datt bavani pdf

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DATT: Deep Adaptive Trajectory Tracking for Quadrotor Control

DATT builds on a novel feedforward-feedback-adaptive control structure trained in simulation using reinforcement learning. When deployed on real hardware, DATT is augmented with a disturbance estimator using $\mathcal {L}_1$ adaptive control in closed-loop, without any fine-tuning.

DATT: Deep Adaptive Trajectory Tracking for Quadrotor Control

DATT significantly outperforms competitive adaptive nonlinear and model predictive controllers for both feasible smooth and infeasible trajectories in unsteady wind fields, including challenging scenarios where baselines completely fail.

Adaptive Data-Knowledge Alignment in Genetic Perturbation Prediction ...

The transcriptional response to genetic perturbation reveals fundamental insights into complex cellular systems. While current approaches have made progress in predicting genetic perturbation...

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MAVIS: Mathematical Visual Instruction Tuning with an Automatic...

Multi-modal Large Language Models (MLLMs) have recently showcased superior proficiency in general visual scenarios. However, we identify their mathematical capabilities remain under-explored with...

QCircuitBench: A Large-Scale Dataset for Benchmarking Quantum...

The paper introduces QCircuitBench, a large-scale benchmarking dataset for AI-based quantum algorithm design with LLMs. It provides a systematic collection of 3 tasks (oracle construction, quantum algorithms design, random circuit synthesis), covering 23 algorithms, and 128,573 data points (i.e., specific instances of quantum algorithms tailored to a particular setting), across diverse

problem ...

Metric Flow Matching for Smooth Interpolations on the Data Manifold

Matching objectives underpin the success of modern generative models and rely on constructing conditional paths that transform a source distribution into a target distribution. Despite being a...

MambaSL: Exploring Single-Layer Mamba for Time Series Classification

Despite recent advances in state space models (SSMs) such as Mamba across various sequence domains, research on their standalone capacity for time series classification (TSC) has remained limited. We propose MambaSL, a framework that minimally redesigns the selective SSM and projection layers of a single-layer Mamba, guided by four TSC-specific hypotheses. To address benchmarking limitations ...

MHLA: Restoring Expressivity of Linear Attention via Token-Level...

While the Transformer architecture dominates many fields, its quadratic self-attention complexity hinders its use in large-scale applications. **Linear attention** offers an efficient alternative...

LLaVA-Video: Video Instruction Tuning With Synthetic Data

Abstract: The development of video large multimodal models (LMMs) has been hindered by the difficulty of curating large amounts of high-quality raw data from the web. To address this, we consider an alternative approach, creating a high-quality synthetic dataset specifically for video instruction-following, namely LLaVA-Video-178K. This dataset includes key tasks such as detailed captioning ...