Pro²Future - Products and Production Systems of the Future - is an industry-related and independent research centre in the field of artificial intelligence (AI) and cognitive / industrial ICT with a focus on cognitive products and production systems. These are supported by the areas of Perception and Aware Systems, Cognitive Robotics and Shop Floors, and Cognitive Decision Making. Further fields of activity of the centre cover mechatronic systems, embedded systems, pervasive computing systems and big data analytics. We are currently offering the position of a

Master's Student (m/w/d)
within the topic "Cognitive Decision Making / LLM"
Part-time (20 hours/week), at one of the Pro2Future GmbH locations in Graz or Linz

Thesis context

In the field of data analysis and machine learning, the emergence of Large Language Models (LLMs) has opened new avenues for intelligent interaction with structured data. This master's thesis proposes an agent-based framework tailored to leverage the capabilities of LLMs for dynamic data analysis. The framework is designed to automate the execution of ML methods, provide nuanced visualization of results, and offer informed recommendations for subsequent ML tasks. Two illustrative scenarios showcase the functionality of the proposed framework: In Scenario I, upon user command to identify outliers in print data, the framework swiftly executes the corresponding ML method. Simultaneously, visualization agents present outcomes graphically, while NLP agents articulate findings textually, providing comprehensive insights. In Scenario II, when prompted to identify outliers in pressure data, the framework not only identifies anomalies but also suggests a potential correlation between temperature and speed. Additionally, it recommends further investigation using a specified ML method, highlighting actionable insights. Through this framework, agents efficiently orchestrate ML tasks, interpret results, and offer valuable recommendations, enhancing data analysis processes.

Job profile

- Development of an agent-based framework for intelligent execution and recommendation with Large Language Models
- Writing a scientific master thesis (including related work/background and evaluation)
- Defending the master thesis in a final presentation

Your qualifications

- Bachelor's degree in computer science, computer engineering, mathematics or similar
- Experience and practical knowledge of programming languages and tools (e.g. Python, Java, Git, etc.)
- Knowledge of Natural Language Processing (NLP) and Large Language Models (LLM) with practical experience and application
- High affinity for applied research, interest in shaping future technologies
- Independent and reliable way of working, enjoy working in a team
- Fluent in English or German
- Flexibility, willingness to learn, openness and commitment

Our offer

- The opportunity to work in a highly qualified, international, young, and dynamic research team
- Collaboration in innovative, beyond-state-of-the-art research projects
- Opportunity for personnel development in a learning and respectful environment
- Great emphasis on gender, diversity, and equal opportunities
- Flexible working hours, flat organizational structures, fun at work
- Full-time gross salary per month EUR 2,700.00 - 3,050.00 EUR

Pro2Future GmbH aims to increase the proportion of women in the research area - we are therefore particularly looking forward to applications from qualified women!

Jaroslava Huber, MSc

My focus lies on the investigation of next generation AI Systems to increase occupational safety and accident prevention in industrial settings.

Matej Vukovic, M.Inf.

Our results give an insight into the Key Influencing Parameters for Blast Furnace and Electric Arc Furnace Operations in the Metal Industry.

Dr. Ouijdane Guiza

I work on privacy respect and monitoring of human intensive assembly processes and cognitive line balancing support.

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To apply for this position, please send your application (including CV, supporting documents, letter of motivation), via e-mail to: jobs@pro2future.at. Pro2Future GmbH, z.H. Mag. (FH) Sandra Neuhold-Pauer, Altenberger Straße 69, 4040 Linz, Standort Graz: Inffeldgasse 25F, 8010 Graz, Tel.: +43 664 / 8889 2189.