

Alexandru-Stefan Buburuzan

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EDUCATION

The University of Manchester

BSc(Hons) Artificial Intelligence with Industrial Experience

Sep 2021 – Jun 2025

Manchester, UK

- **Courses:** Mathematics, Data Science, Programming (Python, Java), Computation, Operating Systems, Computer Architecture, Computer Engineering.

"Grigore Moisil" Theoretical High School

Computer Science and Mathematics

Sep 2017 – Jun 2021

Timisoara, Romania

- **Valedictorian**, Romanian Baccalaureate with 10/10 in Mathematics and in Computer Science.

EXPERIENCE

XVision

Junior Data Scientist

Jul 2021 – Present

Remote

XVision is a well-known A.I. company in the Romanian radiology community with multiple European hospitals testing and using its algorithms.

- Developed a CE-marked 3D Deep Learning algorithm for the **segmentation of nodules on lung CT scans** that **helps radiologists better identify** these abnormalities whilst providing **precise measurements**.
- **Decreased the error of the predicted measurements (L1) by a factor of 2** compared to the previous model by using a decoder-style sub-network which exploits pre-existing feature maps and implements a **segmentation refinement mechanism**.
- Applied a pre-processing technique that led to a **25% improvement in the semantic segmentation metric** over the traditional method used for pre-processing CT scans.

XVision

Data Science Intern

Mar 2020 – Sep 2020

Timisoara, Romania

- Conducted **interdisciplinary work** with radiologists towards building a robust and time-efficient AI model for the **detection of intracranial haemorrhages** meant for **speeding up the triaging process**.
- Improved the generalization of the model by using a special **data pre-processing** technique and performed **extensive data cleaning** on anonymized brain CT scans of the order of terabytes.
- Developed three Computer Vision algorithms as part of my initial training: **lung segmentation** (U-Net), **pathology classification** (CNN classifiers) and **foreign objects detection** (Faster R-CNN) on X-ray scans.

PROJECTS & COURSES

SaferWalk

2021 – Present

- Built a website capable of **recommending safer routes to pedestrians** based on data provided by the Police, as part of the **first-year team project**.
- Analysed the data using **K-means clustering** and approximated a bivariate multimodal probability distribution.
- **Reduced the Flask API response time by a factor of 4** by computing the heuristic function of the **A* algorithm** using Riemann sums and by pre-processing lattice points values.

Climate Hack.AI

Jan 2022 – March 2022

- Ranked 6th out of the 25 top universities from UK, US and Canada.
- Developed a model to predict solar **photovoltaic power production using satellite imagery**.
- **Increased the receptive field of the sequence-to-sequence model** using UNet-inspired components and **improved the gradient flow** of the network by making use of residual connections, which led to a **10% increase** in the multi-scale structural similarity index measure (MS-SSIM).

Food recognition Android app

Apr 2021

- Built a universal **platform to test and run computer vision classifiers** as part of the final-year **high school team project**.
- Executed the inference of the Deep Learning algorithm on a Google Virtual Machine to **reduce the loading time** and **improve battery performance**, allowing for a more **flexible design**.

Introduction to Quantum Computing

Oct 2020 – May 2021

- Organized by IBM Quantum and The Coding School, the course delivered a foundational understanding of quantum computing with topics including linear algebra, quantum algorithms and quantum applications.

SKILLS

Algorithms, Data structures, Mathematics, Machine Learning, Deep Learning, Computer Vision

Programming languages: C++, Python

Frameworks and libraries: PyTorch, NumPy, Pandas, Flask

Languages: English (IELTS Academic Band credential), Romanian (native)

HONORS & AWARDS

Bronze Medal - National Olympiad in Mathematics (ONGM)

Apr 2021

Qualification - National Olympiad in Informatics

Mar 2021

Qualification - National Olympiad in Informatics (**9th in national ranking**)

Mar 2020

Bronze Medal - National Olympiad in Informatics

Apr 2018