

From ML Models to Intelligent Applications: The Rise of MLOps

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ABSTRACT

The last 5+ years in ML have focused on building the best models, hyperparameter optimization, parallel training, massive neural networks, etc. Now that the building of models has become easy, models are being integrated into every piece of software and device – from smart kitchens to radiology to detecting performance of turbines. This shift from training ML models to building intelligent, ML-driven applications has highlighted a variety of problems going from “a model” to a whole application or business process running on ML. These challenges range from operational challenges (how to package and deploy different types of models using existing SDLC tools and practices), rethinking what existing abstractions mean for ML (e.g., testing, monitoring, warehouses for ML), and collaboration challenges arising from disparate skill sets involved in ML product development (DS vs. SWE), and brand-new problems unique to ML (e.g., explainability, fairness, retraining, etc.) In this talk, I will discuss the slew of challenges that still exist in operationalizing ML to build intelligent applications, some solutions that the community has adopted, and highlight various open problems that would benefit from the research community’s contributions.

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BIOGRAPHY

Manasi Vartak is the founder and CEO of Verta, an MIT spinoff building an MLOps platform for the full ML lifecycle. Verta grew out of Manasi’s Ph.D. work at MIT on ModelDB, the first open-source model management system deployed at Fortune 500 companies. The Verta MLOps platform enables data scientists and ML engineers to robustly take trained ML models through the MLOps cycle, including versioning, packaging, release, operations, and monitoring. Previously, Manasi worked on feed ranking at Twitter and dynamic ad-targeting at Google. Manasi has spoken at several top research as well as industrial conferences, such as the Strata O’Reilly Conference, SIGMOD, VLDB, Data & AI Summit, and AnacondaCON, and has authored a course on model management.

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