

Stratos Idreos

Stratos Idreos is the Gordon McKay Professor of Computer Science at Harvard University's John A. Paulson School of Engineering and Applied Sciences and Faculty Co-Director of the Harvard Data Science Initiative. He leads DASlab, the Harvard Data and AI Systems Laboratory. His research pursues a fundamental shift in how we build systems: self-designing data and AI systems. By discovering the alphabets and grammars that govern system architectures, his work enables machines, not humans, to invent entirely new systems tailored to specific workloads, hardware, and constraints. This vision has produced foundational results including the Data Calculator for automatic data structure design, Cosine and Limousine for self-designing key-value stores, the Image Calculator which accelerates Image AI applications via tailored storage, and LegoAI which has been productized into PyTorch's TorchTitan for large model training. His earlier work on Database Cracking introduced automated adaptive indexing based on the workload.

Before Harvard, Stratos was a researcher at CWI Amsterdam and held visiting positions at EPFL, Microsoft Research, IBM Almaden, University of Trento, and the National University of Singapore. He earned his PhD from the University of Amsterdam.

Stratos is a recipient of the Sloan Research Fellowship, the National Science Foundation CAREER Award, and the Department of Energy Early Career Award. His work has received the ACM SIGMOD Jim Gray Doctoral Dissertation Award, the ACM SIGMOD Test-of-Time Award, the CIDR Test-of-Time Award, and the ERCIM Cor Baayen Award as the most promising young researcher in computer science across Europe. He co-chaired ACM SIGMOD 2021 and IEEE ICDE 2022 and co-founded the ACM/IMS Journal of Data Science.