

Kumar Kartikay

☎ (+91) 98825-89513 · ✉ roykartikay.26.03@gmail.com · 🌐 kumar-kartikay

Education

National Institute of Technology (NIT) Hamirpur

BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING

- CGPA: 9.23/10.0

2017 - 2021

Hamirpur, H.P.

Work Experience

Google

Aug 2022 - Present

SOFTWARE ENGINEER (L4)

Bangalore, India

• Queryset Management – Search Qualification Platform (Sep 2024 – Present)

- Developed a system of **Flume pipelines** to process Google Web Server (GWS) logs and extract top queries triggering search features (e.g. weather, sports, shopping) across different user slices.
- Mentored an intern to build an **embedding-based query clustering system** for deduplicating semantically similar queries in an existing queryset; evaluated various clustering algorithms with coverage and quality metrics.
- **Productionized** the clustering system and applied it to regression eval queryset with an L3 engineer, **reducing regression eval runtime** without significant drop in quality.
- **Led hackathon teams** thrice; won 2nd prize (People's Choice) in a hackathon in 2024 for **predicting seasonal search queries** in the future using a **LoRA fine tuned model**.
- Created a **Proof of Concept** for **anonymizing user queries** by fine tuning a LoRA model on user data (considered PII) and generating synthetic queries. We are now working on using this in production.
- **Led the development** of a web UI (<https://qsm-web-ui.corp.google.com/>) to be used by PMs for generating aspirational queries by prompting a Gemini model.
- Mentored another intern in 2025.
- Received multiple peer bonuses and spot bonuses.

• Warden – EngProd (Aug 2022 – Sep 2024)

- Worked on real-time monitoring log processing using Conduit.
- Created a **static analysis data flow system** (using Clang's RecursiveASTVisitor API) to generate flow graphs and detect privacy issues in log processing code.
- Owned and delivered **end-to-end feature requests** for client teams, including a major refactor from one-to-one to one-to-many log joining.
- Collaborated with Conduit infra teams to migrate from file-based reading to a token-based log access mechanism.
- Developed internal dashboards to improve oncall workflows and actively worked on reducing alerts recieved during oncall rotations.
- Mentored two new graduate engineers.
- **Promoted to L4** in May 2024.

- **Technologies:** C++, Clang, Python, Flume, Conduit, Distributed systems, Vertex AI, LLM APIs, Text Embeddings (Gecko, SemQ), Clustering algorithms

Microsoft

July 2021 - Aug 2022

SOFTWARE ENGINEER

Hyderabad, India

- Worked on the **Excel Security & Compliance** Feature Crew, responsible for **Microsoft Information Protection** features in Excel Desktop.
- Implemented a **new architecture for Autoclassification** that enabled this feature to run on local files on Mac, removing a major adoption blocker for enterprise customers.
- Completed systematic **refactoring task** to combine duplicated code across Excel Desktop, Web and Mobile platforms into a unified platform-independent code for our feature.
- Collaborated with international teams (US, Israel) to fix **challenging bugs** as part of quality improvements for Excel Desktop.
- Created developer productivity tools including a **local git wrapper over Source Depot**, demoed to team and Engineering Satisfaction Horizontal.
- **Key Technologies:** C++, Windows APIs, Source Depot.

Avalara

Feb 2021 - June 2021

SOFTWARE DEVELOPMENT INTERN

Remote

- **Summary:** Worked in a diverse, fast-paced Agile team with around 15 people from India & UK. Our team managed a REST-API-as-a-Service that was used by Amazon to upload seller data and generate tax forms.
- **Responsibilities included:** Developing automation tools, investigating business-critical issues by debugging code, assisting PMs and tax experts by generating reports using SQL, and working with VAT experts to resolve discrepancies in tax forms.
- **Key Achievement:** Participated in an internal hackathon in a team of 4 and within two days developed a Python utility for automating generation of a tax-breakdown report that would save an estimated **20-30 hours of manual effort** every month.
- **Key Technologies:** C#, REST API with Microservices architecture, .NET framework, Microsoft SQL Server, Python, AWS, Gitlab CI/CD.

- **Summary:** One of about 1,200 students selected in Google Summer of Code 2020 out of more than 50,000 who registered. Got sponsored by Google for working on MuseScore (an open-source music editing software). Provided updates through a [weekly blog](#) about project status.
- **Key Achievement:** Achieved main goal of refactoring core document model, refactored two more parts of the legacy code (rendering and saving file), and even completed PoC for a stretch goal before the end of the programme.
- **Key Technologies:** C++, Git, Qt GUI framework, Linux.

Achievements

2021	Winner - Game of Codes , Achieved First prize from our Institute and Rank 3 out of 138 participants overall in a Competitive Programming Competition on CodeDrills.io Platform.	Online (Link)
2020	Google Summer of Code 2020 , One of the 1,199 students selected in GSoC'20 out of 51,244 students who registered for the programme. Sponsored by Google for working on an open source project (MuseScore).	Online
2018	ACM ICPC (International Collegiate Programming Contest) , Qualified for Regional contest after the online round (Rank 1 in the College for Kanpur Region). Achieved rank 40 in the regionals out of about 130 teams.	UIET, Kanpur
2014	Gold Medal - IAIS Olympiad , Got the highest score in Computer Science subject in 16 countries in which this olympiad was conducted. Also got medals for Science, Math, and English at regional level.	DPS Dalhousie

Projects

Personal / Hobby Projects on Github

- **Personal Productivity Web App With TARS-like Assistant** [Live deployment] NEXT.JS, NODE, TYPESCRIPT
- **Reinforcement Learning & Artificial Intelligence**
 - **Implementation of the AlphaZero algorithm on Tic-Tac-Toe** [GitHub] C++, PYTHON, TENSORFLOW (DEC 2020)
 - **Experimented with implementing AlphaZero, on Chess** [Repo 1][Repo 2] [Repo 3] [Blog Posts] PYTORCH, PYTHON (JAN 2024)
 - **DQN Reinforcement Learning algorithm in JavaScript** [Github] TENSORFLOW.JS (JAN 2020)
 - **MegaChessaTron - a minimax chess engine** [GitHub] C, PTHREADS (OCT 2017)
- **Compilers**
 - **SLR1 and LR0 parser generator** [GitHub] PYTHON (NOV 2019)
- **Miscellaneous**
 - **Time Table Scheduler using Hill Climbing Algorithm** [Presentation] TYPESCRIPT (JAN 2021)
 - **EXExplore - Online games website** [GitHub] JAVASCRIPT, PYTHON, FLASK, MYSQL (OCT 2019)
 - **Fully solved Advent of Code and Synacor Challenge** [GitHub] PYTHON (DEC 2017)

EXTRA CURRICULAR

- **CodeForces** - Participated on CodeForces and other competitive programming websites. Have a highest rating of **1829 (Expert)** on Codeforces.
- **StackExchange** - Previously active on StackExchange sites. Have a high reputation on: Unix & Linux, Tex & Latex, Mathematics, Physics, etc.