KAUSHAL KUMAR RAI

215 N. Frances Street, Apt. 606, Madison, WI 53703

in /kaushal-rai ✉ kaushal.rai@wisc.edu

☎ (608)358-1407

EDUCATION

University of Wisconsin - Madison — Madison, WI
Masters of Science in Computer Science: GPA 4.00/4.00 — *Sept. 2021 – Dec. 2022*

Netaji Subhas Institute of Technology, University of Delhi — New Delhi, IN
Bachelor of Engineering in Computer Engineering; GPA: 9.04/10 (Merit Scholarship) — *Aug. 2015 – May. 2019*

TECHNICAL SKILLS

- **Languages**: C++, Java, Hack, JavaScript, Python, Go, Kotlin, HTML, CSS, SQL
- **Tools and Technology**: AWS, Hadoop, Thrift, Map-Reduce, Kubernetes, Docker, Spark, TensorFlow, PyTorch

EXPERIENCE

Meta, *SWE Intern* — Menlo Park, CA
Stream Processing Team (Puma, Stylus), Data Infrastructure — *May 2022 - Aug 2022*
- Developed a framework to identify and visualize the stylus operators used by different stream processing pipelines.
- Developed a transform operator that handled filtering, mapping and flatmap functionality. The operator also gave the ability to fuse different operators together thereby drastically reduced the run-time for various pipelines.

Goldman Sachs, *Analyst* — Bangalore, IN
GSAM Surveillance Engineering Team, Compliance Division — *Apr 2020 - Aug 2021*
- Enhanced the precision of surveillance codebases (approximately 30%) by improving the underlying mathematical model being used. This significantly reduced the manual work required at Compliance Officer's end.
- Improved the coverage of surveillances by including foreign exchange products in scope for Fixed Income trades.
- Developed a codebase to add surveillance logic to a new order management system (OMS). Ensured code compatibility across surveillances and data sourcing tasks to handle new OMS.

Samsung R&D, *Software Engineer* — Bangalore, IN
Rich Communication Suite and Messaging as a Platform Team — *Jun 2019 - Apr 2020*
- Enhanced chatbots by including the ability to share audio and video messages. This feature allowed 3rd party businesses to on-board native messaging application of Samsung handsets and share enriched content.

RESEARCH PROJECTS

- **SCALe: Supervised Contrastive approach for Active Learning:** SupCL, MLM, NLP — *Jan 2022 - May 2022*
  - Introduced supervised contrastive loss to generate discriminative embeddings for text classification. Github Link
  - The proposed loss function lead to an improvement of 10% on the Trec-6 dataset and up to 4% on SST-2 dataset on 15% acquired data, thereby beating the current state-of-the-art method. Paper Link

- **Detecting Hate Inducing Memes in Code Switched Language:** CNN, LSTM — *Dec 2020 - Aug 2021*
  - Introduced a novel triply annotated Indian political Memes (IPM) dataset, which comprises memes from various Indian political events that have taken place post-independence. Github Link
  - Proposed and implemented a binary-channeled CNN and LSTM based model that gives state-of-the-art results in the domain of offensive image (Memes) classification in code-switched languages. Paper Link

- **Automated Code Analysis and Grading:** Python, LLVM, NLP — *Sep 2018 - May 2019*
  - Developed an open source codebase that grades quality and logic of C/C++ codes using feature extraction on a combination of control flow graph and data flow graph. Publication Link
  - Evaluated the performance of different ML models (including SVM, Linear Regression, Ridge Regression and Ordinal Regression) on our novel dataset consisting of multiple coding responses to obtain optimal results. Github Link

COURSE PROJECTS

- **Context Associated Object Removal from Images:** Python, DeepFillv2, SuperPixel, CV — *Jan 2022 - May 2022*
  - Developed a framework to generate coherent outputs by removing the context (shadow) associated with the object.
  - Conducted in-depth analysis to conclude that LISA coupled with DeepFillv2 shows the best result. Paper Link

- **Developing GAN for Image-to-Image translation:** Tensorflow, Keras, cGANs, CV — *Sep 2021 - Dec 2021*
  - Implemented a cGAN architecture trained through an adversarial process for Image-to-Image translation. Github Link
  - Experimented between Neural Style Transfer Architecture and multiple GANs to conclude that PatchGAN + cGAN with MAE loss gives the best result for Image to Image translation. Paper Link