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English(C1), Italian(A2), Turkish (Native)

An organized, adaptive, and self-learner PhD student who projected her curiosity on the arduous journey of researching artificial intelligence. Previously, I achieved Erasmus+ funding for computer science BSc. exchange studies in Finland, MAECI funding for ICT (AI for Healthcare) MSc. at the University of Padua, and currently researching applying XAI (Explainable AI) to unpack the black box AI models which constitutes a significant importance also in the medical applications to elicit and extract most weighed decision-making features. I would like to enrich my knowledge in order to find the true north for my self-learning, teaching, and research skills, and get inspired and be an inspiration for the future generation of medical AI researchers.

EDUCATION

University of Bologna (Alma Mater Studiorum - Università di Bologna) – Italy, PhD (November 2023-)

Data Science and Computation – Automobili Lamborghini S.p.A

University of Padua (Università degli Studi di Padova) - Italy, Master's (September 2021- 5 June 2023)

ICT, Machine Learning Life and Health track, GPA: 28/30. Thesis title is 'Dopamine Lateralization on Brain differs in Healthy Controls and Schizophrenia Patients: An Explainable Artificial Intelligence Perspective' under supervision of Mattia Veronese, Assoc. Prof Unipd; in collaboration with Giovanna Nordio, PhD; Alessio Giacomel, PhD Kings College, London, UK.

University of Eastern Finland (Itä - Suomen Yliopisto) - Finland, Bachelor's (2019-2020)

Computer Science, Erasmus+ Student Exchange Program, GPA: 3.72/4. Researched the topic of 'Synchronization and Analysis of Biomarkers Data Under Noise and Stress' under supervision of Hana Vrzakova, PhD. Head of Medical ICT Development Center, Kuopio University Hospital, Finland.

Ankara University – Turkey, Bachelor's, (2016-2021)

Computer Engineering, GPA: 3.77/4. Investigated and examined the thesis topic of 'Computer Vision Assistance for the Diagnostics of Temporomandibular Joint Disorders by Using MRI' under the supervision of Assoc. Prof. Mehmet Serdar Güzel, Dt. Dilek Yılmaz, Prof. Dt. Kivanç Kamburoğlu, Ankara University Dentistry Faculty.

EXPERIENCE

PhD Researcher(Artificial Intelligence)

November 20223 –

- Improving driving performance of super sport vehicles

- Improving customer experience and activating customized paths

Automobili Lamborghini S.p.A

Italy, Sant'Agata Bolognese

Artificial Intelligence Intern

January 2022 – June 2023

Researching XAI (Explainable Artificial Intelligence) methods, formulizing according to model, data and problem requirements. Working on time series analysis, searching and applying novel models and techniques such as Temporal Fusion Transformers by Google Research to industrial sensor data for forecasting, anomaly detection, active learning, causality, feature importance study, symbolic learning etc. with tools Tensorflow, Pytorch, Pandas, NumPy, method specific GitHub repos.

Baker Hughes Inc.

Italy, Florence

Digital Manufacturing Intern

July 2022 – December 2022

Worked in the transformation project of replacing traditional production lines with digital ones, improving quality process with data-driven & agile tools creation, analysing assembly operation requirements. Worked on data visualization and analysis utilizing Tableau, Power BI and Python, and experienced mobile programming with C#, designed platforms with Microsoft Power Apps and Power Automate.

Baker Hughes Inc.

Italy, Florence & Vibo Valentia

IT Project Management Specialist BNP Paribas

March 2021 – October 2021

Conducted AIOps to the IT operations data in collaboration with Gartner, took active role in management of digital transformation strategies on purpose of increasing traceability and root cause detection of failures (AIOps & MLOps & Data Mesh) via diverse approaches. Searched, analysed and applied worldwide concepts to company through Gartner and Forrester. Utilized Python and MS Office programs actively (Excel, Power BI).

BNP Paribas S. A.

Turkey, Istanbul

Data Management and Science Intern

September 2020 – January 2021

Ankara University, Dentistry Faculty

Turkey, Ankara

Worked on the project within the scope of Computer Vision research of Ankara University Computer Engineering and Dentistry Faculty collaboration. Worked on the detection of the TMJ (Temporomandibular Joint) disorder detection from axial - MRI images using Deep Transfer Learning approach of Computer Vision research using TensorFlow, trained models that can classify different types of disorder and highlight decision making points via GradCam (XAI, Tensorflow, Jupyter Lab).

Seeds for the Future ICT Trainee

October 2020 – November 2020

HUAWEI Co.

Shenzhen, China

Proudly, I have been chosen by the Huawei Seeds for the Future program 2020, which aims to gather top talent engineering students of the target country and provide an information and technology education along with Huawei's approach and brand-new technologies in China. Learned usage of Artificial Intelligence on telecommunications and networking, digital signal processing, developed demo applications with Python, TensorFlow and Deep Note.

Junior ICT Research Intern

September 2019 – June 2020

Kuopio University Hospital, Medical ICT Development Centre

Kuopio, Finland

Worked in the Microsurgery Department ICT Research team, implemented a detailed exploratory data analysis on the synchronization & analysis of biomarkers under noise and stress. Formulated the research plan and processed multi-modal human data and used to build a classifier model that can differentiate between stable and noisy surgery environments. Utilized R, Matlab, and Python Tensorflow, Keras, and Scipy libraries.

Data Science and Machine Learning Intern

June 2019 – August 2019

TURKSAT Satellite & Communication

Turkey, Ankara

Worked on the improvement of different digital services that the government provides to citizens to provide better user experience, evaluated technological requirements, developed recommendation algorithm via machine learning facilities. Worked on sequential log data and time series analysis, and deep learning models development including recommender systems utilizing Python, TensorFlow, etc.

Big Data and Artificial Intelligence Trainee

June 2019 – August 2019

HAVELSAN A. S.

Turkey, Ankara

I've joined an educational camp along with activities designed to present hands on learning and practice in the field of defense industry and artificial intelligence engagement for the successful undergraduate students. Experienced development of demo applications with Keras, Scipy, Tensorflow, Pytorch etc.

AWARDS & HONORS

Mille e una lode (Università degli Studi di Padova) 2022

The merit-based monetary award for the best students for each degree. I've been assigned this award under my ICT Master's degree studies.

Best Machine Learning Project – Galileo Galilei Department & University of Padova

The goal was to train classification algorithms to figure out what the initial conditions are for a binary black hole merger in Hubble time, our team has been awarded with best project award.

MAECI Scholarship, Italy - September 2021

Issued by Ministero degli affari esteri e della cooperazione internazionale.

NASA - Epic Challenge Joensuu Best Exam Paper, Finland - 2019

Astronaut Dr. Charles Camarda's Epic Challenge Joensuu Organisation.

Bertelsman Udacity Scholarship, Gütersloh, Germany - 2019

Data Science - AI Nano Degree Course Member

University of Eastern Finland Moodle - Best Literature Review - 2019

Learning Analytics Course Research Papers Analysis, the aims of the research are as follows, the data used in theory, research ethics, the analysis methods and the results in brief.

University of Eastern Finland Moodle - Group Project Award - 2019

University of Eastern Finland Moodle - Best Homework Submission -2019 Learning Analytics Course, Social Network Analysis of the class data by using Gephi, visualization, and analysis of the interactions of the students and teacher.

REFERENCES

Assoc. Prof. Leonardo Badia, University of Padova - leonardo.badia@unipd.it

Dr. Mohammed Abdelgalil, University of Eastern Finland, mohammed.saar@uef.fi

Prof. Dr. Refik Samet, Head of Ankara University Computer Engineering, Refik.Samet@eng.ankara.edu.tr

PROJECTS

Predicting the Liver Transplant Success (Volunteer Research Contributor)

XVIVO Netherlands

In collaboration with University of Groningen the company XVIVO tries to create a predictive model which can tell surgeons the success level of the operation according to the specified biomarkers.

Dopamine Lateralization on Brain differs in Healthy Controls and Schizophrenia Patients: An Explainable Artificial Intelligence Perspective

University of Padova & Kings College UK

Comparing both the cortical and subcortical regions on the brain in terms of dopamine lateralization and creating a predictive machine learning algorithm which will also apply XAI to extract most important features.

NOx Time Series Forecasting: XAI applied

Baker Hughes

Training LSTM and XGBoost models for time-series forecasting, and researching & applying XAI methods to extract most important weights that weighted the most, so that we are unpacking the black box artificial intelligence models.

Multi-class Classification of COVID-19, Pneumonia and Healthy Chest X-ray by Transfer Learning & Desktop App. University of Padova, Human Data Analytics Laboratory

University of Padova

https://github.com/rabia174/COVID-19_Detection_Desktop_Application_Software

This study provides a comparison between two ways of customizing a pre-trained model using a transfer learning approach (Deep Learning & Computer Vision) by fine-tuning and feature extraction, thus will show an effective way of using pre-trained models for classifying COVID-19, Pneumonia, and Healthy images. Finally, we produced a Python desktop application software that takes a chest x-ray image and then produces probabilities belonging to each class with a Grad-CAM.

Synchronization and Analysis of Biomarkers Under Noise and Stress, Kuopio University Hospital Microsurgery Dep. Research Team

University of Eastern Finland

<https://github.com/rabia174/Synchronization-and-Analysis-of-the-Biomarkers-Under-Noise-and-Stress-Project>

Worked with the team KUH Data Science research team. Analysed the data of biomarkers under noise and stress and carried out an exploratory data analysis which ultimately revealed that noise and stress have a significant lowering effect on the performance of microsurgery doctors during the surgery.

Temporomandibular Joint Disorder Detection from MRI images, Ankara University Dentistry Faculty & Engineering Faculty, September 2020 - March 2021.

Internal, Confidential In-house Application

Ankara University Dentistry Faculty

TMJ is not visible to the human eye most of the time due to the anatomic complexity of the jawbone. By using the Transfer Learning by Fine-Tuning approach, we created different models which were capable of multi-class classification and compared their performances.

Epic Challenge of NASA - Assembly, Astronaut Dr. Charles Camarda

UEF – Kennedy Space Centre

<https://github.com/rabia174/NASA-Epic-Challenge-Joensuu-2019>

<http://www.epicchallengejoensuu.com/en/>

Within the scope of NASA's Mars mission, we focused on the problems during astronaut's assembly instructions perception and understanding. This project aimed to teach ICED (Innovative Conceptual Engineering Design) to students and then utilize it in a group project which is a challenge produced by the NASA Astronaut Dr. Charles Camarda.

BNPP Overture AIOps Service Management Application

BNP Paribas

Internal, Confidential In-house Application

Took part in the development of database response time lateness root-cause detection application for the IT Services in use (Python 3.8) utilizing diverse machine learning algorithms. The application provides a list of services to be picked and returns a correlation analysis within a chosen time interval by the user.

GROUPS

Kuopio University Hospital Medical ICT Development Centre – Member (2019 & 2020)

University of Padova Biomedical Research Centre – Member (2022 & 2023)

Ankara University Dentistry ICT Society – Member (2020 & 2021)

Baker Hughes – IET AI Development Group - Member(2022-2023)

Main Skills & Programs

- C/C++ / Data Structures / Algorithms
- C# (.NET) / Android Studio
- Java/Java Script (Netbeans)
- Python (Also GUI QT5)/ R / Matlab (Object Oriented Programming)
- Tensorflow/Pytorch/Scipy/Keras
- Convolutional Neural Networks / Transfer Learning / Recurrent Neural Networks / LSTMs / Transformer & Attention-Based Models/ Temporal Fusion Transformers/ Computer Vision & GANs
- Active Learning / Causality / Synthetic Data Generation
- Exploratory Data Analysis (Numpy / Pandas, Scipy, Keras etc.)
- Time Series Data Analysis / Forecasting / Anomaly & Outlier Detection/ Tabular Data Regression / Quantile Regression & Classification
- Medical Image Processing / Molecular Data / Multi-modal data analysis /Pattern Recognition
- Hybrid Models
- Explainable Artificial Intelligence (XAI Methods – LIME & SHAP & EBLR etc.)
- Data Science (Statistical Methods t-test, Wilcoxon test, ANOVA, ANCOVA, Non-Parametric and Normal Distribution Tests, A/B Testing, SPSS, Jamovi)
- Microsoft Office Programs
- Jupyter Lab & Notebook / DeepNote / Github / PyCharm / Microsoft Visual Studio
- Microsoft Power BI, Tableau, Power Automate, Outlook, Teams
- EDA (Exploratory Data Analysis)/ Data Visualization / Statistical Analysis / Kaggle

- Latex