

GAME AI metagenome annotation

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Summary

The Global Air Microbiome Encyclopedia (GAME) is a metagenome annotation project that proposes leveraging AI and large language models (LLMs) to revolutionize metagenomic analysis. Currently processed datasets include microbial ecosystems in natural and built environments. The centerpiece of the GAME online resource integrates high-confidence species identification from DNA sequencing with environmental metadata and AI-generated annotations. GAME has already processed over 22,000 microbial taxa, offering accessible, curated insights for researchers, policymakers, and public health professionals. The project aims to expand GAME's capabilities to process additional pre-existing metagenomic datasets, enabling rapid, scalable analysis for a larger community of environmental scientists. By integrating AI-driven semantic analysis for highly complex metagenome datasets, GAME democratizes access to genomic knowledge by addressing challenges in microbial ecology, climate science, and public health.