

Batsambuu Batbold

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EDUCATION

Macalester College | St. Paul, MN | Expected May 2027 | **B.A. Mathematics & Computer Science** | GPA: **3.97/4.0**

Relevant Coursework: Statistical Machine Learning, Computational Linear Algebra, Software Design, Algorithms

United World College Maastricht | Netherlands | May 2023

International Baccalaureate Diploma (**43/45**), Bilingual Diploma.

HONORS & AWARDS

- **International Mathematical Olympiad (IMO)**: Bronze Medalist (2021), Honorable Mention (2020)
- **1st Place, ASA DataFest** (Macalester College): Analyzed geospatial data using **R** to visualize patterns and recommend optimal locations for a client case study; won 1st Place. (March 2025)
- **1st Place, Macalester Local Programming Contest**: Solved complex algorithmic problems using **C++** under strict time constraints. (April 2025)

EXPERIENCE

Mathematics Consultant (Frontier AI) | Mercor (Remote) | Dec 2025 - Jan 2026

- Authored original, IMO-level problems in Algebra and Combinatorics designed to stump SOTA AI models.
- Graded model-generated proofs to identify specific logic errors and provided correct, step-by-step reasoning for training data.

Full Stack Developer & Organizer | Young Mathematicians of Khuvsgul NGO | May 2019 - Present

- Architected a comprehensive [LMS platform](#) using **Next.js 16**, **TypeScript**, and **PostgreSQL (Supabase)** to host math courses and manage contests for 300+ annual participants.
- Designed a relational database schema to model complex dependencies between courses, users, and problem attempts, and implemented Role-Based Access Control (RBAC) for admin security.
- Organized free summer mathematics programs for 30+ rural students in Mongolia, improving access to STEM education.

Undergraduate Preceptor | Macalester College | Jan 2024 - Present

- Facilitate learning for undergraduate courses, including **Computational Linear Algebra**, **Linear Algebra**, and **Intro to Computer Science**.

Teaching Assistant | Delgermurun Secondary School | Summer 2025

- Prepared students for the International Math Contest for Juniors; coached one student to a Silver Medal.
- Designed and maintained a [Quarto website](#) to host interactive math, programming, and English lessons.

TECHNICAL PROJECT

Procedural Map Generator (Capstone) | Python, NumPy, Streamlit, Blender | Fall 2025

- Engineered a procedural terrain generation engine using Voronoi Diagrams and Perlin Noise to create 50,000+ polygon worlds.
- Implemented **NumPy vectorization** to replace iterative loops, reducing map generation time by 40%.
- Deployed an interactive "Playground" web app using Streamlit for real-time parameter tuning and seed visualization.

SKILLS

Languages & Tools: Python, Java, C++, TypeScript, SQL, R, JavaScript, HTML/CSS.

Frameworks & Tools: React, Next.js, Node.js, Git, Blender, LaTeX, Supabase, Quarto.

Technical Areas: Data Structures & Algorithms, Object-Oriented Programming, Statistical Analysis and Visualization.