Vyomakesh Dundigalla

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Research Interests

- Reinforcement Learning, Pre/post-training: reward modeling, preference optimization.
- Model architectures + eval frameworks: scalable evaluation harnesses, robust benchmarking, and instrumentation for failure analysis.

Highlighted Achievements

- Optimized Zerobrew package manager downloads **3.6x faster** (6 min → 1.7 min) via racing cancellation and HTTP/2 tuning (Jan 2025).
- Achieved **12.804 microseconds** in NVIDIA/GPU Mode "nvfp4 block-scaled GEMM" optimization hackathon on B200, targeting speed-of-light performance with CuTeDSL (Dec 2025).
- Built **6** reproducible evaluation environments/benchmarks (2 safety, 2 web, 1 tool-use/MCP, 1 game-suite) for PrimeIntellect verifiers (2025).

Experience

Zerobrew Jan 2026
Performance/Systems Engineer (OSS) *Remote*

- Delivered **3.6x** download optimization (361s → 99s) with racing cancellation and HTTP/2 tuning, eliminating redundant bandwidth usage through atomic coordination (AtomicBool + Notify + Semaphore).
- Merged to main and immediately impacted all users.

PrimeIntellect-ai (Environments Hub) 2025 – Present
AI Research Engineer (Agents & Evals, OSS) *Remote*

- Core contributor to evaluation infrastructure with **5+ merged PRs** spanning benchmarks, web agents, and training pipeline integrations.
- Architected **6** evaluation environments (web agents, tool-use, games) with a unified API contract for reproducible cross-benchmark testing.
- Standardized reward scoring semantics and trace instrumentation across benchmarks, reducing failure-mode debugging time for research teams.
- Hardened eval infrastructure via sandboxed execution boundaries and process isolation for safe, auditable agent runs.
- Key contributions: BALROG game suite (6 simulators), BrowsecompPlus, WebVoyager, JailbreakBench/WMDP safety evals, HuggingFace MCP integration.

Technical Skills

Languages: Python, C, C++, Rust, Bash Scripting, SQL, CUDA
DL/ML: PyTorch, TensorFlow, Keras, NumPy, Matplotlib, Pandas, Scipy
GPU: Cutlass, CuteDSL, FP4/FP8 kernels, throughput/latency optimization
Eval & Agents: Stateful/web/tool-use benchmarks, reward design, trace instrumentation
Infra & Tooling: Docker, sandboxed execution, API integrations, profiling/performance tooling
Web and Others: HTML, CSS, JavaScript, FastAPI, Node.js, Git, LATEX

Education

Queen Mary University of London London, UK
MSc in Business in Blockchain & Society *Sep 2022 – Oct 2023*

Keshav Memorial Institute of Technology (Aff. JNTU) Hyderabad, India
Bachelor of Technology in Electronics and Communication Engineering *Oct 2017 – Sep 2021*

Certifications

Deep Learning Specialization Apr 2020
DeepLearning.AI *Focus: Optimization, CNN/RNN/Transformer fundamentals*

Google IT Automation with Python Aug 2020
Google *Focus: Automation and systems tooling*