

Arnesh Roychowdhury

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EDUCATION

Jadavpur University, Kolkata, West Bengal 2024 – 2026

Master of Engineering (M.E.) in Computer Science and Engineering

Specialization: Artificial Intelligence and Data Science

GPA: 8.64 / 10.00

Government College of Engineering and Leather Technology, Kolkata 2020 – 2024

Bachelor of Technology (B.Tech.) in Computer Science and Engineering

GPA: 9.01 / 10.00

TECHNICAL SKILLS

Programming Languages: Rust, TypeScript, Python, C, C++, SQL, Java

Security and Identity Management: Certbot, FreeIPA, GnuPG, Polkit, Firejail, Udev

Development Tools and Platforms: Linux, Git, Vim, Nginx, Apache, MongoDB, Postgres, CMake, Ansible, Vite, GCC, QEMU, Docker, WebAssembly

Design and Graphics: Inkscape, GIMP, Figma

Frameworks and Libraries: PyTorch, TorchVision, Flask, FastAPI, ReactJS, Solidjs, Tailwind CSS, GTK4, Pydantic

PROFESSIONAL EXPERIENCE AND ACCOMPLISHMENTS

Department of Computer Science and Engineering, JU Kolkata

Large Language Model Infrastructure Deployment May 2026

- Implemented the department's first publicly accessible LLM (Qwen 3.6 35B A3B) on a bare-metal server using llama.cpp with its built-in Web UI as the chat interface.
- Integrated MCP capabilities and agentic functionality through llama.cpp's OpenAI-compatible API, achieving a consistent average generation rate of 60+ tokens per second.
- Optimized performance and reduced memory usage by approximately 25% using flash attention, KV-cache quantization, and related techniques while maintaining throughput.

Bare-Metal Computing Cluster Setup February 2025

- Installed Ubuntu Server on 12 bare-metal machines, establishing the inaugural computing cluster of the CSE Department.
- Implemented Slurm Workload Manager for job scheduling, NFS for shared storage, Ansible for automation, and FreeIPA for centralized authentication.

Internal Web Application Development 2025 – 2026

- Developed and maintained multiple web-based applications for internal departmental use, spanning a variety of tech stacks and use cases.
- Adoption of these tools reduced manual effort and significantly decreased human errors across departmental workflows.

Department of Computer Science and Engineering, GCELT Kolkata

Network Infrastructure Design November 2024

- Designed and deployed a high-performance 10 Gbps network infrastructure spanning three labs for the department's first hackathon, "Devnexus".

- Deployed 10 consumer routers, 4 dedicated wireless access points, and 4 switches; expanded WLAN coverage by over 400% (RSSI-based measurement).
- Reliably supported 300 to 400 concurrent participants, each connecting 1 to 2 devices simultaneously.

OPEN SOURCE CONTRIBUTIONS

Waybar – Status Bar for Wayland Compositors (PR #2810) January 2024

- Implemented bar-wide style application based on battery level, instead of just the battery module — a highly requested feature for at least 3 years prior to implementation.

Reference: <https://github.com/Alexays/Waybar/pull/2810>

SwayNC – Wayland Notification Center (PR #533) March 2025

- Added an intelligent auto-hide feature for the music player widget in the notification center when no media is actively playing.
- Replaced the previous default of a generic Media Player title with a placeholder icon, improving user experience.

Reference: <https://github.com/ErikReider/SwayNotificationCenter/pull/533>

PROJECTS

IPv6 Roamer 2026

Python, GTK4, NetworkManager, Pydantic

Repository: <https://github.com/ArneshRC/ipv6-roamer>

- Developed a GUI application using GTK4 and Libadwaita to manage roaming static IPv6 addresses across NetworkManager Wi-Fi profiles, enabling seamless inbound connections for portable servers without CGNAT issues.
- Interfaced directly with the system D-Bus to read and mutate connection addresses programmatically.
- Designed a native Linux frontend with smart filtering to view, add, edit, and delete delegated ISP prefixes across all known networks.

Interactive Multi-Scale Explanations (IMSE) 2025 – 2026

Python, PyTorch, FastAPI, TypeScript, ReactJS, D3.js

Repository: <https://github.com/ArneshRC/IMSE>

- Built a platform for interactively probing neural networks and deriving post-hoc explanations.
- Unified multiple explainability approaches including static attributions, hierarchical structure visualization, and interactive feature ablation (what-if analysis).
- Implemented backend services using Python, PyTorch, TorchVision, Captum, and FastAPI; built the frontend with TypeScript, ReactJS, D3.js, Zustand, Tailwind CSS, and ShadCN.

POSITIONS OF RESPONSIBILITY

UI/UX Lead, Google Developer Group (GDG) on Campus 2025

Government College of Engineering and Leather Technology, Kolkata

Teaching Assistant, PEC-CS702E: Cyber Security 2024 – 2025

Government College of Engineering and Leather Technology, Kolkata (2 consecutive years)

Teaching Assistant, LT 303: Fundamentals of Digital Computer 2024

Government College of Engineering and Leather Technology, Kolkata