Zarnab Haider

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Software Engineer | Language Models, Evaluation, Simulation, Python

SUMMARY

Software engineer with production data experience; independently explores language models and simulation in an AI-assisted learning lab.

EXPERIENCE

Independent Software Engineer, Charlottesville, VA — Apr 2026 to Present

Build independent data and simulation software with tests and CI; about 1,990 commits across 30+ public repos.

Indigo Circuit | github.com/zarnab222-dev/indigo-circuit — May 2026 to Present

- Built and deployed a Pokemon TCG analytics app (Python ingestion, Glicko-2 ratings, dbt on DuckDB, Flask).
- Cut nightly read blocking from ~9 minutes to under 1 second with atomic shadow builds and a fail-closed gate.

C-1N hexapod | github.com/zarnab222-dev/spider — Aug 2026 to Sep 2026

- Built a PyTorch PPO pipeline for a six-legged MuJoCo robot.
- Mean-policy speed rose from 0.318 to 0.888 m/s with zero falls in 24 five-second flat-ground evaluations.
- Expanded it from 12 to 18 joints and ported the policy to the browser via WebAssembly within 1.21e-6 qpos of native.

LM Lab | github.com/zarnab222-dev/lmlab — Aug 2026 to Present

- In an AI-assisted learning lab, built a PyTorch transformer (BPE, causal attention) and ran 39 seeded runs; 1 to 8 blocks reduced held-out loss from 3.529 to 3.337 nats/token.
- Compared fused Triton softmax with references behind a 462-case correctness gate; this microbenchmark does not establish serving performance.

University of Virginia, IT Analyst Intermediate, BI Developer, Charlottesville, VA — May 2025 to Mar 2026

- Delivered and supported 20+ SQL-backed Tableau dashboards for Facilities Management, from interviews to shared metric definitions; ReUSE Store reporting had over 400 views.
- Reconciled conflicting purchase-order states across financial systems; built a dashboard surfacing the deltas and their financial impact across purchase orders worth millions of dollars.
- Contributed to a collaborative, telemetry-driven team effort that cut organization-wide dashboard load times by about 20%.

Microsoft, Software Engineer I, Redmond, WA — Jul 2021 to Jul 2024

- Owned a zero-downtime SSAS Multidimensional-to-Tabular migration for financial reporting; defined parity checks and monitored four weeks of pipeline behavior before cutover.
- Wrote Azure Data Factory scripts for daily pipeline monitoring and extended automated legacy-to-Tabular reconciliation; result: up to 200x faster filtering and ~4x faster Excel loading (telemetry).
- Built Azure reporting pipelines with SQL, C#/.NET and daily Python; created Power BI dashboards and a C#/.NET configuration prototype.

SKILLS

Languages: Python, SQL, C#, JavaScript, TypeScript, Java, R
Systems: PostgreSQL, DuckDB, dbt, Flask, C#/.NET, Azure Data Factory, Synapse, Kusto, SSAS Tabular
Delivery: Git, GitHub Actions CI/CD, integration tests, Docker, Vercel
Learning and simulation: PyTorch, PPO, MuJoCo, Triton; BI: Power BI (basic DAX), Tableau

EDUCATION

Virginia Tech, B.S. in Statistics, Blacksburg, VA — 2021