- Senior Postdoc, Institute for Formal Methods and Verification (FMV), JKU.

08.2020

- LOGTECHEDU was a basic research project funded by LIT focused on digitalization within university curriculum and the proliferation of formal logic education. I developed an educational app for Android devices (github.com/Ermine516/AXolotl, App Store Link) to introduce students to formal logic. Additionally I ran an empirical studies to evaluate the benefits of such technology for first-year university students. The project was lead by Prof. Armin Biere.
- 03.2017- Senior Postdoc, RISC, JKU.

08.2018

GALA was a basic research project funded by FWF focused on the development of generalization methods similar to those used in program synthesis task. Responsibilities included development of methods for high-order theories and implementation of existing methods in a library for generalization methods hosted by RISC (www3.risc.jku.at/projects/stout/library.html). The project was lead by Prof. Temur Kutsia

02.2015- **Postdoc**, *RISC*, *JKU*.

03.2017

- LogicGuard II was a joint industry/academic project funded by FFG organized by RISC and Secure-Guard GmbH. Responsibilities included the development, implementation, and analysis of a software package designed to verify whether provided data streams obey user specified formal conditions. The developed software may be found at <a href="http://www3.risc.jku.at/projects/LogicGuard2">http://www3.risc.jku.at/projects/LogicGuard2</a>. The Project was lead by Prof. Wolfgang Schreiner.
- 09.2011- Predoc, Faculty of Informatics, Technical University of Vienna, Austria.
- 02.2015 My PhD studies, as a member of the Group for Theory and Languages, were funded by a scholarship from the Vienna PhD School of Informatics. My research focused on computational proof theory and automated theorem proving. Responsibilities also included development of the Gapt software library (github.com/gapt). Thesis Advisor: Alexander Leitsch.

# Professional Milestones

## Peer-Reviewed Academic Publications (22 in total)

Areas: Symbolic Artificial Intelligence, Theoretical Computer Science, Education Technology

Full Publication List: orcid.org/0000-0002-6352-603X

Exemplary publication:

- D. M. Cerna and Temur Kutsia, *Anti-unification and Generalizations: A Survey*, International Joint Conference on Artificial Intelligence (IJCAI 2023)
- S. J. Purgał, **D. M. Cerna**, and C. Kaliszyk, *Learning Higher-Order Logic Programs From Failures*, International Joint Conference on Artificial Intelligence (IJCAI 2022)
- D. M. Cerna, Anti-unification and the theory of semirings, Journal of Theoretical Computer Science 848: 133-139 (2020)
- D. M. Cerna et al., Aiding an Introduction to Formal Reasoning Within a First-Year Logic Course for CS Majors Using a Mobile Self-Study App, International Conference on Innovation and technology in Computer Science Education (ITICSE), 61-67 (2020)

#### Successful Acquisition of Scientific Funding (582 Thousand Euros)

Bilateral International Project (Austria-Czechia), Duration: 36 months, Project: PANDAFOREST

Young Researcher Fellowship, Duration: 30 months, Project:  $MATH_{LP}$ 

Travel Fellowship, Visit: 3 months, Computational Logic Group, University of Innsbruck

EUROPROOFNET Inclusiveness Target Country Conference Grants (ITCG): IJCAI 2023, Macao

Workshop organization, *Funding:* EUROPROOFNET, <u>DG4D<sup>3</sup></u>

## Participation in International Workshops, Conferences, and Organizations

Steering Committee member of International Workshop on Unification Theory

Invited Participant: Approaches and Applications of Inductive Programming (Dagstuhl)

Co-chair of the  $36^{\rm th}$  International Workshop on Unification Theory in Haifa, Israel

Journal Review activities: AMAI, DAMI, IPL, JAR, JAIR, JLC, JSC, MSCS

Including 3 invited talks, 28 contributed talks, and 13 program committee memberships.

Institute Representative, CLAIRE Research Network

Management Committee member, Representing Czechia, <u>EUROPROOFNET</u> Cost Action

# Education

- 04.2015 **PhD in Computer Science**, *Technical University of Vienna*. Computational Logic and Automated Reasoning, Supervisor: Alexander Leitsch
- 08.2010 Master of Computer Science, Rensselaer Polytechnic Institute (RPI), Troy, New York, USA. Network security and Cryptography, Supervisor: Bülent Yener
- 06.2010 Bachelor of Computer Science, RPI, Troy, New York, USA.
- 06.2010 Bachelor of Mathematics, RPI, Troy, New York, USA.

# Technical Skills

Mentorship: supervised 2 Postdoc, aided with the supervision of 5 PhD and 2 masters students. used/studied during career: Java, Scala, C, C++, Prolog, F#, Coq, javascript, Standard ML, Python, Perl, Haskell, SQL, Fortran, Linux, Android, Android Studio, Latex, Pytorch. Spoken Languages: English (Native), German (ÖIF B1, ÖSD B1, 2021)

## Hobbies

Sports: Rock climbing, Biking, Hiking, Running. Recreation: Chess, art-house cinema, sci-fi (books), philosophy, modern literature, bowling, billiards.