Mihnea-Gabriel Steiu

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EDUCATION

Brown University, *B.Sc. Applied Mathematics & Computer Science*, 4.00/4.00 GPA Providence, RI | Class of 2027
*Relevant Courses***:** Program Design with Data Structures and Algorithms, Multivariable Calculus, Introduction to Engineering: Design

TECHNICAL EXPERIENCE

University Medical Center Groningen, *Research Intern* Groningen, Netherlands | June 2024 - Present

- Training a **deep learning** model that uses surface imaging to predict the dosimetric impact of anatomical deformations of breast cancer patients during treatment. The algorithm will significantly decrease the number of imaging procedures, leading to more adaptive workflows, less workload for doctors, and reduced patient radiation exposure.
- Created a training dataset of size 10,000+ and used **Python** to generate augmented CT scans and process dose statistics and patient data.

Brown University Department of Computer Science, *Research Assistant* Providence, RI | September 2023 – January 2024

- Collaborated with NASA and Smithsonian Astrophysical Observatory on a visualization application for low-vision users, enabling interaction with cosmic images through sonic and haptic feedback.
- Explored image segmentation algorithms and developed a multi-layer image display framework using **React** and **JavaScript,** allowing the integration of visual and X-ray data from the Chandra Observatory.

University Medical Center Groningen, *Research Intern* Groningen, Netherlands | April 2022 – September 2022

- Developed training data for a **deep learning** algorithm used for real-time adaptive proton therapy. The algorithm generates synthetic computed tomography images from magnetic resonance scans of brain tumors. This allowed proton dose calculation to be done more efficiently, enabling faster adaptation to tumor changes and reducing treatment planning time by approximately 30%.
- Programmed **Python** algorithms for automated **data processing** and metadata extraction for 50+ patients.

RESEARCH EXPERIENCE

Technical University of Cluj-Napoca, *Research Assistant* Cluj, Romania | May 2021 – February 2022

- Developed a **deep learning** model that uses contrastive learning to diagnose ophthalmology patients based on fundus images. Built a case distribution algorithm, which incorporates mathematical functions that process information about each resident's case history and performance to establish the optimal pairing between ophthalmology cases and residents.
- Published research paper in the "Big Data and Artificial Intelligence-Driven Research in Ophthalmology" special issue of the Journal of Clinical Medicine.

LEADERSHIP EXPERIENCE

ABSO-Tech Robotics Team, *Founder & Lead Programmer* Cluj, Romania | September 2019 – June 2022

- Founded my school's robotics team and programmed the seventh-most efficient robot globally out of 7000 teams, using **Java** and technologies such as **machine learning**, **computer vision**, and **control loops**.
- Received 2nd Place at the 2022 Maryland Tech Invitational, after competing with the world's highest-ranked 39 best teams.
- 3D-printed and donated 500+ face shields to frontline anti-COVID-19 workers around Romania.

PUBLICATIONS

European Society for Radiotherapy and Oncology 2023 Congress May 2023
QA of deep learning-based synthetic CTs for adaptive proton therapy using uncertainty estimation

MDPI, Journal of Clinical Medicine February 2023
Artificial Intelligence for Personalised Ophthalmology Residency Training

Romanian Society for Physics June 2021
IoT module for air pollution monitoring

SKILLS & INTERESTS

Technical Skills: Deep Learning, Java, Python, data processing, React, C++, HTML, CSS, JavaScript, Arduino, Octave, MATLAB
Language: Fluent in English (TOEFL iBT C1 certificate) and Romanian, elementary level French (A2 DELF certificate) and German
Interests: Performing music, basketball, reading, chess, martial arts