

Mend-Amar Badral

 MendeBadra |  Mend-Amar Badral |  mendebadra.github.io
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Passionate CS student with a strong interest in automation, systems administration, and security. Grounded in a mathematical problem-solving mindset, I aim to develop reliable solutions for real-world engineering challenges.

SKILLS

Languages: English (C1 [IELTS 8.0](#) )
Programming: Python, Julia, Javascript, MATLAB, C/C++, R, SQL,
Tools: Linux, SSH, unittest, Git, GitHub Actions, Bash, Docker, Quarto, Tailscale VPN, $\text{\LaTeX}$

EDUCATION

Budapest University of Technology and Economics (BME) Sep, 2025 – June, 2027
M.Sc. in Computer Science Engineering Budapest, Hungary
GPA: 4.85/5.0
Supervisor: [Márton Vaitkus](#) 
Specialization: Data Science & Artificial Intelligence

National University of Mongolia (NUM) Sep, 2021 – June, 2025
B.Sc. in Applied Mathematics Ulaanbaatar, Mongolia
GPA: 3.2/4.0 (rank 3/34)
Supervisor: [Galtbayar Artbazar](#) 
Thesis: [Evaluating land degradation using image processing methods](#) 

EXPERIENCE

Center of Mathematics Application, NUM Oct, 2023 – June, 2025
Undergraduate Research Intern & Lab Lead

- Designed and implemented a secure remote access architecture for the lab infrastructure using SSH public-key authentication and Tailscale mesh VPN, enabling encrypted off-site access through restricted university firewall boundaries. Managed user access controls and system configuration across Linux and Windows environments.
- Demonstrated the large scale advantage of drone image analysis method over traditional quadrat sampling method to evaluate the land degradation by developing [Python scripts](#)  that accounts for drone image parameters and sun reflectance to calculate vegetation index and perform image analysis.
- Decreased the processing times of the scripts by 80% compared to the initial prototype by implementing multi-threading in **Python**. Validated the program's output by performing unit test automation for each module.
- Reduced costs by 50 euros per month by replacing proprietary photogrammetry software with open-source GPU based Docker application. Ensured reliable output by fine-tuning the processing parameters.
- Directly reduced the time spent in data retrieval by 50% compared to the beginning of the project by implementing unified, well-documented data folder structure for research data storage. Enabled smooth future data integration of the drone imagery by writing guidelines and laboratory hand book.

PROJECTS

[Deep Learning Foundations and Concepts Book Examples Reproduction](#)

- Reproduced machine learning demonstrations from Bishop's *Deep Learning Foundations and Concepts* book using **Julia** programming language with innovative, interactive programming environment called [Pluto.jl](#). Deployed on the personal website using CI/CD principles and **GitHub Actions**.

[aiSim LiDAR point cloud sensor fusion for 3D Gaussian Splatting](#)

- Achieved seamless multi-sensor alignment for 3D Gaussian Splatting, as verified by qualitative visual inspection of point cloud color overlays, by writing a custom Python script to parse [aiSim](#) measurements and execute 3D-to-2D matrix transformations on LiDAR point clouds.

LEADERSHIP & AWARDS

Stipendium Hungaricum Scholarship Sep, 2025
Presentation: [First NUM-Yonsei Student Workshop on Mathematics and Computing](#)  July, 2025