

Raven Rothkopf

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EDUCATION

Barnard College, Columbia University | New York, NY | *BA Computer Science* May 2024 | GPA: 3.74

Relevant Coursework: Data Structures and Algorithms in Java, Advanced Programming in C, Accessible User Interface Design, Analysis of Algorithms, Compilers, Type Theory, Program Synthesis, Calculus I through IV

TECHNICAL SKILLS

Languages: Java, JavaScript, TypeScript, Python, C, C++, Haskell, OCaml, Rust, Accessible Web Dev (HTML, CSS)

Tools/Frameworks: Git, GitHub, Docker, Z3, Rosette, JAX, Vim, Linux OS, Unity, LaTeX, Microsoft Suite

PROGRAMMING & RESEARCH EXPERIENCE

Programming Languages Lab, Barnard College | New York, NY | *Research Assistant* | Winter 2022 - Present

- Conducts novel research at the [Barnard PL Lab](#) towards reactive program synthesis as a fully-fledged programming paradigm using Javascript, Typescript, and Haskell
- Investigates ideal testbeds for learning specification engineering with temporal logics by integrating reactive synthesis with musical composition, dynamic animation, and game development domains
- Consistently writes and edits work to assist PI Mark Santolucito with presentations, grants, and publications

Penrose, REUSE, Carnegie Mellon University | Pittsburgh, PA | *SWE Research Assistant* | Summer 2023

- Contributed to [Rose](#), an eDSL for efficient, extensible, web-based automatic differentiation written in Rust and Typescript to improve the optimization engine of [Penrose](#), an open source, text-to-visual diagramming system
- Learned state-of-the-art autodiff languages like Google's JAX and Dex and corresponded with Google researchers to contextualize Rose's contributions within existing literature; Worked with Sam Estep and Dr. Joshua Sunshine

The Needle's Eye Academy | Remote | *Web Developer* | Fall 2022 - Spring 2023

- Utilized HTML, CSS, and JavaScript to create and publish the official website for the nonprofit organization
- Organized and streamlined information from The Needle's Eye Academy's LinkTree, enhancing user experience

Instructional Media and Technology Services, Barnard College | New York, NY | *Assistant* | Fall 2021 - 2022

- Improved the accessibility for Barnard library, IMATS, and Media Center websites through web development skills
- Facilitated technological equipment reservations and checkouts for the Columbia University community

PUBLICATIONS

- **Rose: Extensible autodiff on the web** | Raven Rothkopf | SPLASH SRC 2023, 3rd place | [PDF](#)
- **Towards the usability of reactive synthesis: Building blocks of temporal logic** | Raven Rothkopf, Leyi Cui, Arya Sinha, Mark Santolucito | PLATEAU 2023 | [PDF](#)
- **Imposing temporal constraints on generative agents with reactive synthesis** | Raven Rothkopf, Hannah Tongxin Zeng, Mark Santolucito | To appear at PLATEAU 2024
- **Towards the usability of reactive synthesis: Mapping TSL misconceptions to mitigations** | Leyi Cui*, Raven Rothkopf*, Mark Santolucito | To appear at PLATEAU 2024

LEADERSHIP & COMMUNITY INVOLVEMENT

Computer Science Department, Barnard College | New York, NY | *Student Liaison* | Fall 2022 – Present

- Leads weekly [CS Social Hour](#) for students interested in CS to uplift women and gender minorities, engaging 50+ attendees; Collaborates with department head to organize program planning meetings for a record 30+ attendees
- Deployed and manages mentoring program to demystify challenges in CS such as getting into research, exploring fields in CS through introductory workshops, and applying to internships

Chicago Raw | Chicago, IL | *Assistant Manager* | Fall 2020 – 2021

- Generated over \$20k in sales for local [vegan restaurant](#). Tasks included customer service, problem resolution, food/drink prep, inventory management, food safety training, point-of-sales system operation, and key holder.