






# AYUSH AGARWAL


## MACHINE LEARNING ENGINEER

### CONTACT

 +1 (412) 398-9716  
 ayush2991@gmail.com  
 [medium.com/@ayush2991](https://medium.com/@ayush2991)  
 [linkedin.com/in/ayush2991](https://linkedin.com/in/ayush2991)

### EDUCATION


 **Carnegie Mellon University (CMU)**  
*Master of Computational Data Science*  
2015 - 2016

 **Indian Institute of Technology (IIT) Madras**  
*B.Tech in Computer Science & Engineering*  
2011 - 2015

### SKILLS

Agentic AI  
Deep Learning  
Natural Language Processing  
Retrieval Augmented Generation  
PyTorch  
A/B Experimentation  
Cross-functional collaboration

### PROJECTS

 [AYUSH2991.GITHUB.IO](https://github.com/ayush2991)

#### Grounding LLMs with Web Search

Link sentences in LLM response back to source documents in vector database

#### Agentic RAG

LLM agent reasons whether or not to use RAG to answer user's queries, and rewrites queries for better retrieval performance.

### WORK EXPERIENCE

#### Software Engineer

FEB 2022 - PRESENT

 **GOOGLE (SEARCH)**

- Led collaboration between the Knowledge Graph and Featured Snippets teams, scaling integration by **5x** and improving the **accuracy, trustworthiness, and UX** of Search results.
    - Expanded corroborated answers to **100+ countries** in **20+ languages**.
    - Resulted in **faster user satisfaction** via verifiable top-of-page answers.
- Skills:** C++, A/B Experimentation, Planning, Cross-team Collaboration

- Led expansion of supported platforms for user-generated content on the Search Results Page (SRP), a massively collaborative effort across indexing, retrieval and ranking teams.
    - Added value for content creators by supporting new platforms
    - Improved fairness by enabling more platforms to surface on SRP
- Skills:** C++, A/B Experimentation, Planning, Cross-team Collaboration

#### Machine Learning Engineer

MAR 2019 - FEB 2022

 **GOOGLE (CLOUD)**

- Built end-to-end ML pipelines for **Smart Compose** in Google Docs, an assistive AI feature which helps reduce tedious typing by autocompleting users' sentences. Launched to 4 new locales.
    - Everyday, millions of characters are typed using Smart Compose.
- Skills:** MapReduce, LSTMs, Java, ML Modeling & Evaluation, Microservices
- Led ML Fairness efforts, integrating a **toxicity classifier** to ensure safe AI suggestions.
    - Hosted Red Team events to uncover model vulnerabilities.
- Skills:** ML Fairness & Toxicity, Python, Collaboration
- Improved hyperlink recommendation in Google Docs by refining model training and data pipelines.
    - Resulted in **measurable CTR improvements**.
- Skills:** Dual Encoder Models, Error Analysis, Recommender Systems

#### Data Scientist

FEB 2017 - MAR 2019

 **MICROSOFT**

- Built near real-time pipelines for **trend detection** and **news-based answer extraction**.
- Skills:** Python, SQL, Big Data, NLP, Anomaly Detection, C#

#### Research Fellow

MAY 2016 - AUG 2016

 **CARNEGIE MELLON UNIVERSITY**

- Developed a Q&A system integrating document ranking with ML-based answer extraction.
- Skills:** Apache Lucene, Python, TensorFlow, Web Scraping