

Elektra Kypridemou

(PhD, Computer Science)

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Location London, UK (Right to work in the UK)

Data Scientist and Software Engineer, with a focus on AI and graph technologies. I hold a PhD in Computer Science and bring extensive hands-on coding experience across both academia and industry. I combine deep research expertise with practical implementation and deployment skills, building end-to-end systems that deliver real impact. Passionate about continuous learning and innovation, I thrive in solving complex problems and delivering state-of-the-art solutions.

WORK EXPERIENCE

Software Engineer

Jul 2023 - present

Senapt Ltd.

- Built a machine learning (ML)-powered platform for distributed energy systems, delivering predictive models for energy optimisation.
- Implemented geospatial reasoning techniques and custom graph algorithms to enable intelligent, data-driven energy infrastructure decisions.
- Supervised and led the implementation of a graph algorithm in C for recognising interval graphs using PQ-trees.
- Designed and built a distributed event management system in Java, including a custom state-transitions engine to automate complex internal processes.
- Developed a custom domain-specific language (DSL) using ANTLR4, to support flexible and extensible input for the event management system.

Data Science Consultant - Graph & Semantics

Sep 2022 - Jun 2023

Capco (a Wipro company)

- Delivered a graph-based data-lineage platform for a Tier-1 bank by implementing a semantic RDF Knowledge Graph with Jena Fuseki and SPARQL, improving traceability and data discovery across systems.
- Developed interactive graph visualisations with yFiles and React, enabling intuitive, UI-driven data exploration.

Data Science Lead

Aug 2021 - Jul 2022

Connect Earth

- Led and scaled the data science team in an early-stage ClimateTech / FinTech startup, driving the development of the core ML and data infrastructure.
- Developed statistical and ML models in Python to estimate carbon emissions from financial data.
- Designed and implemented a Neo4j-based sustainability Knowledge Graph, incorporating reasoning capabilities and graph ML techniques.
- Worked closely with the engineering team and integrated the results into our core API product, ensuring a seamless deployment.

Computer Science Teaching Assistant

Oct 2018 - Jun 2022

University of Liverpool

- Delivered tutorials and lab sessions for a variety of computer science modules, including Advanced AI, Network Analysis & Graph Theory, and programming in Python, Java, and C++.
- Supervised Master's students during their final thesis projects.

AI Researcher (Doctoral studies)

Sep 2012 - Sep 2018

Computational Cognition Lab / Open University of Cyprus

- Conducted advanced AI research, focusing on computational models of cognitive processes and exploring how machines can model, understand, and reason about narratives in ways that mirror human thought.
- Applied formal argumentation, computational learning theory, knowledge representation, and commonsense reasoning to develop models capable of reasoning, learning long-range dependencies, and maintaining semantic coherence. This work aligns with challenges in modern AI and deep learning, including embedding structured knowledge for generalisation and building systems that capture complex cognitive processes.

AI Researcher (Special Scientist)

Mar 2016 - May 2016

RISE (Research centre on Interactive media, Smart systems and Emerging Technologies)

- Developed interactive AI software demos for smart devices using Prolog and Logic Programming techniques, showcasing rule-based reasoning, logic-based NLP, and symbolic AI applications, to support the Centre's innovation and outreach initiatives.
- Authored reports to analyse the current state and future applications of AI, shape the Centre's research focus, and identify key market opportunities for AI-driven innovation.

Computer Science Teaching Assistant

Sep 2013 - Jul 2014

Open University of Cyprus

- Prepared materials and delivered lab tutorials for the module "Autonomous Agents and Multi-Agent Systems", for the MSc Programme "Information and Communication Systems".

Special Scientist

Oct 2010 - May 2011

ARGUE Research Project (University of Cyprus)

- Conducted comprehensive statistical analyses to investigate how different text types affect comprehension, inference generation, and learning outcomes.
- Applied quantitative and qualitative methods, including advanced statistical methods, to analyse the data.

Mathematics and Statistics Instructor

Oct 2007 - Jun 2011

Public and Private Sector

- Taught across diverse educational settings, including high schools, adult vocational training centers, and universities. Delivered courses ranging from foundational mathematics and statistics to advanced topics such as Calculus, Differential Equations, and Matlab.
- Adapted teaching methods to accommodate diverse learning styles and curricula.

EDUCATION

PhD, Computer Science

2018-2023

Department of Computer Science, University of Liverpool

Thesis title: 'Exploring the Interplay between Topological and Geometric Features of Graphs and their Embeddings'. Scholarship awarded.

MA, Cognitive and Educational Psychology

2010-2012

Department of Psychology, University of Cyprus

Two-year degree. Scholarship awarded. Graduation grade: 8.90/10.

MA, Didactics and Methodology of Mathematics

2008-2010

Department of Education, University of Cyprus

Two-year degree. Scholarship awarded. Graduation grade: 8.21/10.

BSc, Mathematics

2001-2007

Faculty of Science, Aristotle University of Thessaloniki

Four-year degree in Mathematics. Graduation grade: 7.49/10 (top 18%).

SKILLS

<i>Programming Lang.</i>	Python, Java, C++, C, R, TypeScript (React.js), Clojure, Fortran
<i>Graphs</i>	RDF, Property Graphs, Ontologies, Query Languages (SPARQL, Cypher, AQL), Graph Algorithms & Visualisation, NetworkX
<i>Specialised Lang.</i>	Logic Programming (Prolog, Datalog), DSL Design (ANTLR4)
<i>Soft. Development</i>	Agile, DevOps, Git, CI/CD, Containerisation (Docker, Kubernetes)
<i>Spoken Lang.</i>	English (fluent), Greek (native)

SELECTED PUBLICATIONS

Kypridemou, E. (2023). Exploring the Interplay between Topological and Geometric Features of Graphs and their Embeddings (Doctoral dissertation, University of Liverpool).

Bechberger, L., & Kypridemou, E. (2018). Mapping Images to Psychological Similarity Spaces Using Neural Networks. In A. Cella, I. Infantino, & A. Lieto (Eds.), *The 6th International Workshop on Artificial Intelligence and Cognition (AIC2018)*. Palermo, Italy.

Kypridemou, E., & Michael, L. (2017). Reaction Time as an Indicator of Instance Typicality in Conceptual Spaces. In I. Diakidoy, A. C. Kakas, A. Lieto, & L. Michael (Eds.), *The 5th International Workshop on Artificial Intelligence and Cognition (AIC2017)* (pp. 3-19). Larnaca, Cyprus.

Kypridemou, E., & Michael, L. (2014). Narrative Similarity as Common Summary: Evaluation of Behavioral and Computational Aspects. *Literary & Linguistic Computing (special issue on Computational Models of Narrative)*, 29(4), 532-560.