

Expression of Interest-UPM Supervisor

Marie Skłodowska Curie Action–Postdoctoral Fellowship 2026 (MSCA-PF-2026)

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Department /Institute / Centre Name/Location	THAU - Information Processing Telecommunication Center ETSI de Telecomunicación
Research Area	Information Science and Engineering (ENG)
Research team/group	https://blogs.upm.es/gthau/ : The Speech Technology and Machine Learning Group (THAU) is a consolidated research group founded in 1978, focused on research and development in speech technologies, including speech recognition and synthesis, speaker diarization and identification, machine translation, conversational systems, and assistive technologies. Current research explores new modalities such as inertial sensors for health condition detection, video processing for sign language recognition, advanced chatbots, emotional and commonsense response generation, and NLP techniques for reasoning and understanding in AI-based dialogue systems. We recently completed the EIC Pathfinder project ASTOUND on incorporating consciousness and theory-of-mind capabilities into conversational agents for cultural heritage applications.
Keywords	Artificial intelligence, intelligent systems, multi agent systems, Cognitive science Human computer interaction and interface, visualization and natural language processing
Research Focus	New mechanisms for controllability and attention understanding in AI systems Multimodal Large Language Models rely on attention mechanisms as a core component of Transformer architectures, yet attention remains largely implicit, limiting controllability, interpretability, and higher-level reasoning. Building on the EIC Pathfinder project ASTOUND and inspired by Theory of Mind and Attention Schema Theory, this project aims to make attention an explicit, modellable, and steerable process. The research will investigate a hierarchical two-level framework that leverages principles from flow- and diffusion-inspired generative modelling to predict and regulate attention dynamics in state-of-the-art pre-trained Transformers. By enabling deliberate control over attention allocation, the proposed approach seeks to enhance reasoning and planning capabilities while improving explainability, contributing to the development of more transparent, trustworthy, and cognitively grounded AI systems.
Applications: documents to be submitted and deadlines	Applicants should submit a detailed curriculum vitae emphasizing publications and experience in machine learning, a letter of motivation, at least two reference letters including contact details of the referees, and complete academic transcripts for bachelor’s, master’s, and PhD degrees. Experience in designing and implementing new AI architectures, training and fine-tuning machine learning models and large language models, and dataset creation and annotation will be considered a strong plus. The deadline to submit these documents is April 30, 2026 .