

Mrutyunjay Biswal

✉ mrutyunjay.biswal.hmu@gmail.com mrutyunjaybiswal.com [in mrutyunjay-biswal](https://www.linkedin.com/in/mrutyunjay-biswal)
[G Mrutyunjay01](#) [k mrutyunjaybiswal](#)

Skills

Primary : Python, C#, C++, Rust, Go, TypeScript/JavaScript, SQL, Git
Frameworks : [ML] JAX, PyTorch, Keras; [Fullstack] .NET, FastAPI; ONNX, OpenVINO
Areas : System Design, Machine Learning, NLP, LLMs, Agentic AI

Industry

- Senior Software Engineer - AI & Data Science** Siemens Healthineers
Agentic AI, Enterprise Search; Python, PyTorch, FastAPI, Dagster, C++ Mar 2026 - Present
 - Leading the **Agentic Enterprise Search Platform**; designed its DAG-based ingestion orchestration replacing a manual script workflow — **20+** weekly pipelines over **100K+** records each, eliminating **~0.5 engineer-week/cycle**, on engine-agnostic Node/Resource/Graph semantics that keep the scheduler swappable behind a thin Dagster adapter.
 - Extended the orchestrator's fault model to record-level: manifest-gated **two-phase publish** (Write-Audit-Publish) across three non-transactional sinks with (**batch_id**, **record_id**) idempotency, plus **recursive bisection** to isolate poison rows without discarding the batch.
 - Built query-routed hybrid retrieval over the gold corpus — **BM25 + HNSW** dense with **cross-encoder** reranking, lexical-only for structured event codes — and bridged a **query-document vocabulary mismatch** on procedure manuals via source-specific query augmentation; hold-out validated.
 - Prototyped an agentic synthesis layer turning top-K retrieval across four source tiers into a cited, format-checked **Action Plan**.
- Senior Software Engineer** Siemens Healthineers
System Design, Infrastructure; C#, C++, .NET, Angular, Python Jan 2025 - Feb 2026
 - Architected & delivered **v0 of runtime-agnostic AI inference platform**, replacing IntelOne-bound design with decoupled application semantics, engine invariants, and accelerator RTs; adopted as the *core inference backbone* across 3 products.
 - Built canonical inference execution graphs with platform-owned lifecycle semantics reducing marginal cost of feature on-boarding for **30+** teams; Embedded stage-aware observability on OTel for centralized audit and compliance.
 - Productionised a distributed DAG job orchestration framework decoupling domain logic from infra; scaled execution across networked systems, accelerating development across teams and reducing TTM across 3 flagship products.
 - Designed a multi-mode simulator engine with runtime dependency injection (file/API-based) for PET systems, saving **5000+** factory hours, running **~15K** tests within 9hr RB, accelerating SDLC for **15+** teams across 2 flagship products.
- Software Engineer** Siemens Healthineers
C#, C++, .NET, Python, SQL Jul 2022 - Dec 2024
 - Inducted among 70K+ Healthineers (top-25) for 9-months **Leadership Launchpad Program** on strategy and execution.
 - Migrated 20-YO C++ monolith queue-based infra to C# (WCF microservices); achieved **99.8%** initial integration success.
 - 2 patents: reducing radiation by 30% in Fluoroscopy; eliminating recalls by thermal guided positioning in Mammography.

Projects

- Agentic Systems** Agentic harness with personalisation for near-real-time financial research: [ArthKosh Demo](#)
- Vector Search** A Rust implementation of NSW & HNSW papers with benchmarking for ANN search. [vesar github](#)

Publications

- J: *CNN Based Image Resizing Forensics for Double Compressed JPEG Images*, **JISA**, 2024 [Link](#)
C: *Z-AGI Labs at ClimateActivism 2024: Stance and Hate Event Detection on Social Media*. **CASE, ACL**, 2024. [Link](#)
C: *Hate Speech and Offensive Content Detect. in Indo-Aryan Lang: A Battle of LSTM and Transformers*, **FIRE**, 2023. [Link](#)
C: *CNN Based Image Resizing Detection and Resize Factor Classification for Forensic Applications*, **ICORT**, 2021. [Link](#)

Education

- B.Tech**, Electronics & Instrumentation Engineering — **NIT Rourkela** (India), 2018–2022.