VASILIS VALATSOS

Curriculum Vitæ

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○ *github.com/aethrvmn*
in *Vasilis Valatsos*

Experience

June 2022 - February 2024

Alumni Database Manager
Students For Liberty
Lead the design and implementation of the data pipeline and storage of the Alumni for Liberty department of SFL. Managed to find out the whereabouts of more than 10k alumni, as well as of alumni-led organisations, and helped organise crisis responses to global political events, and establish communication channels between alumni which led to local and country-wide meetups. My work enabled the Africa Students For Liberty to win the Atlas Network's Templeton Freedom Award, which has a prize pool of $10k.
Skills:
Data Analysis and Cleanup with Python, SalesForce, Web Scraping with Selenium, DevOps and Data Management with Supabase&PostgreSQL, BitBucket and Git for Version Control, Jira and Trello for tickets and project management, Confluence, NodeJS

January 2019 - August 2020

Backend Developer
ASTERION S.A.
Worked as an independent contractor, implementing the backend database and relevant API for a real estate website
Skills:
MySQL, Django, RESTful APIs

April 2017 - November 2017

Customer Support
TelefoNET
Resolved complaints and queries and offered troubleshooting advice.
Skills:
Customer Service, Communication, Problem Solving, Technical Support, Conflict Resolution, Product Knowledge, Call Management, CRM Software

Personal Projects

2024

Nyrids: A collection of different NLP projects.
Melite: A solo research project, focused on the intersection between Reinforcement Learning and NLP
Nimertes: Built a foundational Large Language Model (GenAI) from scratch in PyTorch, using the Project Gutenberg open library as training data, and also translated the project from PyTorch to Nimlang, a system's programming language.
Panope: A from scratch foundational GPT using the architecture of NanoGPT
Skills: PyTorch, Natural Language Processing (NLP), Machine Learning, Large Language Models (LLMs), Data Processing, Python, Nimlang, AI Development, Linux

University Projects

2023

Super Mario Network
Implementation of the Double Deep Q-Network algorithm, which enables AI to play the Super Mario Bros game without human supervision.
Skills:
Deep Learning, Deep Reinforcement Learning, Double Deep Q-Network (DDQN), PyTorch, AI, Machine Learning, Algorithm Development, Python, Neural Networks

2022

Prehistoric Human Dispersion: The Exodus from Africa
Model of the Prehistoric Out Of Africa (OOA) event, using Q-Learning, a reinforcement learning algorithm, to simulate the movement of early humans from Africa to the rest of the world.
Skills:
Q-Learning, Reinforcement Learning, Simulation Modeling, Machine Learning, Algorithm Development, Mathematical Modeling

2022

The Black–Schöles Model for financial applications
Simulation of the Black–Schöles model, used in financial markets as a way to estimate the price of options.
Skills:
Financial Modeling, Option Pricing, Quantitative Analysis, Financial Mathematics

Education

Sept 2021 - July 2024   **M.Sc. Mathematics (Statistics and Data Science)**
University of Turin,
Torino, Italy.
<u>Thesis</u>
Reinforcement Learning: Theory and Implementation in a Custom Environment.
The thesis gives a wide overview of Reinforcement Learning, a field of Machine Learning where an agent AI learns through trial and error, and then implements a state of the art algorithm, Proximal Policy Optimization (PPO) inside of a custom game environment, dubbed Pneuma. We showcase the challenges we faced and the modifications we made to the baseline PPO algorithm to ensure proper agent behaviour.
Supervisor: Roberto Esposito | Co-Supervisor: Mirko Polato

Sept 2014 - Sept 2021   **B.Sc. Physics**
National and Kapodistrian University of Athens,
Athens, Greece.
<u>Thesis</u>
The One-Dimensional Heisenberg Model, RG Methods and Numerical Simulation of the SDRG Process
The thesis presents the Heisenberg Model in one dimension for particles of spin-1/2 (ex. electrons), as well as the traditional methods for solving the deterministic version using Renormalisation Group (RG) methods. Then the thesis presents the Random Antiferromagnetic (AF) version of the model, gives the solution using Strong Disorder Renormalization Group (SDRG) methods and showcases a novel computational simulation of the process.
Supervisor: Professor Aris L. Moustakas

Conferences, Seminars & Workshops

December 2023   **Xmas Theoretical Physics Workshop @ Athens 2023**,
National and Kapodistrian University of Athens,
organized by Professor K. Sfetsos and Associate Professor V. Spanos.

June 2022   **Machine Learning Crash Course**,
Università di Genova,
organised by MaLGa - Machine Learning Genoa Center.

March 2022   **Machine Learning from a Mathematical View Point: A Gentle Introduction**,
Università degli Studi di Torino,
Ernesto De Vito (Università di Genova).

July 2019   **Eighth Summer School in Operator Theory**,
National and Kapodistrian University of Athens,
organised by Emeritus Professor A. Katavolos.

December 2018   **Xmas Theoretical Physics Workshop @ Athens 2018**,
National and Kapodistrian University of Athens,
organized by Professor K. Sfetsos and Associate Professor V. Spanos.

December 2017   **Xmas Theoretical Physics Workshop @ Athens 2017**,
National and Kapodistrian University of Athens,
organized by Professor K. Sfetsos and Associate Professor V. Spanos.

December 2017   **Colloquium in Honour of Fokion Hadjioannou**,
National and Kapodistrian University of Athens,
organized by Professor P.J. Ioannou and Associate Professor T. Apostolatos.

December 2017   **Lectures on Theoretical Physics 2017**,
National Technical University of Athens,
F. Farakos (Leuven U.) – An Introduction to Supergravity.

Languages

Native	*Greek*	
Fluent	*English*	*Mastery of Proficiency (C2 level, Michigan ECPE)*
Basic	*Italian*	*A1 level, certified by University of Turin*