Rishav Chakravarty

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Hanover, NH

Education

Dartmouth College   *Sep 2025 - Jun 2027 (expected)*
M.S. | *Computer Science*   *Hanover, NH*

Dartmouth College | *GPA: 3.5*   *Sep 2021 - Jun 2025*
B.A | *Computer Science*   *Hanover, NH*
B.A | *English*
Achieved High Honors for Computer Science Thesis

Relevant Courses: Computer Architecture, Digital Electronics, Analog Computing, Theory of Computation, Advanced Digital Design, Graphics and Rendering, Operating Systems, Algorithms

Research

CFGs ♡ CFGs: Mapping Parse Trees to Control Flow Graphs   *Jan 2026 - Present*
Submitted to LANGSEC 2026

- Explored Graph Theory of Basic Blocks in Program Control Flow to automate generic binary-level tagging for parsers

AutoSum: Automatic Synthesis and Verification of Function Summaries... *Nov 2025 - Jan*
Submitted to ACM CCS 2026   *2026*

- Generated and evaluated summaries of `libc` functions to improve symbolic execution perfomance and correctness in finding bugs in target programs

Privacy and Security Research in the Hospital-at-Home Care Model... *Nov 2025-Feb 2026*
Submitted to the Journal of Multidisciplinary Healthcare

- Performed comprehensive literature review on IoT security and Hospital-at-Home technology to shape direction of the nascent HaH security field

3Tree: Segmented CPU Caching for Speed & Eviction Set Security   *Mar 2024-May 2025*
Undergraduate Computer Science Thesis Submission (High Honors)

- Investigated current CPU caching perfomance techniques and their effects on computer security
- Developed and evaluated novel cache eviction algorithm based on modern replacement algorithms

ABISan   *Jan 2025 - May 2025*

- Formalized security of low-level machine code; awarded Lovelace grant to fund lab research

Conference Presentations

SIEVE Eviction in the CPU in Boston, Massachussetts. IEEE MIT Undergraduate Research Tech Conference, 2024 (URTC '24)

Ongoing Research Interests

- Ising Machines: a novel Computer Architecture and Theory of Computing perspective
- Hardware Fault Injection formalization: combining Digital and Analog methodologies

EXPERIENCE

Teaching Assistant   *Jan 2022 - Mar 2022, Sep 2025 - Present*
Dartmouth College Computer Science Department   *Hanover, NH*

- Lead the remake of the popular Operating Systems course to better encourage student learning and engagement and attend to modern software standards
- Teach course materials of algorithms, operating systems, computer architecture, and theory of programming languages
- Led lectures to over 50 students in Java development, debugging, and data structures

Production Lead, Mentor, Software Developer   *Sep 2022 - Jun 2025*
DALI Lab   *Hanover, NH*

- Oversaw all the lab's software projects throughout project lifecycle, ensuring good scope definition, smooth operation, and completion
- Automate common lab processes of hiring, project selection, deployment, delivery, and more
- Define high-level lab direction with faculty supervisors and other student leaders to eliminate hiring bias and encourage member wellness
- Mentored 40+ new members for proficiency in various tech stacks, scrum-based development, and leadership
- Interfaced with business clients and project managers to lead development in software teams

Lead Fullstack Developer   *Aug 2023 - Aug 2024*
Chambiar AI   *Remote*

- Provided professional resources, assistance for difficult interviews, and personal development goals to underprivileged users using a RAG-trained LLM to reduce systemic hiring prejudice
- Led fullstack development of the startup as an intern with an international team
- Collaborated with CEO and CFO to design and direct development of the product
- Pitched the product to VCs, accelerators, and grants, accepted to the Workbox Future of Work accelerator program
- MVP prototype was awarded a $300k investment grant from Google to continue development

ACHIEVEMENTS

- Lovelace Research Scholarship, awarded by Dartmouth CS Department   Winter 2025
- Neukom Scholarship, awarded by Dartmouth DALI Lab   Winter 2024
- Neukom Scholarship, awarded by Dartmouth DALI Lab   Winter 2023

SKILLS

Expertise: C/C++, Rust, Zig, Python, Java, Javascript, SystemVerilog, VHDL
Software: Blender 3D, Linux, OpenGL/OpenCL, Embedded Systems, FPGA, Cadence, CAD, Git
Languages: English (Native), Bengali (Native), Spanish (Proficient), Japanese (Novice)
Additional Interests: 3D Graphics, Illustration, Musical Performance (Bass guitar, Violin)