
AI Research

H.IAAC: Turning Frontier AI Research into Industrial Impact

Personalised Mobile Experiences: H.IAAC project created **a mobile AI assistant capable of memorising user goals, learning from everyday interactions, and proactively supporting users**. This solution features privacy-preserving handling of personal information, automated daily health summaries, proactive assistance to the user, and user-controlled memory management. Some of the technologies developed include cognitive architectures, language models and long-term memory

Industrial Impact: H.IAAC project has allowed the **translation of advanced AI research into capabilities embedded in real-world cell phone applications**. The research areas include Brazilian Portuguese Natural Language Processing (NLP), Multilingual and Multimodal Models, Contextual Learning, Memory Management and Bias Mitigation. Today, these innovations are reaching millions of mobile devices annually, demonstrating H.IAAC's ability to turn frontier AI research into technology at scale. **H.IAAC project is being developed in cooperation with UNICAMP, ELDORADO, the cell phone industry and, more recently, the computer manufacturing industry**. The project comprises 100 AI researchers

Federated Fine-Tuning of LLMs on Personal Computers (PCs): H.IAAC is also **expanding the research scope to include PCs** by developing a new platform that allows PCs to collaboratively fine-tune language models while keeping sensitive information on each device

Personalisation is becoming a key differentiator in digital products and services. ***Users increasingly expect technology to understand their preferences, routines, context, and goals, enabling experiences that continuously adapt to their individual needs rather than responding to commands. H.IAAC is helping enable this evolution by advancing contextual learning, cognitive architectures, multimodal AI, language models, and long-term memory on personal devices. The goal is to move from devices that users continuously instruct to devices that learn, adapt, and anticipate individual needs—delivering more relevant and personalised experiences while preserving privacy and keeping users in control of their personal information.***



ELDORADO Institute - AI case: Hub of AI and Cognitive Architectures (H.IAAC)

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ELDORADO

H.IAAC

Open Innovation R&D project

Research that reaches people through the devices they use every day

New technology transferred to the industry

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2021

H.IAAC is launched

A partnership among ELDORADO, academy and industry is initiated. Complementary AI research fronts were established.

2022 – 2023

Technology Maturation

Results bring together cognitive systems, distributed learning, knowledge representation, and Portuguese NLP, consolidating advances across H.IAAC's core research areas. A smartphone testbed enabled real-world experimentation with federated learning, including on-device performance and resource monitoring.

Scientific works are published and presented at national and international conferences. The case is published in the EARTO Innovation Awards Brochure 2023.

2024 – 2025

Industrial scale

AI technologies enabled by H.IAAC reached the mobile industry, supporting context-aware notifications, multimodal content understanding and private personal information handling. More scientific works are published.

2026

Evolution and new fronts

H.IAAC expands its research agenda to personal computers. This evolution broadens H.IAAC's vision toward a multi-device AI ecosystem.

***What is next:* ELDORADO envisions H.IAAC evolving to embrace more user context experiences on vehicles, healthcare, agriculture, industry automation and others.**