CARSON BARNSTABLE

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EDUCATION University of Alberta, Edmonton, AB — Graduated 2025

BSc: Computing Science Specialization with Minor in Business — 4.0 GPA

- Specialized in low-level computing and software engineering, with courses in compiler design, operating systems, computer architecture, distributed systems, and cybersecurity
- Minor focused on finance, including courses in financial risk management, economics, accounting, capital investment, and Canadian human resource management

SKILLS & TECHNOLOGIES

Personal Skills

- Communication :   Engaged effectively with students and peers while teaching in labs
- Problem-Solving :   Independently developed innovative solutions for business needs
- Time Management :   Managed a full course load while balancing multiple work roles
- Leadership :   Motivated and coordinated teams during events and workshops

Technical Knowledge

- Languages :   C/C++ | Python | Java | RISC-V | JavaScript | Lisp | Liquid | SQLite | GraphQL
- Platforms :   React/Remix | Node.js | Android | Firebase | Pandas | BioPython | PyGame
- Software :   Linux | Git(Hub) | gem5 | LLVM | Microsoft Office (+Excel) | Google Workspace

RELEVANT EXPERIENCE

Full-Stack Web Developer Intern - All-Star Telescope — 05/2024 - Present

- Developed a business-critical Shopify checkout customization that achieved 100% uptime, ensuring that reservation orders were accurately captured and properly processed
- Created Remix-based custom applications that enhanced fulfillment efficiency & speed, streamlined purchasing & supply management, and improved inventory organization
- Designed and integrated multiple new business initiatives aimed at boosting engagement, including the *All-Star Amateur Astronomy Photo of the Day* (Triple APOD)

Gazprea Compiler (with Visualizer) - CMPUT415 Coursework — 10/2024 - 12/2024

- Worked with group of 4 (over 10 weeks) to build complete compiler for an extinct language
- Engineered a complete lexer and parser for the Gazprea language using ANTLR4, ensuring accurate syntactic analysis of complex language structures
- Implemented static semantic analysis features including type checking, scope resolution, and symbol table management to verify and enforce language correctness
- Developed an abstract syntax tree and generated optimized intermediate code targeting MLIR (then lowered to LLVM), maximizing runtime performance and code clarity
- Integrated ability to generate a visualization of the AST's construction (using Graphviz)

Undergraduate Research Assistant - University of Alberta — 05/2023 - 09/2023

- Awarded the NSERC USRA Award, selected as 1 of 3,150 recipients in Canada
- Conducted bioinformatics (omics) research under the supervision of Dr. Guohui Lin, providing general assistance to two graduate students, Shashank Pathak and Farishta Kabir
- Participated in weekly team meetings to plan work assignments, coordinate ideas, and ensure that research efforts stayed productive and on schedule
- Examined theoretical models with grad students, crafting scripts to assess proposed hypotheses over custom datasets, followed by data collection and analysis of the results
- Work used in "Natural Language Processing for Language of Life" doi: 10.7939/r3-z8yq-bj28

OTHER EXPERIENCE

Product Page Manager - Multiple e-Commerce Sites — 05/2022 - Present
- Developed and effectively managed Shopify product pages for two local stores, *All-Star Telescope* and *The Puzzle Shop* (.ca), ensuring a seamless online presence
- Independently managed and prioritized the timely processing of emailed work requests, significantly contributing to the overall operational effectiveness of the e-commerce sites
- Collected and aggregated product information from over 70 different vendor websites, datasheets, and price lists, to build informative and accurate product pages
- Regularly verified prices to ensure compliance with manufacturer MAP (Minimum Advertised Price) lists, and to maintain competitive pricing relative to competitors

Teaching Assistant (CMPUT 201) - University of Alberta — 09/2023 - 05/2024
- Led 2 weekly lab sessions, providing students assistance with labs, presenting relevant subject information, and addressing questions related to class concepts
- Conducted demonstrations of student labs, to assess their understanding of the material
- Jointly developed lab grading scripts, and manually graded midterm and final exams
- Compiled and distributed weekly newsletters to ensure consistent communication between 26 teaching assistants and over 600 students

Customer Service Associate - Lowe's Home Improvement — 02/2021 - 09/2023
- CSA for Lumber & Building Materials; Covered as Cashier & in Customer Service as needed
- Oversaw lumberyard (assembled online orders and loading customer vehicles)
- Operated reach truck to move merchandise & cut shop to cut lumber to desired sizes
- Assisted hundreds of daily walk-in customers with finding products and planning projects

VOLUNTEER ACTIVITIES

University of Alberta Science FUNday 2025 — Check-In & Tour Guide
- Facilitated check-in and managed the handoff process for approximately 500 families
- Coordinated tour sign-ups and scheduling to ensure a smooth visitor experience
- Led guided tours, providing engaging and informative experiences for attendees

UASU Week of Welcome / New Student Orientation 2024 — Faculty Leader
- Collaborated with a team of faculty and volunteers to create an engaging orientation experience for new students, by leading tours and answering questions/concerns
- Worked with fellow volunteers to prepare & serve pancakes to 1000+ students an hour
- Cultivated strong communication and interpersonal skills by actively engaging with diverse groups of individuals, both as a peer and as a supportive team member

TeamUP Science Computer Science Workshop 2024 — Volunteer Instructor
- Taught two lessons on intermediate Python programming to high-school students
- Provided assistance with project, and handled all questions/issues that arose during day

NOTABLE ACHIEVEMENTS

Scholarships and Awards
- NSERC Undergraduate Student Research Award
- A Louise McKinney Post-Secondary Scholarship
- Faculty of Science Gold Standard Scholarship *(×2)*
- ARA Foundation: Region 10 Dorothy Wellnitz Scholarship & General Undergrad Scholarship
- UofA Science Academic Scholarship
- CIPS Stan Heaps Memorial Scholarship
- Ivy & William Thomson Scholarship

Other Achievements
- Top 2% (for Completion) in the International Advent of Code Challenge   2023
- Male Student Athlete of the Month (Curling - Dec 2020) - Strathcona HS   2020
- Completed Bronze Cross & Bronze Medallion Lifesaving Courses   2019