

ZACHARY TAN

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Education

University of Rochester (Rochester, NY)

Class of 2026

- Bachelor of Science in Computer Science, Bachelor of Arts in English: Creative Writing
- Minors: Music, Math
- 3.76/4.00 GPA
- Dean's List: 2022-2024

The Browning School (NY, NY)

Class of 2022

- High Honor Roll: Grade 12
 - Honor Roll: Grade 11, Grade 10
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Work Experience

Games For Love

Intern, Remote

April 2024 - Present

- Work with a group of 7 interns to create video games from scratch using Unity
- Receive feedback from game developer veterans to guide and give feedback
- Implement and designed UI interface and functionality using C# and Piskel

Teaching Assistant

CSC 242: Intro to Artificial Intelligence, Rochester, NY

Aug. 2024 - Present

- Hold weekly in-person and online office hours to assist students in understanding course material: constrained satisfaction problems, Bayesian inference, hidden Markov models, pathfinding, convex optimization, state space searches
- Grade homework and exams in Java and Python
- Create practice exams and problems for students
- Hold exam review sessions before major exams

CSC 252: Computer Organization, Rochester, NY

Jan. 2024 - May 2024

- Held weekly review sessions on relevant course topics: Assembly, parallel processing, program optimization, virtual memory, GPUs
- Created and graded homework assignments in Rust, C, and RISC-V assembly
- Created exams in weekly TA meetings
- Conducted weekly in-person homework grading sessions

Cashier

King Kullen, Bridgehampton, NY

June 2023 - Aug. 2023

- Managed a cash drawer with a loan of \$1000 weekly
 - Provided customer service by resolving issues and answering questions
 - Organized and restocked produce
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Projects

Detecting Logic in Natural Language

Supervised Research - Researcher, Rochester, NY

Sept. 2024 - Nov. 2024

- Worked with Professor Alex Iosevich to find and implement ways to detect logical fallacies in natural language for LLMs
- Developed and implemented a graph-based approach to detecting logical fallacies using lambda calculus representation
- Implemented syntactic and semantic analysis to translate natural language to first-order logic

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Developer - Rochester, NY

Oct. 2024 - Nov. 2024

- Developed an image evaluation model using BLIP that provides professional-level feedback for photographers
- Implemented multi-channel output to evaluate four different criteria: content, color, composition, quality
- Created a custom data set and fine-tuned the model with it to produce critiques and feedback

Logical Neural Networks and Automated Theorem Provers

STEM For All, Vertical Integration of Research - Researcher, Rochester, NY

July 2024 - Aug. 2024

- Collaborated with a team to improve IBM's logical neural network used for automated theorem-proving
 - Modified the system to support first-order logic, including predicates and quantifiers
 - Improved readability of proof steps by naming logical laws used and presented results
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C to x86 Disassembler

Developer - Rochester, NY

Mar. 2024 - April 2024

- Developed a web-based tool in Ruby that maps source C code to x86 assembly using DWARF debugging data
- Used llvm-dwarfdump and objdump to extract and process symbol table and assembly instructions from compiled C programs
- Implemented interactive functionality to highlight corresponding lines of source and assembly code and vice-versa

Games For Love

Story Writer, UI Designer, Programmer, Debugger - Remote

- Escape The Kitchen July 2024 - Aug. 2024
 - Multi-level 2-D platformer made with Unity, Piskel, and C#
 - Designed menus, UI, and helped with script writing
- Interstellar Escape Sept. 2024 - Oct. 2024
 - A story-based game with multiple minigames including brick breaker style with specialized bricks and, a bullet hell boss fight
 - Wrote and implemented a story, designed menus, and UI, debugged and resolved performance issues
- Forest Gnome Nov. 2024 - Nov. 2024
 - A 2-D story-based platformer made with Unity
 - Wrote and implemented a story using interactable in-game objects
 - Designed menus, UI, and helped with script writing
- Rogue Tactics Nov. 2024 - Present
 - Isometric 2-D rouge-like made in Unity
 - Scripted enemy behavior, designed UI: menus and player UI, wrote and implemented story

Community Involvement and Clubs

Learn To Be

Tutor - Remote

Sept. 2023 - Present

- Member and tutor of Learn to Be's University of Rochester chapter
- Provide free one-on-one tutoring in English, Writing, and Math to underprivileged students ranging from grades 3-12
- Design and create learning materials and lesson plans catered to individual students

Computer Science Undergraduate Council (CSUG)

Tutor - Rochester, NY

Sept. 2023 - Present

- Hold weekly walk-in sessions for students to ask questions about Computer Science and Math courses
- Provide one-on-one scheduled tutoring sessions in Computer Science and Math courses
- Hold exam review sessions before major exams to review relevant material and answer questions

Club Tennis

Member - Rochester, NY

Sept. 2022 - Present

- Consistently attended practices 6 hours per week
- Helped organize and participated in team activities, including competing in USTA-hosted and invitational-based tournaments

Organizer of Volunteers

Make-A-Wish Metro New York

Sept. 2012 - June 2022

- Managed, organized, and gathered volunteers for fundraisers, drives, and events
- Delivered donated goods to hospitals and children with critical illnesses
- Designed posters to raise awareness and community support

Skills and Awards

- Intermediate programming skills in Java, C#, Python, R, and HTML
- Familiar with machine learning algorithms and modern model structures
- Familiar with dynamic programming, graph algorithms, fast fourier transform, divide and conquer
- Proficient in game development in Unity: writing scripts and creating UI and interactable assets
- Proficient in data structures, efficient algorithms, object oriented programming
- Held piano performances for weddings and at elderly homes
- First place winner of the Brearely interschool programming competition on Hackerrank (2021)
- CSUG Tutor of the Month Award (November 2024)