



Episode 267

Antonios Meimaris

Founder & CEO/CTO, PaperLab

AI in Research: How PaperLab Helps Scientists Accelerate Innovation

In this episode of the [DevReady Podcast](#), host [Anthony Sapountzis](#), CTO and Co-Founder of [Aerion Technologies](#) and [DevReady.AI](#), speaks with [Antonios Meimaris](#), Founder and CEO/CTO of [PaperLab](#). Antonios shares how his company is redefining AI in research by giving scientists and professionals tools to speed up innovation. PaperLab automates the labour-intensive process of literature review, analysing millions of academic papers to extract insights that traditional databases often miss. This breakthrough allows researchers to focus less on manual research tasks and more on experimentation and discovery.

Antonios explains how PaperLab dramatically improves the efficiency of research and peer review by using advanced AI to analyse academic papers and complex data sources. Researchers can now process thousands of references in minutes, significantly reducing project timelines and improving the quality of their work. Beyond academia, PaperLab's intelligent automation has broad applications in fields like consulting and law, where professionals must analyse extensive documentation. Unlike general-purpose AI tools such as ChatGPT or Gemini, PaperLab's technology can accurately interpret formulas, tables, and technical structures, ensuring reliable and contextually accurate outputs that professionals can trust.

At the core of PaperLab lies a custom-built AI system designed to process research documents securely and accurately. Rather than relying on off-the-shelf tools, PaperLab converts PDFs into markdown format, maintaining equations, special characters, and tables for precise understanding. Antonios explains that the platform integrates diffusion models and large language models (LLMs) to ensure both accuracy and depth of insight. Diffusion models refine data iteratively, mimicking how humans think and write by forming an idea and improving it over multiple passes. This enables faster, more accurate text and data processing while maintaining security, as all files are stored privately on PaperLab's servers, critical for unpublished or sensitive research.

Antonios' passion for diffusion models began during his undergraduate studies in Greece in 2013, long before the explosion of AI tools like ChatGPT. His academic research focused on creating faster and more efficient algorithms without the need for extensive computing resources. He recalls how the release of Google's 2017 "Attention Is All You Need" paper introduced transformer architecture, which revolutionised modern AI. However, Antonios believes the industry is reaching a scaling plateau, adding more data and compute power is producing diminishing returns. The next leap forward, he says, will come from smarter, more efficient AI frameworks that prioritise algorithmic innovation over brute force scaling.

As AI adoption surges globally, Antonios urges business leaders to take a more strategic approach. He points out that most organisations should first establish strong automation processes before integrating complex AI systems. Both Antonios and Anthony highlight the risks of premature AI implementation, including higher costs, inefficiencies, and potential data security issues. They emphasise that not every problem requires an AI solution—sometimes, simple automation achieves better outcomes. As Anthony notes, using AI for basic processes is like "hiring Picasso to paint your walls", technically possible, but an inefficient use of resources.

Antonios closes by sharing his vision for PaperLab as a catalyst for global scientific progress. He hopes the platform will empower researchers to accelerate discoveries in fields such as healthcare, environmental science, and technology. By dramatically reducing the time spent on literature reviews and data processing, PaperLab enables scientists to focus on innovation and experimentation. Antonios envisions a future where AI not only enhances efficiency but also fuels groundbreaking advancements that change lives. As Anthony summarises, giving researchers better tools means accelerating the path to the next generation of breakthroughs.

Topics Covered

- The inspiration behind PaperLab and its mission to streamline research using AI
- How AI can automate and optimise the literature review and peer review process
- The challenges researchers face managing millions of academic publications
- The role of custom AI and diffusion models in understanding complex scientific data
- Differences between diffusion models and large language models (LLMs) like ChatGPT
- Data security and privacy concerns in AI-driven research environments
- The evolving landscape of AI adoption in business and academia
- Why process automation should come before full AI integration
- Antonios Meimaris' vision for the future of AI-powered research and innovation

Important Time Stamps

- From Greece to Global Innovation: Antonios Meimaris on Reinventing Research (0:07 – 4:07)
- Fixing Peer Review: How PaperLab Cuts Research Time in Half (4:10 – 9:06)
- AI That Actually Understands Equations, Tables and Scientific Data (9:07 – 15:30)
- Why Diffusion Models Could Outperform ChatGPT in Research AI (15:31 – 21:29)
- Are We Hitting the Limits of AI Scaling? (21:40 – 26:13)
- Why Most Businesses Don't Actually Need AI (Yet) (26:14 – 31:07)
- Faster Research, Faster Innovation: The Vision Behind PaperLab (31:08 – 32:40)

Useful Links

[Antonios Meimaris | LinkedIn](#)[PaperLab | LinkedIn](#)[PaperLab | Website](#)

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