

Adriana Baldacchino

Curriculum Vitae

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Research Interests

Interested in mathematical logic, proof theory, automata theory, complexity theory and algorithms.

Education

- 2024–Present **Master of Science in Mathematics and Foundations of Computer Science**, *University of Oxford*.
Partly funded by the Endeavour II Scholarship
- Courses taken include Category Theory, Set Theory, Model Theory, Computer-Aided Formal Verification, Complexity Theory, Lambda Calculus and Types, Automata Logic and Games
 - Currently working on my dissertation: **Automata over Nested Data** on data automata, which has applications to database theory, concurrent systems and principles of programming languages.
- 2020–2024 **Bachelor of Science (Honours) Computing Science and Mathematics**, *University of Malta*.
First Class Honours with Overall Average: **92.75%**, (highest mark in BSc. cohort)
- *Final Year Dissertation*: **Goodstein Sequences and Unprovability in Peano Arithmetic**
 - *Project in Computer Science*: **Refinement Preorders for Multi-Verdict Monitors**
- 2018–2020 **Sixth Form Education**, *Saint Aloysius College*, (grading scale A-E).
A Level Subjects: Pure Mathematics (A), Computing (A)
Intermediate Subjects: English (A), Philosophy (A), Psychology (A), Systems of Knowledge (B)
- 2018–2020 **Java Foundations Course**, *ICE Malta*.

Research Projects

- 2022–Present **Characterizing chromatic number of 2-crossing critical graphs**, *University of Malta / Maribor*.
Ongoing work with Prof. John Baptist, Prof. Drago Bokal and Marietta Galea (currently being finalised).
We characterize fully the chromatic number of large 2-crossing critical graphs making use of a generated automata, and we further generalize this technique to other sets of graphs.
- 2024–Present **Refinement Preorders for Multi-Verdict Monitors**, *University of Malta*.
Ongoing work with Prof. Adrian Francalanza.
Work extending my final year project on establishing preorders for monitors with multiple verdicts.

Work Experience

- March 2024–
Sept 2024 **Testing Engineer**, *OpenFleet by Loqus*.
○ Developing automated tests for software API.
- Summer 2023 **CERN Summer Student**, *CERN*.
○ Implemented integration for Overleaf with *CERNBox* storage software.
○ Attended a variety of lectures ranging from particle physics to cosmology to machine learning.
- Summer 2022 **Research Support Assistant**, *University of Malta*.
○ Worked on the ADACE3 project, which aims to improve enterprise efficiency by using advanced machine learning techniques for semantic understanding of business documents, such as receipts.
○ Work involved included prototyping components of the project on Python and researching current and potential methods for document analysis.
- Summer 2022 **Robotics Instructor**, *Depiro Summer School*.
○ Worked with kids aged 5-12 on robotics projects to develop coding and thinking skills.
- Jul 2021–Dec
2021 **Testing Intern**, *OpenFleet by Loqus*.
○ Executed Sanity and Regression Tests for Fleet Management Software.

Achievements

- 2025 **The BOV Special Prize for Science**, *sponsored by Bank of Valletta*.
○ Awarded in recognition of outstanding performance throughout the B.Sc.(Hons) Programme 2020-2024

- 2025 **The KPMG Prize for Quantitative Excellence**, *sponsored by KPMG*.
○ Awarded in recognition of outstanding performance in the mathematical/numerate sciences.
- 2025 **The Best Final Year Project in the Numerate Sciences**, *sponsored by Eunoia Limited*.
○ Awarded to the best final year dissertation in numerate sciences.
- 2023–2025 **Dean of Science Award 2020/2021, 2021/2022, 2022/2023, 2023/2024**, *Faculty of Science*.
○ Awarded annually to the top three students of each year from the Faculty of Science.
- 2018–2019 **Certificate of Merit Awarded by St. Aloysius College Sixth Form**.
○ 1st in Pure Mathematics and Computing at Advanced Level, English and Philosophy at Intermediate Level
- 2018 **First Place in Local Java Hackaton**.
○ First Place Certificate for winning the 1st edition of the **CODESPRINTmt** – JAVA Hackathon 2018

Skills

Languages Java, Python, C/C++, Go, SQL, Haskell, OCaml, JavaScript

Extra Curriculars

- 2019–2020 **Maths Circle**.
Participated in a series of sessions organised by the Mathematics department at the University of Malta. These sessions honed our mathematical problem solving skills in preparation for the Mediterranean Youth Mathematical Championship which was unfortunately cancelled due to Covid.
- Ongoing **Music**.
Practised piano and singing with professional tutors, and now play for fun.