Zac Garby

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Experience & Volunteering

2023-present *University of Nottingham,* PhD Student

- A member of the Functional Programming Lab under supervision of Professor Graham Hutton.
- I am working on compiler calculation methods, with a particular focus on languages with effects.

2022-2023 *HackSoc Nottingham,* President

- I was responsible for the society, including the community itself and its reputation, but also organisation and planning. I gave many talks and workshops, and retained my Graphics Officer duties.

2021-2023 *HackSoc Nottingham,* Lead organiser, HackNotts

- I was responsible for the general planning and logistics of the event, as well as communicating with various companies to arrange funding and grants.
- HackNotts 23 was the largest HackNotts ever, with 204 attendees in total.

2021-2022 *HackSoc Nottingham,* Development Secretary and Graphics Officer.

- I gave a number of workshops and talks on tech-related topics each month.
- I maintained the society's website, graphics, and infrastructure.

2020-2021 *University of Nottingham,* A Computer Science mentor.

- I was assigned to a small group of first-year students to help them settle in to University.
- I ran a number of sessions with my group to help them with their first-year modules.

2018 *National Citizen Service*, Participant.

- As part of a team, raised money and restored a youth centre in Dorchester.

2017-2019 *Thomas Hardye School,* Ran the Programming & Robotics club.

- Taught a group of Year 9 and GCSE students about programming, mainly through the context of robotics.

2017-2019 *Thomas Hardye School,* Volunteered at a number of STEM days.

- Ran half-day sessions teaching middle school students about programming and simple robotics using LEGO Mindstorm.

Education

2019-2023 **University of Nottingham**
MSci Computer Science
First Class with Honours (87% average, awarded the best overall performance prize).
Highest ever grade in Computer Science at the University of Nottingham.

2015-2019 **The Thomas Hardye School, Dorchester**
A-Levels
Mathematics, Further Mathematics, Computer Science, and Physics: *A*AAA*

Skills & Interests

- Extensive experience in Haskell, Python, C, Go, JavaScript, Agda, Java, and LaTeX. Also some experience with Rust, various LISPs, and numerous domains specific languages.
- As the ex-President of *HackSoc* at the University of Nottingham, I am an experienced public speaker, and can confidently take on leadership positions. Having led the organisation of *HackNotts*, I am comfortable communicating with organisations, dealing with finance, and sorting out logistics and large-scale plans.
- Strong interest in many areas related to programming language theory, including type theory, compiler design/implementation, and interactivity in programming languages.
- Varied experience with many areas of programming and computer science, including multimedia (image processing, audio processing/synthesis, game development), systems programming, scientific computing, full-stack web development, networking, and the design and implementation of programming language compilers.
- Strong interest in hackathons, both as an attendee and as an organiser. I've attended 15 hackathons and organised two of them. A complete portfolio is available on my website.
- Interested in mathematics, especially where it overlaps with Computer Science.
- I enjoy playing, listening to, and creating music; I play the guitar and the piano, but I am really interested in early music and am currently building a lute. I also enjoy reading, climbing, bouldering, and I am a member of—and a Training Officer at—the University of Nottingham's Medieval Combat Society.
- I have an Emergency First Aid at Work qualification.

Awards, Achievements, & Honours

2024 *AstonHack 9,* Second place prize for my project, "Lunatic Lander", a mixed-reality hardware game simulating a moon landing on a rotating model of the moon.

2024 *HackSussex 2024,* First place prize for my project, "Scribble Scraps", a game where real-life objects are turned into digital creatures using computer vision.

2024 *Royal Hackaway v7,* First place prize for my project, "Jailbreak", a game exploring a dystopian future where prisons are controlled by artificial intelligence.

2023 *University of Nottingham,* Elizabeth and J D Marsden Prize, 3rd place. Awarded to "the best students of the year" for academic performance and "outstanding character and personality".

2023 *Computer Science, University of Nottingham,* Outstanding Community Contribution Prize, for my work organising HackNotts '21 and '23.

2023 *Computer Science, University of Nottingham,* Best Overall Performance Prize, for achieving the highest overall (over the full four years) grade percentage in my cohort.

2023 *Computer Science, University of Nottingham,* Best Year 4 Research Project Prize, for my work on the *Fantasia* program synthesis engine.

2023 *Computer Science, University of Nottingham,* High Achiever's Award, for being within the top 5% in my year in terms of grades.

2023 *SussexHack 23,* Second place prize for my project, "Knuckles", a biomechanical robot hand using shape-memory alloys.

2022 *OxfordHack 22,* Won the *"What the Hack?!"* prize for my project, "MusicBoard", a novel pen-and-paper musical instrument.

2022 *Computer Science, University of Nottingham,* Best Individual Year 3 Dissertation prize for my work on the *Fugue* programming language.

2022 *Computer Science, University of Nottingham,* High Achiever's Award, for being within the top 5% in my year in terms of grades.

2021 *AstonHack 2021,* First place for my project, "Network over Rube Goldberg Machine", an experiment in physical data transmission.

2021 *AstonHack 2021,* The "Communication Prize", a sponsor prize, also for my project, "Network over Rube Goldberg Machine".

2021 *Computer Science, University of Nottingham,* High Achiever's Award, for being within the top 5% in my year in terms of grades.

2020 *HackNotts 2020,* Sponsored prize for my project, "The Haskelltron 2000", a Haskell interpreter embedded in a standard receipt printer.

2020 *Computer Science, University of Nottingham,* High Achiever's Award, for being within the top 5% in my year in terms of grades.

2019 *Computer Science, University of Nottingham,* Silver Scholarship (a 25% tuition fee rebate each of my four years at university).

2019 *Thomas Hardye School,* Selected by my school to create an interactive exhibit for the local community's "50th Anniversary of the Moon Landing" event.

2019 *Thomas Hardye School,* Received my school's first ever Computer Science subject award.

2018 *United Kingdom Mathematics Trust,* Silver award in the Senior Mathematical Challenge.

2015 *Bournemouth University,* Second place out of hundreds of entries in a programming competition.

References

Available upon request.