Andrei-Paul Bejan

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Education

M.Sc. Data Engineering and Analytics - Technical University of Munich   *starting April 2025*
B.Sc. Computer Science - Babeș-Bolyai University   *2021 - July 2024*

GPA: **9.87 / 10 (top 1%)**
Relevant courses: AI, CV&DL, Research Project, DB, DSA, OOP, VR, System engineering, System validation
Thesis: ***Eye-Tracking as an Intelligent Human-Computer Interface*** presented at the Young Talents International Conference in St. Pölten, Austria; **awarded** at the Students' Scientific Communication Session in Cluj-Napoca

Work Experience

HFT Engineer   Broadridge   *July 2024 - Present*

- Working on **low latency** connectivity solutions between venues and Tbricks **trading** platform.
- Built a mini **exchange platform** and reduced command execution time by **95%** using efficient data structures.
- Developed a **company-wide** credential finder tool including a REST API backend, database connection, and **hosting**.
- Improved and maintained **plugins** that are built on top of the Tbricks core to provide **trading strategies**.
- **C++** | Python | GoogleTest | gMock | LLVM Clang | gmake | SQLite3 | Pytest | FastAPI | Asyncio

ML Research Assistant   *Babeș-Bolyai University*   *Dec 2023 - July 2024*

- Devised a system that **detects eye-contact** during a conversation using Eye-Tracking technology.
- Evaluated and **adapted pretrained models** from Intel OpenVINO, NVIDIA, HuggingFace, and PapersWithCode.
- Collaborated with colleagues from the psychology department to **collect data** for our system.
- **Python** | OpenVINO toolkit | Pandas | PyTorch | OpenCV

ML Engineer Intern   Cloudflight   *July 2023 - Oct 2023*

- Applied machine learning algorithms to **predictive maintenance** of aircraft engines.
- Conducted extensive **data analysis** on the CMAPSS dataset, including data distribution and visualization, statistics, outlier detection, identifying correlations, feature selection and data transformations.
- Investigated the literature and successfully **reproduced state-of-the-art models** such as **CNNs** and **Transformers**.
- Evaluated models' performance on remaining useful life predictions across the operational lifetime of engines.
- **Python** | Matplotlib | PyTorch | Scrum | **Docker**

Working Student   Bosch   *July 2022 - Oct 2022*

- Developed a desktop application used by new employees to build their virtual setup.
- **Automated** the process of acquiring applications, permissions and packages needed in different projects.
- **Reduced time** wasted during the installation process by **50%** compared to manual execution.
- Researched the possibility of creating a directional audio warning solution to prevent traffic accidents.
- **Python** | Selenium | Scrum | PyQt

Projects

[Eye-Tracking as an Intelligent Human-Computer Interface](#) - thesis **research project**.
- Reproduced a **ResNet** model, **proposed a MobileNet**-based alternative, and built a performance preview system.
- **Python** | Wandb | PyTorch | GPU | PyQt | Overleaf | **OpenCV** | Unittest

[SemanticSegmentation](#) - **computer vision project** to classify pixels in an image into face/hair/background classes.
- Engineered the **data pipeline**, trained a **U-Net** model, tuned it, and created a simple UI.
- **Python** | Jupyter Notebook | Wandb | PyTorch | GPU | Git | Gradio

[FindYourSpecialist](#) - **client-server application** to connect people in-need to specialists in different fields.
- Designed UML diagrams, focused on backend development, applied domain-driven design and built a **REST API**.
- **Java** | JavaScript | Spring | React | Scrum | Jira | Gradle | Git | Docker | Hibernate | Postgres

[AmuseMe](#) - **android application** that inspires people to write their own jokes.
- Utilized API calls, database queries, the **model-view-adapter** design pattern and multiple layouts and widgets.
- **Java** | **Android Studio** | Git | Room | SQLite | Retrofit

Awards

Two-time winner of the AI Cloudflight Coding Contest	2022, 2023
Silver medal in the National Olympiad in Computer Science	2021
Finalist (out of 163 teams) of the Astro Pi Challenge held by the European Space Agency	2020
Connect Award III in the First Tech Challenge with the school's robotics team	2019
First place in the county phase of the National Olympiad in Mathematics	2018

Certifications

[Machine Learning](#) by Stanford University, [Applied Machine Learning](#) by Google Digital Workshop, [Deep Learning](#) Specialization by DeepLearning.AI, [C Course](#) by Bitdefender, Mediterranean Machine Learning [Summer School](#)