Mihnea-Gabriel Steiu

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PROFESSIONAL SUMMARY

Results-driven college student with a strong foundation in software development and deep learning, demonstrated through impactful research experiences at prestigious institutions. Key achievements include developing a visualization application for NASA, training deep learning algorithms for cancer treatment, and founding a globally competitive robotics team. Combines technical expertise with leadership capabilities, creative problem-solving, and a passion for leveraging technology to make a positive impact.

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

- Developing 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 reduce doctors' workload and patient exposure to radiation from medical imaging.
- Building **Python** algorithms to generate training data by augmenting computed tomography scans from 30+ patients.

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

- Contributed to a visualization application for low-vision users to interact with images of stellar objects through sonic and haptic feedback. The application incorporates an **LLM** alt-text generation component which creates image descriptions.
- Explored image segmentation algorithms and used **React** and **JavaScript** to build a framework for multi-layer image display.
- Collaborated with scientists from NASA and the Smithsonian Astrophysical Observatory.

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

- Trained a **deep learning** image synthesis algorithm for real-time adaptive proton therapy. The algorithm generates synthetic computed tomography images from magnetic resonance scans of brain tumors for proton dose calculation.
- 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, React, C++, HTML, CSS, JavaScript, Arduino, Octave, MATLAB
Language: Fluent in Romanian and English (TOEFL iBT C1 certificate), elementary level French (A2 DELF certificate) and German
Interests: Performing music, basketball, reading, chess, martial arts