Prioteasa Cristi Andrei

Data and Computer Science M.Sc. Student - University of Heidelberg

Focus area: Machine Learning and Data Analysis

About Me

I am a self-motivated, purpose-oriented person who prefers getting a high-level general overview of the problem I am dealing with, before I dig into computation and implementation. I am driven by passion and curiosity and a desire to have an impact..

Technical Skills	Python, NumPy, Pytorch, Pandas / Polars, Linux (Debian), SQL , LangChain, Elasticsearch
Other Skills	Jira, SCRUM, AGILE, Data Analysis, Linear Algebra, SLAM, Computer Vision
Languages	Romanian (Native), English (C2 certified), German (B1 *not certified), French (A2 *not certified)

Contact

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Education

University of Heidelberg

Heidelberg, Deutschland (2023 - ongoing)

Sponsored through a **DAAD Master Stipendium** (2023-2025)

- Department: Fakultät für Mathematik und Informatik, Data and Computer Science, M.Sc.
- Coursework: Inverse Problems, CV (3D reconstruction), Time Series Analysis, NLP using Transformers, Generative NN for the sciences, ML Essentials, Computational Statistics, Software Economics etc.
- Pursuing the Advanced Certificate in Cognitive Science (including specialized courses on fMRI Analysis and Reconstruction, History of Philosophy, Linguistics, Computational Cognitive Science etc.)

3D UPB Summer School

Bucharest, Romania (Summer 2022)

- Attended workshops on Reinforcement Learning and Traditional Computer Vision Techniques for 12 weeks, for a total of over 360 hours
- As final project, I implemented a Deep Q Learning Agent that plays the game of snake with fixed obstacles using pyTorch and a Planar Segmentation from depth images algorithm using OpenCV in C++
- Coursework: Reinforcement Learning, Tabular and Deep Q Learning, Image Filtering , Depth recovery, Planar Segmentation, Edge Detection, Normal map construction based on the ZED stereo camera, Pattern Matching

Technische Universität Darmstadt

Darmstadt, Deutschland (2021–2022)

Exchange student, Erasmus+ program

- Coursework: Machine Learning for Natural Language Processing, Introduction to Computer Vision, Distributed Systems and Algorithms, Mobile Networks, German Language

Politehnica University of Bucharest Bucharest, Romania (2019–Present)

- Department: Computer Science. Specialization: Machine Learning and Artificial Intelligence
- Coursework: Linear Algebra, Statistics and Probability, Calculus II and III, Data Structures and Algorithms, Numerical Methods, Physics, Functional and OO Programming, Communication Protocols, Digital and Analogues Electronics, Database Administration, x86 architecture, Operating Systems, Computing Systems Architecture, Artificial Intelligence, Introduction to Cryptology, Machine Learning, Computer Vision, Signal Processing

“Fratii Buzesti” National College Craiova, Romania (2015–2019)

- Mathematics and Informatics, English bilingual profile
- Average: 9.46 (out of 10)
- Member of the Dolj County Center of Excellence (https://www.cjexdolj.ro/), studying Mathematics
- Participated in the National Olympiad of Mathematics (2 years) and various Mathematics competitions winning several prizes

Work Experience

Teaching assistant | Machine Learning Essentials, Faculty of Informatik, University of Heidelberg

Teaching assistant Heidelberg, Deutschland (April 2025 - September 2025)

Description:

Implementing automated tests for the course assignments, and grading the assignments. Assisted in creation of debugging questions that prepare the students for practical challenges when solving ML related tasks in practice. Implementing an automated grading framework based on otter-grader, and a testing framework for the course assignments.

Intern | Machine Learning Human Behaviour, IWR, University of Heidelberg

Mandatory Internship Heidelberg, Deutschland (October 2024 - present)

Description:

Mandatory internship as part of the Data and Computer Science M.Sc. curriculum. Exploring different approaches to Human Behavior modelling and control through Repeated Trust Game interactions, using Dynamical System Reconstruction methods and Recurrent Neural Networks. Internship under the guidance of the Machine Learning Human Behaviour laboratory, IWR.

Implemented a Dynamical System Reconstruction method for Human Behavior modelling and control through Repeated Trust Game interactions, using Dynamical System Reconstruction methods and Recurrent Neural Networks.

Institute for Mathematics, Image & Pattern Analysis Group, University of Heidelberg

Hilfswissenschaftler Heidelberg, Deutschland (February 2024 - May 2024)

Description:

Contributed to DROID-Splat: Combining end-to-end SLAM with 3D Gaussian Splatting, a deep-learning-based dense visual SLAM framework that achieves real-time global optimization of poses and 3D reconstruction. Responsible for designing and implementing an evaluation framework, developed scripts, and defined performance metrics. Responsible for result evaluation, Weights & Biases integration, literature research, running experiments

NetRom Software

Summer Internship: Full stack web developer intern Craiova, Romania (Summer 2021)

Description:

During 2 months, I helped develop a web based consumer application using React and .NET 5, whose purpose was to offer the members of a company a way to enroll, save, sort and attend multiple events organized by the company such as: team buildings, seminars, trainings and TED talks and to offer the managers and organizers of the events a way to grade, check attendance, give feedback and issue diplomas to each participant

Projects

Music Style transfer based on mel-spectrograms (WS 2025)

Explored and analyzed the applicability of Latent Diffusion Models for instrument style transfer and tune generation on mel spectrograms.

Risk assessment through Probability Discounting Modeling: a bayesian approach (WS 2025)

This project investigates probabilistic discounting in decision-making through hierarchical Bayesian modeling. We analyze data from a behavioral experiment where participants chose between certain and uncertain rewards under varying probability conditions. Using PyMC, we implemented a three-level hierarchical model (group, participant, and trial) incorporating both hyperbolic discounting and loss aversion components. The model predicts choice behavior and reaction times, with decision difficulty modeled as the absolute value difference between subjective values of options.

Artistic colorization with Adaptive Instance Normalization (SS 2024)

Explored a joint method for the colorization of gray-scale images and color style transfer. We propose an architecture consisting of two parts: a style en- coder based on a VGG19 and a UNet, tasked with colorization and enhanced by Adaptive Instance Normalization layers. Both the weights of the AdaIN layers and of the style encoder, on which they rely upon, are trained implicitly. Moreover, we explore the influence of the chosen colorization loss (MSE vs LPIPS), the chosen colorspace (RGB vs LAB) and conduct an ablation study on different configurations of the network. Finally we show examples of colorization and color transfer from some paintings.

AI Explainability for Human Action Recognition based on skeletal joints motion (Bachelor Thesis) (Winter 2022)

Under the guidance of the Artificial Intelligence and Machine Learning Department of the Faculty of Automatic Control and Computer Science of University Politehnica of Bucharest I analyzed and implemented techniques for visual explanation in the context of Human Action Recognition based on skeletal joint motion. I explored different state of the art approaches used in Computer Vision such as Class Activation Mapping (CAM), Gradient-weighted Class Activation Mapping (Grad-CAM) and Guided Backpropagation and applied them in the problem of Human Action Recognition. I explored the importance of interpretability, the relationship between faithfulness and interpretability and how to use the intuition gained from Grad-CAM visualizations to detect and correct biases in the dataset.

RAG system on Pubmed data (SS 24)

Please consult my other projects on my [github](#) page.

Interests

I enjoy getting educated on Cognitive Science, philosophy and psychiatry. I play several instruments and love debating.

Voluntary work and Competitions

Q-Hack hackathon (powered by Microsoft) Mannheim, Deutschland (2025)

Spent an amazing 24 hours coding a tailored AI agent that can supercharge the student life. Available at: https://students-ai.com/

Board of European Student of Technology (BEST) Bucharest, Romania (2019–2021)

BEST is an international organization present all across Europe whose goal is to bring together students in an effort to overcome their limits and achieve sky-high goals.

- Observer since the first year of my bachelor's degree
- Member of the Design Team, attending meetings, creating models, banners and taking decisions about the image of various events such as hackathons

Epilepsy Challenge Marathon Craiova, Romania (2018)

Proud participant and supporter of Epilepsy Challenge, a 5 km cross organized with the purpose to bring awareness and reduce social stigma targeted towards persons who suffer from epilepsy and raise funds for new medical equipment.

Heidelberg, Deutschland - Prioteasa Cristi Andrei, 25th April 2025