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Amirhossein Layegh

Research Interests

Scalable Machine Learning (ML) and Deep Learning (DL), Natural Language Processing, Reinforcement Learning, Distributed Systems

Employment

2021 – now **Doctoral Student in Information and Communication Technology**, *KTH Royal Institute of Technology*, Sweden
I am engaged in research about information extraction utilizing large language models.

2020 – 2021 **Senior Data Scientist**, *Neshan Maps*, Iran
Applied speed estimate techniques on large user datasets to determine the traffic flow for individual road segments and forecast the total traffic flow.

2019 – 2020 **Junior Data Analyst**, *Koolbitz Ltd.*, UK
Developed ML/DL algorithms to find patterns and trends for recommendation in large sales datasets.

2017-2018 **Software Developer**, *Ranir*, Iran
Worked as an Oracle Application Development Framework (ADF) developer to build Java-based enterprise applications.

Education

2021 – now **PhD in Information and Communication Technology**, *KTH Royal Institute of Technology*, Sweden
Advisers: Prof. Mihhail Matskin and Dr. Amir H. Payberah

2018 – 2019 **MSc in Big Data Science**, *Queen Mary University of London (QMUL)*, UK
Thesis: Implementation of a Recommendation System for a retail store based on basket analysis
Advisers: Dr. Arman Khouzani

2012 – 2017 **BSc in Software Engineering**, *Ferdowsi University of Mashhad (FUM)*, Iran
Adviser: Dr. Mohsen Kahani

Teaching and Supervision

Teaching

- Modern Methods in Software Engineering, KTH, 2021–now
- Distributed AI and Intelligent Agents, KTH, 2021–now
- Databases, FUM, 2016

Supervision

- MSc thesis supervisor of 3 Master students
  - Deciding Agents Behaviours Through LLMs (Ongoing)
  - Enhancing Breast Cancer Information Retrieval: Developing, Evaluating, and Optimizing Retrieval-Augmented Large Language Models for Breast Cancer (Ongoing)
  - Design Novel Effective Method For Large Language Model Compression (Ongoing)

Publications

- Wiki-based Prompts for Enhancing Relation Extraction using Language Models, Accepted as full paper at SAC2024
- ContrastNER: Contrastive-based Prompt Tuning for Few-shot NER (2023), presented as full paper at COMPSAC2023
- Dataclouddsl: Textual and Visual Presentation of Big Data Pipelines (2022)
- A survey of big data pipeline orchestration tools from the perspective of the datacloud project (2021)

Grants

- *DataCloud: Enabling the Big Data Pipeline Lifecycle on the Computing Continuum* (co-PI), KTH, Funded by H2020, Volume: 5M Euro, ICT-40-2020, 2021–2024.