ÖAW AUSTRIAN ACADEMY OF SCIENCES

Machine Learning at the Austrian Academy of Sciences

- A thematic platform of the ÖAW -

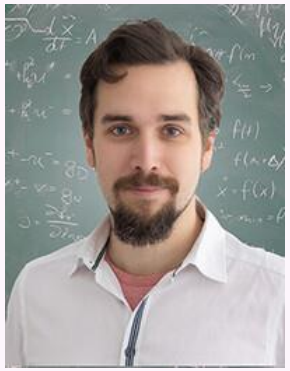
Make it (Net)work! #10, 9.6.26

Claudius Krause (MLA^{2}S)
9.6.2026

ÖAW ÖSTERREICHISCHE AKADEMIE DER WISSENSCHAFTEN

MLA²S – Machine Learning at the Austrian Academy of Sciences

- Our team of coordinators grew:



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We have access to MUSICA!

- You can run jobs now on MUlti-SIte Computer Austria – MUSICA
- The ÖAW got a 1,000,000€ budget to run in the next 12 months.
- If you haven't heard this info from your institutes AI contact, talk to me!
- Applications are simple:

Field	Information
Project title	[Enter project title]
Responsible scientist	[Name, title]
Principal Investigator (PI)	[Name, title]
Institute / research unit	[Institute / research unit]
Contact person for technical coordination	[Name, email, phone]
Planned period for the applied computation	[Start date – end date]
Requested start date for computing resources	[Date]
Estimated amount of tokens	[est. number of tokens]

Please provide an abstract of approximately 250–500 words, roughly half an A4 page. The abstract should describe the scientific question, the planned computational approach, expected outputs, and the relevance of HPC resources for the project.

[Enter text here]

Zielvereinbarung 2027-2029

Most of us are writing the next Target Agreement at the moment …

If you like to show support to MLA^{2}S, you could add

Das Institut XX unterstützt das durch das Institut für Schallforschung (ISF) eingebrachte Forschungsprogramm der Themenplattform Machine Learning at the Austrian Academy of Sciences (MLA^{2}S) sowie dessen Weiterführung und Weiterentwicklung. In der kommenden ZV werden wir die Angebote von (MLA^{2}S) aktiv nutzen und so unsere KI-Kompetenz weiter ausbauen.

to the AI Strategy section.

ÖAW ÖSTERREICHISCHE AKADEMIE DER WISSENSCHAFTEN

MLA²S

MLA²S Support

... switching over to Jan...

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MARIETTA BLAU INSTITUTE FOR PARTICLE PHYSICS

AI News from Marietta Blau Institute

Gianluca Inguglia wrote a paper together with Codex and Claude Code agents.

https://arxiv.org/abs/2605.28916

First head-to-head comparison of agentic AI applied to the analysis of simulated data of the Einstein Telescope

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Abstract

We report a comparison of two state-of-the-art agentic AI systems, Claude Code (Anthropic) and Codex (OpenAI), tasked with autonomously executing a simple end-to-end gravitational wave data analysis pipeline on a shared computing infrastructure without human intervention. The pipeline comprises power spectral density estimation from raw Einstein Telescope (ET) simulated noise, geometric template bank generation using IMRPhenomD waveforms, matched filter recovery of 100 binary black hole (BBH) signal injections, automated results generation, and large language model (LLM)-assisted production of a LaTeX manuscript formatted in the style of a Physical Review D paper. Both agents received identical written specifications and identical compute resources. The experiment was run twice: a first run with unrealistically loud injections, and a second run with signals rescaled to a physically motivated SNR range. The scientific results converged in both runs in the sense that both systems achieved comparable detection efficiency and template bank size. However, the agents exhibited substantially different behaviours and computational costs: Claude Code completed the pipeline in 3.4 minutes with silent deviations from the specification, while Codex required 16 minutes across explicit self-correcting restarts, including an unsolicited performance optimization of the matched filter inner loop. The autonomously generated manuscripts also diverged substantially in length, details, and quality. In the second run, a subtle difference in the interpretation of the SNR range instruction led to a genuine scientific divergence: Claude Code silently shifted the SNR floor to 8 (100 % efficiency), while Codex followed the specification literally, targeting SNRs down to 7 and recording one missed detection. We discuss the implications of these behavioral differences, such as speed versus auditability, silent versus transparent error handling, instruction interpretation, and the criticality of intermediate data representations in multi-model pipelines, for the deployment of agentic AI in scientific computing workflows.

Keywords: gravitational waves, Einstein Telescope, matched filter, agentic AI, large language models, autonomous agents, data analysis pipelines

1 Introduction

The fast-growing development of large language models (LLMs) and agentic AI systems has opened new avenues for automating complex scientific workflows. While much attention has focused on code generation and question answering, a qualitatively new and different capability is now emerging: the ability of AI agents to autonomously plan, execute, debug, and report entire computational pipelines with minimal human oversight [1, 2]. This shift from relatively simple tools to persistent, goal-directed agents represents a major change in how AI systems can interact with