Arul Gupta

Dublin, Ireland | +353-0857627946 | arulgupta3002@gmail.com
Availability: Weeks starting May/June 2027 | **Expected Graduation:** May 2027

Personal Profile :

Computer Engineering Master's student at Trinity College Dublin. I am seeking a Software Engineering or Site Reliability Engineering internship. Specialising in backend software development, data structures, enterprise AI infrastructure, and systems engineering. Proven experience in architecting full-stack Retrieval-Augmented Generation pipelines, engineering automated data scraping frameworks, and deploying secure containerised infrastructure.

Technical Skills :

- **Core Competencies:** Data Structures & Algorithms, Backend Software Engineering, Enterprise AI Infrastructure.
- **Programming:** C, C++, Python, SQL.
- **AI and Machine Learning:** Retrieval-Augmented Generation (RAG), LLM Inference Optimization (vLLM), Parameter-Efficient Fine-Tuning (LoRA), Vector Databases, Semantic Chunking, JSONL Formatting, Playwright, BeautifulSoup
- **Security and Monitoring:** HashiCorp Vault, Nessus, Trivy, OpenObserve, OpenTelemetry (OTEL), Vector, CVSS, CISA KEV.
- **DevOps & Infrastructure:** Docker, SaltStack, Playwright, OpenObserve, OpenTelemetry (OTEL), Vector, Slurm HPC scheduling.

Education:

2022-27 - MAI Computer Engineering – Trinity College Dublin

2+2 Programme – first two years completed at Thapar University of Engineering and Technology in India. 3rd and 4th year in TCD.

Results: Completed 4th year with an overall 2.1 grade(**Upper-Second Class Honours Grade)**.

Work Experience :

ADAPT Research Centre, Trinity College Dublin | Dublin, Ireland
Technical Operations (Tech Ops) Intern | February 2026 – August 2026

- **Engineered an automated web-scraping pipeline** using Python and Playwright to securely bypass Google Site authentication, reducing data extraction time from 50 minutes to under 10 minutes for a 400,000+ token dataset.

- **Architected a Retrieval-Augmented Generation (RAG) AI assistant** on an NVIDIA A100 HPC cluster, achieving 98% retrieval accuracy by configuring Open WebUI vector embeddings and applying deterministic temperature controls.

- **Engineered a custom Command-Line Interface wrapper** in python to securely access the restricted AI server, enabling seamless terminal queries by tunneling connections through SSH and PySocks.

- **Evaluated container security posture by conducting comparative static analysis** with Trivy, demonstrating a potential reduction from 1,787 CVEs to near zero by comparing standard Python environments against Docker Hardened Images.

- **Automated multi-node web infrastructure deployment** by engineering custom SaltStack state files, successfully provisioning a containerized Apache, PHP, and MariaDB-backed WordPress stack across master and minion nodes.

- **Engineered a secure telemetry and secrets management architecture** by deploying a 3-node HashiCorp Vault cluster with mutual TLS, alongside OpenObserve and OpenTelemetry metrics collectors

- **Audited 13 enterprise virtual machines for security risks** using Nessus, prioritizing patching efforts by translating raw CVSS scores into actionable impact assessments. Also analysed 10 actively exploited zero-day vulnerabilities using the CISA KEV catalog and NIST
  NVD, delivering technical threat intelligence reports on Time-to-Exploit timelines and root causes

Other Experience:

Part-Time Caregiver - Dovida, Dublin, Ireland

- Managed daily healthcare support, maintaining safety and communication while executing precise scheduling and medication routines.

Professional References:

Name	Title	Organisation and Location	Contact Information	Relationship
Cormac McKenna	Head of Technical Operations	ADAPT Centre Dublin, Ireland	cormac.mckenna@adaptcentre.ie	Team Lead and Internship Supervisor
Tom Carron	Systems Engineer	ADAPT Centre Dublin, Ireland	tom.carron@adaptcentre.ie	Team Member