Huiyu Xie

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WORK/RESEARCH

Julia Programming Language   *Mar. 2023 to Present*

TrixiCUDA.jl - *Lead Developer*   github.com/trixi-gpu/TrixiCUDA.jl

Develop GPU acceleration support for solving hyperbolic partial differential equations (PDEs), with a current focus on the semidiscretization of the solvers.

Trixi.jl - *Active Maintainer*   github.com/trixi-framework/Trixi.jl

Extend numerical support by ensuring low-precision (single-precision and half-precision) numerical type stability for solving hyperbolic partial differential equations (PDEs) on CPUs.

Bank of Hawai'i   *June 2024 to Aug. 2024*

Strategic Analyst   boh.com/business/checking-and-savings

Cleaned raw customer transaction and profile data, trained and tuned classification models, including logistic regression, decision tree, and XGBoost, to predict the customer group with a high probability of transferring accounts from checking-only to savings.

SCU - Databases and Information Systems Lab   *Feb. 2024 to May 2024*

Research Assistant   scu.edu/engineering/dbis

Focused on parallel processing in high-performance databases, with an emphasis on the parallelized Dynamic Hybrid Hash Join (DHHJ) algorithm for processing queries with vectorized input across multiple CPUs and GPUs.

Google Summer of Code   *May 2023 to Aug. 2023*

Open Source Developer   summerofcode.withgoogle.com/huiyuxie

Provided GPU support for Trixi.jl (a high-order numerical simulation framework for hyperbolic PDEs) to accelerate the semidiscretization of hyperbolic PDE solvers, focusing on the Discontinuous Galerkin Spectral Element Method (DGSEM) with tree mesh.

CUHK - Shenzhen Research Institute of Big Data   *June 2020 to May 2022*

Student Researcher   sribd.cn/en/article/smartcampus

Leveraged Shannon Entropy, Approximate Entropy, Sample Entropy, and a Lempel-Ziv-based Entropy Estimator on the student trajectory data, improving the correlation between student trajectory and academic performance and creating entropy-based features for predicting student performance.

OPEN SOURCE

Trixi-GPU (TrixiCUDA.jl): Admin/Owner/Lead Developer; **Trixi-Framework (Trixi.jl):** Active Developer/Maintainer; **JuliaGPU (CUDA.jl, GPUCompiler.jl, NVTX.jl):** Active contributor; **SciML (SimpleNonlinearSolve.jl, RecursiveArrayTools.jl, OrdinaryDiffEq.jl):** Contributor;
NVIDIA-RAPIDS (cuGraph): Contributor;
JuliaCon 2025 (Upcoming - Pittsburgh, U.S.): Conference Attendee;
JuliaCon 2024 (Eindhoven, Netherlands): Proposal Reviewer

EDUCATION

Santa Clara University, *Master of Computer Science*   *Sep. 2022 to June 2024*
Chinese University of Hong Kong, Shenzhen, *Bachelor of Statistics*   *Sep. 2018 to May 2022*

SKILLS

Programming Languages: Proficient in Python/C++/Java/SQL/R/MATLAB/Julia; Familiar with C/C#/JavaScript; **Cloud Computing:** AWS; **Distributed/Parallel:** CUDA/Open MPI/OpenMP/Spark