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# Mercedes Sandu

## Software Engineer

Portfolio: [mercedessandu.com](https://mercedessandu.com)  
[github.com/mercedes-sandu](https://github.com/mercedes-sandu)  
[linkedin.com/in/mercedes-sandu](https://linkedin.com/in/mercedes-sandu)

Creative and motivated software and game developer seeking to apply knowledge from startup experience to a dynamic and detail-oriented full stack position.

### SKILLS

<b>Tools and Languages</b>	C#, Unity, Java, Python, HTML, CSS, $\text{\LaTeX}$ , Blender, Git, Discord API, MySQL, JavaScript, Racket
<b>Quantitative Research</b>	Proof Writing, Discrete Geometry, Artificial Intelligence, Logic, Mathematica, MatLab
<b>Communication</b>	English, Romanian, Spanish

### TECHNICAL EXPERIENCE

#### SOFTWARE ENGINEER / INTERVALLIC, SONGLYBOT

June 2022 — Present

*Overture Games*

*Chicago, Illinois*

- Advised and guided team throughout the design and programming process of Intervallic game using Unity and C#
- Assigned relevant tasks to team members with differentiated experience and roles
- Engineered and implemented primary game mechanics, including player movement, level progression, and accuracy detection
- Developed systems for Midi instrument, computer keyboard, and touchscreen input
- Coded data structures to represent musical concepts such as key signatures, intervals, chromatic movement, and scales
- Designed and implemented main menu, pause menu, and level selector scenes for Intervallic game
- Conceptualized and programmed visual aesthetic and design for UI/UX and frontend development of Intervallic game
- Developed SonglyBot, a Discord Python bot used to foster and engage with a community for the company through a Discord server allowing members to play fun minigames and have thoughtful conversations
- Conducted testing sessions for Intervallic game with hundreds of potential consumers

#### GRADUATE RESEARCHER / ARTIFICIAL INTELLIGENCE & NARRATIVE RESEARCH

March 2022 — Present

*Northwestern University*

*Evanston, Illinois*

- Studied and documented the uses of propositional and formal logic in generative software and game artificial intelligence
- Analyzed and explored Dr. Ian Horswill's experimental generative language, Imaginarium, with the intent to expand its logical implications
- Experimented with Imaginarium project and extended Imaginarium codebase to discover its technical and logical shortcomings and planned improvements

#### UNDERGRADUATE RESEARCHER / DISCRETE GEOMETRY RESEARCH

January 2021 — Present

*Northwestern University*

*Evanston, Illinois*

- Studied the previous work of Dr. Shuyi Weng and Dr. Laura DeMarco on the folding of two-dimensional polygons into three-dimensional shapes
- Conducted case studies on different shapes and used findings to write formal proofs on conclusions.
- Wrote a formal mathematics academic paper discussing main findings of research on polygons and three-dimensional shapes
- Presented research findings to hundreds of educated enthusiasts

#### PERSONAL TUTOR / SAT AND COLLEGE APPLICATIONS

June 2020 — Present

- Mentored students through the most crucial requirements for the college application process, including revising essays and discussing strategies for standardized testing
- Coached mentees by studying which areas of the SAT needed more attention, teaching, and explanation
- Explained all levels of high school mathematics in more comprehensible ways to encourage real-time problem solving

### EDUCATION

**Master of Science, Northwestern University**

*Expected June 2024*

*Computer Science, Thesis Track*

**Bachelor of Arts, Northwestern University**

*Expected June 2024*

*Mathematics and Computer Science Double Major, Chemistry Minor, GPA 3.867*

**High School Diploma Niles North High School**

*August 2016 — May 2020*

*GPA 4.75*

### AWARDS & PRESENTATIONS

Financial Award for The Garage Jumpstart Competition Finalist

Summer 2022

Summer Undergraduate Research Grant

Summer 2022

Dean's List

Spring 2022, Winter 2022, Fall 2021, Fall 2020

Undergraduate Research Exposition and Northwestern Undergraduate Mathematical Society Presentations

Spring 2021