KAPIL AGRAWAL

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EDUCATION

University of California, Irvine Jun 2023
Master of Science, Computer Science *Irvine, CA*

Delhi Technological University Jun 2017
Bachelor of Technology, Mathematics and Computing *New Delhi, Delhi*

EXPERIENCE

Microsoft Research Jul 2019 - Jul 2021
Research Fellow *Bengaluru, Karnataka*

- Developed a service to monitor and diagnose network outages for Outlook Mail, Skype and Live at a global-scale and automatically finding root-cause of outage thereby reducing workload of the SREs by 70%.
- Analyzed network traffic of Microsoft Exchange data centers and reported load-balancing and migration contributed to more than 60% of the traffic.
- Communicated a proof of concept to the CTO of a simple strategy of splitting up a mailbox into hot/cold and migrating hot stuff. A preliminary result showed 80% of load-balancing traffic could be reduced.

Microsoft Research Jul 2018 - Jul 2019
Research Intern *Bengaluru, Karnataka*

- Trained a deep neural net model to increase precision (by 10%) of Outlook Mail's email summarization engine.
- Researched on 2D/Hierarchical CRF models to learn relations in structured emails - flight and hotel bookings.
- Devised a visualization tool to verify correctness of learned embedding for downstream tasks.

PROJECTS

Crowd-sourcing Volunteers App | *Android Studio, PHP, MySQL* [Link]

- Developed an app to crowd-source volunteers after the disastrous earthquake in 2015 in Kathmandu.
- Implemented the OTP generation protocol to verify users' identification for payment gateways and login.
- Orchestrated an analytic dashboard to gauge UX and optimized UI design leading to increased usage by 20%.

Sentiment Summarizing for Product Reviews | *Python* [Github]

- Spearheaded an automatic review summarization engine which takes as input product reviews and outputs a concise summary to stakeholders.
- Formulated a score propagation strategy to create a general sentiment lexicon using WordNet.
- A key feature was that it automatically detected what aspects consumers liked/disliked. Results suggest a precision and recall of 88% and 70%.

IoT and Machine Learning to Detect Landslides | *Python, C++* [Website]

- Scaled a low cost IoT device to track landslide prone areas from lab setting to real world.
- Engineered an end-to-end mechanism for sending alerts using Decision Trees for early evacuation of local people.
- Demonstrated that SMOTE-IPF was able to mitigate the class-imbalance problem yielding an accuracy of 99.3%.

PUBLICATIONS

Monitoring Cloud Service Unreachability at Scale
Proceedings IEEE INFOCOM 2021

A Comparison of Class Imbalance Techniques for Real-World Landslide Predictions
IEEE Conference on Machine Learning and Data Science (MLDS), 2017

TECHNICAL SKILLS

Languages: Python, C/C++, LaTeX, HTML/CSS, JavaScript, SQL, Bash, PHP
Technologies/Frameworks: Linux, 8-bit AVR micro-controllers, GitHub