

# AZZA GAYSIN PH.D.

## Personal info

- \* 26.03.1989
- +420-735-077-419
- azza.gaysin@gmail.com
- Prague, Czechia
- Personal web-page
- LinkedIn

## Skills

- Python, SQL, Lean, L<sup>A</sup>T<sub>E</sub>X, BPMN
- MatLab, SageMath, Microsoft SQL Server, Oracle SQL Developer, PL/SQL, Oracle Data Modeler, Aqua Data Studio, Bizagi Modeler, Service Desk, SVN, VBA, CMS
- Open-minded, team player, strong ability to learn quickly, keen interest in researching new areas

## Languages

- English:** C1
- Czech:** B2
- Russian:** native

## Teaching

- Computational Logic
- Model Theory, Advanced Model theory
- Complexity theory
- Introduction to Logic
- Constraint satisfaction problems ... and others

## Papers

- Proof complexity of universal algebra in a CSP dichotomy proof
- Proof complexity of CSP
- H-Colouring Dichotomy in Proof complexity
- Block-groups and Hall relations

## PROFILE

I have 15 years of experience in both the IT sector as a Systems Analyst and Data Analyst, as well as in academia as a Researcher and Research Assistant. My expertise spans data analysis, process optimization, and computational problem-solving. My research interests include logic, computational complexity theory, proof complexity theory, and universal algebra.

I am currently seeking a Data Scientist role (or a related position), focusing on applying mathematics and logic to modern, real-world problems.

## LAST WORK EXPERIENCE

### University of Passau, Department of Mathematics, Logic and Geometry

Full-time, Research Assistant

APR 2023 – PRESENT, PASSAU, GERMANY

- Research in proof complexity, bounded arithmetic, and universal algebra.
- Teaching: theoretical courses and seminars for master and bachelor students; developed a course on Constraint Satisfaction Problems.
- Scientific event organization.

### Statni pokladna Centrum sdilenych sluzeb, s. p.

Full-time, Process Manager / Data Analyst

NOV 2017 – APR 2022, PRAGUE, CZECHIA

- External project (customer - Ministry of Finance of Czechia): developed the structural component of the 2019 Decree on Reporting in Gambling, along with the related database structure and reporting system.
  - Development of a gambling control and data analysis system from scratch.
  - Analysis of the customer's requirements for the volume and content of the data provided.
  - Analysis of the data, filing tasks for developers, Service Desk management.
- Internal project: created a graphical process map and methodological guidelines.
  - Optimization and documentation of the company's internal processes.

### SKB Kontur

Full-time, System Analyst





OCT 2011 – FEB 2014, EKATERINBURG, RUSSIA

- Kontur.EDI (electronic workflow for retail):
  - Development of the service from scratch based on European standards and similar systems.
  - Description and optimization of business processes.
  - Usability testing, and filing tasks for developers.
- Kontur.Diadoc (electronic legally-significant documents interchange between companies):
  - Maintenance of the product website and assigned tasks to designers and UI designers.
  - Organization of events, preparation of promotional materials.
  - Writing articles in financial, accounting, and business magazines, communicating with customers.

## Conferences

- 2025 Computability in Europe 2025, Lisbon (invited speaker)
- 2024 43rd Weak Arithmetics Days, Passau (the only local organizer, talk)
- 2024 Algorithmic Model Theory meeting 2024, Ilmenau (talk)
- 2023 Workshop on Mathematics of Cellular automata, Prague (organizer)
- 2022 Student Workshop on Applied Mathematics, Prague (talk)
- 2022 FLoC Proof Complexity Workshop, Haifa (talk)
- 2022 Mathematical approaches to lower bounds, ICMS, online (talk)
- 2022 Logic Colloquium, online (talk)
- 2021 Kurt Gödel Day, Brno (talk)
- ... and many others

## Personal Interests

-  Mathematics, both applied and theoretical
-  Algorithms, Machine learning, Neural networks, Automated theorem proving
-  Traveling, hiking, fitness, squash
-  Two adorable cats

## EDUCATION

### Charles University, Faculty of Mathematics and Physics Department of Algebra

PRAGUE OCT 2018 – FEB 2024

Degree: **Ph.D., Mathematics**

**Study Programme:** Algebra, Theory of Numbers and Mathematical Logic

**Supervisor:** Jan Krajíček

**Thesis:** Proof Complexity of CSP

### Charles University, Faculty of Mathematics and Physics Department of Algebra

PRAGUE OCT 2014 – FEB 2018

Degree: Master's degree, Mathematics

Grade: 1.3 - 1.4

**Study Programme:** Mathematical Structures

**Supervisor:** Libor Barto

**Master's thesis:** Lattices of Weighted Clones

### Ural State University, Faculty of Mathematics and Mechanics Department of Algebra

PRAGUE SEP 2009 – JUN 2011

Degree: Master's degree, Mathematics

Grade: 1.4

**Study Programme:** Discrete Mathematics and Mathematical Logic

**Supervisor:** Mikhail Volkov

**Master's thesis:** Semigroups of Hall relation and block-groups

## INTERNSHIPS AND COURSES

### Internship at Polytechnic University of Catalonia

JAN 2022 – APR 2022

Research on semi-algebraic proof systems.

Supervisor: Albert Atserias

### START grant at Charles University in Prague

APR 2021 – MAR 2023

Investigator of the student grant Classification of Automated Formal Systems

### Language courses

2009 – 2022

- Czech: Preparatory Program for Higher Education in the Czech Republic, Joint Program of Charles University in Prague FHS and Azzi, s.r.o.
- English: Translation from English to Russian in the field of professional communications, Ural State University
- English: Cambridge C2 Proficiency exam, International House London

### Other courses

2017 – 2022

- Oracle Database 12c R2: Program with PL/SQL Ed 2
- Process modeling (BPMN)