

Panos Kolyvakis (PhD)

Data Science, Machine Learning, Analytics, Environmental Eng., Materials Science

Personal Info

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in Panos Kolyvakis

Projects

AI-To-LaTeX: A starred repository featuring a web application leveraging Google Custom Search and LLMs to create and format blog posts into LaTeX, compiled into downloadable PDFs. (Python, Flask, Javascript, HTML, Data Mining, CSS, Google Programmable Search Engine, OpenAI's GPT, Web Scraping, Full-stack Application, WebUI, LaTeX)

Content Creation AI assistant:

Full stack multi-agent AI application that delivers the power of LLMs, embedding models to non-technical script writers and producers. (PyTorch, PyInstaller, Asynchronous API calls and multithreading, Gradio, LangChain, RAG, Chroma DB, HuggingFace, Sentence transformers sBERT, plotly). **company tool**

Spartan Game Engine Contributor:

(C++, Physics Sim., PhysX, Vulkan, GPU Computing) Open-source contributions and compiled language programming. I focused on augmenting the engine's physics capabilities, introducing floatation dynamics/ movement physics.

Multi-Agent AI application:

Developed multi-agent LLM systems designed to recursively create and populate data structures with documents. Extensive use of (NLP, embedding models, Transformers, SpaCy, RegEx) and advanced data structures and algorithms (graphs, trees, depth-first and breadth-first search recursion). **company tool**

Keyboard-SnippingTool-ToGPT:

A project integrating PowerShell, zsh, Python, APIs, and a Tkinter graphical user interface to enhance productivity tools. (OCR, bash/ .zsh, Python, API, GUI, MacOS automator)

Biography

Currently working as a Data Scientist in the Research and Development department at Twyn (start-up), focusing on conversational AI. Former analyst, materials science researcher and Teaching Fellow in Environmental Engineering at the University of Edinburgh. I have a PhD in the physical modelling of adsorption processes of porous materials, a solid mathematical foundation, and versatile skills across scientific and engineering domains. I am passionate about producing high-quality code, automating routine tasks, and finding the best possible solutions to complex problems. For an overview of hobby projects, interests and blog posts please visit my [personal webspace](#).

Work Experience

Data Scientist. R&D

Feb 2024 - present

Twyn Holdings Limited, London, United Kingdom

My work focuses on Large Language Models (LLMs), including prompt engineering techniques (such as few-shot, chain-of-thought) for multi-label classification problems, fine-tuning LLMs, and utilizing LangChain and CrewAI for multi-agent systems and Retrieval Augmented Generation (RAG) pipelines. I fine-tune, deploy and maintain models in production on Azure OpenAI studio and MLStudio.

Business Intelligence/ Data Analyst

Mar 2023 - Nov 2023

Xenos group Hotels, Zante, Greece

Utilised **Excel** and **applied data analytics** to room occupancy, pricing trends, and customer booking patterns, to optimise resource allocation. My brief tenure demonstrated a keen ability to swiftly analyze data, derive actionable insights, and drive tangible results in a dynamic hospitality environment.

Environmental Eng. Teaching Fellow

Sep 2021 - Oct 2022

School of Civil and Environmental Engineering, The University of Edinburgh

Lectured, designed course material and was responsible for the academic examination in two academic courses: **Environmental Engineering** and **Water Engineering**. Delivered classes in **Engineering Mathematics** and **Engineering Design** courses. Engaged in **scientific programming** in wave simulations using Python; Finite element methods (Firedrake, Thetis computation libraries). Watch my lectures: [Engineering Mathematics](#), [Environmental Engineering](#).

Education

PhD - The University of Edinburgh

Jul 2017 - Jul 2021

School of Chemistry (Prof. Neil McKeown)

Thesis title: Design and synthesis of porous adsorbents for water purification.

Teaching and Tutoring: Online and in-person Workshops (physical chem. and chemical eng. students). Received two nominations: 'tutor of the year' award.

Applied **regression methods** and **data modelling** using **MATLAB®** and **Origin®** software. I applied **computational techniques** to fit **physical models** that describe the physisorption and chemisorption (including kinetics) of substances onto porous adsorbent materials. Investigated the effect of linearisation on the statistical error distributions in regression techniques.

BSc - The University of Edinburgh

Sep 2013 - Jul 2017

School of Chemistry (Prof. Michael Shaver)

First-class honors (1st)

Achieved the highest average (GPA) in my year and received an award for "Outstanding Academic Performance".