IOANNA GEMOU

(+1) (401) 712-8411 ◇ ioannagemou@gmail.com ◇ Website ◇ GitHub ◇ LinkedIn

EDUCATION

Visiting Research Fellow   Aug 2024 - Feb 2024
Brown University, Providence RI, USA

MSc in Biomedical Engineering – 120 ECTS   Sep 2023 – Jul 2025
Technical University of Denmark, Copenhagen, Denmark

MEng in Electrical & Computer Engineering – 300 ECTS   Oct 2018 – Aug 2023
University of Patras, Greece

- GPA: 7.65/10 (Ranked 15th among 350 students in cohort)
- Thesis: Semi-automated, Machine-learning-based Segmentation and Analysis of Mouse-Brain Stroked Tissues.
- **Advisor**: Prof. Konstantinos Moustakas

EXPERIENCE

Brown University   Aug 2024 – ongoing
Visiting Research Fellow, Advisors: Profs. Ritambhara Singh, Nikos Vasilakis   *Providence, RI, USA*

- Developing a method for drug interaction prediction by integrating Graph Neural Networks and Large Language Models.
- Building a composable utility library for Machine Learning.
- Contributing to an Ancient Egyptian Hieroglyph Digitization initiative.

Radiometer Medical A/S   Aug 2023 – Aug 2024
Electronics & Software Engineer (Part-time)   *Copenhagen, Denmark*

- Responsible for performing hardware and software tests on medical devices.

University of Athens, Group of Translational Neurology Research (GTNR)   Dec 2022 – May 2024
Research Assistant   *Athens, Greece*

- Responsible for the technical development and implementation of projects focused on neurological disorders, employing advanced machine learning techniques in data analysis and neuroimaging.

EnzyCeuticals PA   Sep 2022 – Dec 2022
Data Science Intern   *Athens, Greece*

- A research project leveraging the KNApSAcK Database and machine learning methods to classify and cluster species based on specific metabolites, aimed at advancing cosmetic and pharmaceutical development.

Bionos Biotech S.L. (Erasmus+ Placement)   June 2022 – Aug 2022
Software Engineer Intern   *Valencia, Spain*

- Built data processing web applications using R and Python which replaced many manual processing tasks.
- Improved volunteer management system using statistics, resulting in a faster volunteer selection process.

Patras Junior Codecamp   November 2021
Programming Instructor   *Patras, Greece*

- Teaching programming to high school students through workshops on the topics of Computer Visualizations & Applications

AWARDS

Motor Imagery Brain-Computer Interface for Rehabilitation after a Brain Stroke Episode   November 2022

- **1st Prize** in the competition organized by the AI Hub at the University of Patras.

IEEEXtreme 16.0 Competition   October 2022

- Developed solutions to programming challenges during a 24h competition. Placed globally at the top 4% among 6373 teams.

SELECTED PROJECTS

Brain Computer Interfaces   Spring 2024
Technical University of Denmark, Supervisor: Prof. Sadasivan Puthusserypady

- **EEG-to-Text Translation:** Using LLMs to translate EEG recordings into natural language. [code]
- **SSVEP Signal Classification in BCIs:** Explored traditional and new deep-learning classification methods for SSVEP signals. [code]

Automatic and explainable disease prediction using LLMs and Answer Set Programming   Spring 2023

- Developed an illness prediction framework by integrating Large Language Models with Answer Set Programming, which analyzes patient's symptoms, enabling clear and explainable diagnoses. Received **honorable mention**. [code]

Drug Formulation Problem   Spring 2023
University of Patras, Supervisor: Prof. Sofia Daskalaki

- Developed a solution for the drug formulation problem using linear programming techniques. [code]

Identifying Parkinson's Disease through Speech Analysis   Fall 2022
University of Patras, Supervisor: Prof. Kalliopi Dalakleidi

- Analyzing tabular data to identify patterns and markers indicative of Parkinson's Disease. [code]

PUBLICATIONS

Ioanna Gemou, Evangelos Lamprou, Seong-Heon Jung, Nikos Vasilakis, *A Shell-Native Library for Machine Learning Workflows* (To be submitted to HotOS'25).

Ioanna Gemou, Konstantinos Moustakas, Athanasios Lourbopoulos, *Semi-automated, Deep-Learning based Segmentation and Analysis of Mouse-Brain Stroked Tissues.* (In Preparation – Collaboration between VVR Group, GTNR and the Institute for Stroke and Dementia Research).

VOLUNTEER ACTIVITIES

Chairperson   June 2022 – June 2023
IEEE Student Branch-University of Patras

- Responsible for organizing educational activities, and overseeing scientific groups and committees (total members: 50).
- Received the IEEE Exemplary Student Branch Award for the 2022-2023 academic year.

Biomedical Engineering Scientific Group Coordinator   Oct 2022 – June 2023
IEEE Student Branch-University of Patras

- Coordinated weekly meetings on topics such as machine learning and its applications in the biomedical field.
- Supervised individual projects for a team of 10 students.

Head of PR   Oct 2021 – Sep 2022
IEEE Student Branch-University of Patras

- Responsible for Public Relations and communication with external organizations.

LANGUAGES

Greek – native
English – fluent
French, Spanish – beginner

REFERENCES

Prof. Ritambhara Singh	**Prof. Nikos Vasilakis**	**Prof. Konstantinos Moustakas**
CS Department	CS Department	ECE Department
Brown University	Brown University	University of Patras
Providence, RI, USA	Providence, RI, USA	Rion-Patras, Greece
ritambhara@brown.edu	nikos@vasilak.is	moustakas@ece.upatras.gr

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