Akash Kumar Gautam

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EDUCATION

- **Indraprastha Institute of Information Technology Delhi (IIIT-Delhi)**   New Delhi, India
  Bachelors of Technology, Computer Science and Engineering; GPA: 7.59   2015 - 2019

WORK EXPERIENCE

- **MIDAS Labs, IIIT-Delhi**   New Delhi, India
  (Research Assistant) Advisor: Dr. Rajiv Ratn Shah, Dr. Debanjan Mahata   Nov 2018 - May 2019
  - Curated a novel dataset along with performing experiments to identify linguistic aspects associated with #MeToo movement on social media networks. Analysis based on lexical experiments accepted at **AAAI, ICWSM 2020**. This project was done in collaboration with Bloomberg, New York **(Link)**
  - Proposed a novel iterative semi-supervised pipeline for identifying complaint relevant textual posts on social media platforms. Experiments based on sentiment and lexical cues accepted at Student Abstract **AAAI 2020** and **ECNLP** workshop **ACL 2020**. The best performing architecture obtained the F1-score of 0.71 **(Link)**
  - Proposed a **novel** solution for Automatic Knowledge Graph Construction contest as a part of shared task associated with **IEEE, ICDM 2019**. Awarded **Honourable Mention's Award** for the deployed web application. **(Code)**
  - Explored with **multi-modal** *late decision* fusion architectures for identifying disaster relevant *distress* signals. Paper and analysis accepted at IEEE, BigMM 2019. The proposed methodology obtained an improvement of atleast 3% accuracy as compared to the uni-modal counterparts.
  - Mentored several students and reviewed manuscript submissions as a part of *Grand Data Challenge* and *Multi-modal AI for Social Good Workshop* held in conjunction with IEEE, BigMM 2020.

- **UnitedHealth Group**   Gurugram, India
  Associate Software Engineer II (OptumRx)   July 2020 - Present
  - Contributing to the development of Therapy Management Application deployed on cloud **Microsoft Azure** by creating REST API's in the backend using **Spring Boot** (Java) and MYSQL server database.
  - Implementing functionalities to expand the user interface based on the business requirements and stakeholder collaborations using **React.JS, Typescript, Redux, Redux-Saga**, and **Next.JS**.
  - Delivering on continuous code integration within **agile** practices to advance acceptance level test driven development using tools and frameworks such as **SonarQube**, **Jenkins**, **Puppeteer**, **Jest Cucumber**, and **Junit**.
  - Working holistically with the application development team to reduce the technical debt on the existing application, resolving documentation issues and bugs, reviewing pull requests, and improving the test coverage for various components.

- **Career Anna**   Gurugram, India
  Full-Stack Web Developer   Aug 2019 - March 2020
  - Created an application **analytics dashboard** using Python (**Django**) and **MongoDB** for tracking and visualizing trends of user engagement metrics like **Daily Active Users**, **Monthly Active Users** for more than **1 million** mobile android users.
  - Created components for identification and logging of the cause of the android mobile application crashes. Insights gained from the data acquired helped create services that led to an improvement in **user retention** on the platform by more than 11%.
  - Implemented pipelines for logging of **user behavior** data such as Open Rate, Click Through Rate, Page Time, Video View Time, App version installed along with the device details. These formed the backend of the **Notification Panel** which enabled the marketing team to make customized campaigns basis demography, genre, and other filters.

- **Systems and Networks Labs**   New Delhi, India
  (Summer Research Intern) Advisor: Dr. Mukulika Maity   May 2018 - Aug 2018
  - Written modules in C as a student researcher to transmit data reliably over prob request frames from IoT nodes to the central server without any association preference.
  - Goals involved comparing the performance of association-free communication against association-based communication via metrics like data loss rate, throughput, energy saved, delay, and airtime utilization.

SELECTED PUBLICATIONS

- **Gautam, A. K*.**, Mathur, P*., Gosangi, R., Mahata, D., Sawhney, R., Shah, R. R. (2020, May). # MeTooMA: Multi-Aspect Annotations of Tweets Related to the MeToo Movement. *In Proceedings of the International AAAI Conference on Web and Social Media, ICWSM 2020 (Vol. 14, pp. 209-216).* **(Paper)** **(Dataset)**

- Anand, G*., **Gautam, A. K*.**, Mathur, P., Mahata, D., Shah, R. R., Sawhney, R. (2020, April). An Iterative Approach for Identifying Complaint Based Tweets in Social Media Platforms (Student Abstract). *In AAAI 2020 (pp. 13749-13750).* **(Paper)** **(Poster)**

- **Gautam, A. K*.**, Mahata, D., Gosangi, R., Shah, R. (2020, July). Semi-Supervised Iterative Approach for Domain-Specific Complaint Detection in Social Media. *In Proceedings of The 3rd Workshop on e-Commerce and NLP, ACL 2020 (pp. 46-53).* (**Paper**) (**Presentation**)

- **Gautam, A. K.**, Misra, L., Kumar, A., Misra, K., Aggarwal, S., Shah, R. R. (2019, September). Multimodal analysis of disaster tweets. *In 2019 IEEE Fifth International Conference on Multimedia Big Data (BigMM) (pp. 94-103). IEEE.* (**Paper**)

- Sawhney, R., **Gautam, A. K.**, Shah, R. R. (2020, September). BMGC 2020 Grand Challenge: Multi-Aspect Analysis of the MeToo Movement on Twitter. *In 2020 IEEE Sixth International Conference on Multimedia Big Data (BigMM) (pp. 481-484). IEEE.* (**Paper**)

ACADEMIC PROJECTS

- **Emoji Recommendation System**: The project involved the utilization of deep learning strategies with unique handcrafted tweet based feature vector for emoji recommendation based on text. Classification models included CNN, LSTM, BLSTM. Compared against standard ML architectures like SVM, MLR, the proposed architecture obtained the best F1-score of **0.82.** *Tools and Frameworks Used*: Scipy, Numpy, Pandas, TensorFlow, Keras

- **CookMate**: The project involved making an Android app for amateur cooks providing features like posting and sharing recipes. The design of the app was based on high fidelity prototypes which were created after performing contextual inquiry, user empathy study and was reiterated based on the feedback given by the target audience. *Tools and Frameworks Used*: Android Studio, Java, High Fidelity Prototype Designing (**Blog**)

- **Secure Banking Application**: Built a banking application which allowed users to perform secure transactions along with user account management via the Internet. My role was implementing security-based features like a virtual keyboard, backend sanity checks, Captcha, OTP verification. The application was secure with respect to CSRF attack, brute force attack, and spoofing attack. *Tools and Frameworks Used*: MongoDB, HTML, CSS, JavaScript, React.JS

- **Fake Review Detection on Yelp**: The project involved detecting fake/incentivized reviews on Yelp by analyzing the user-engagement pattern of the accounts. The dataset of user activities was collected from the publicly available database as a part of the Yelp dataset challenge, and user-level meta-data was web scraped. *Tools and Frameworks Used: NetworkX, Twython, Scipy, SQL, Beautiful Soup* (**Code**)

- **University Library Android Application**: Worked in a team of 5 members to offer an app-based solution to the services offered by the library at IIITD. Design and functionalities replicated the ones offered by the web application. Worked on various third-party APIs to fetch book details such as ISBN, publisher, and cover page details. *Tools and Frameworks Used: Java, Android Studio, SQL, Material Design UI* (**Code**)

- **Ontology Modelling for Gun Violence Data**: Modelled the data pertaining to gun violence in the US. The CSV data was converted into triples and stored using RDF4J triples. The created ontology involved defining domain, range, and object constraints for all the properties. SPARQL queries were later run on the RDF graph adhering to SHACL validation requirements. *Tools and Frameworks Used: RDF4J triple store, Java, SPARQL Queries*

HONORS AND AWARDS

- **Honourable Mention's Award** for the web application submitted for ICDM/ ICBK Knowledge Graph Contest held at ICDM 2019. Application was created using Python (Flask) with traditional lexical pipeline determining the logic for knowledge graph creation. (**Web Application**)
- Awarded **Travel Grant** by AAAI for presenting the accepted paper at Proceedings of The Thirty-Fourth AAAI Conference on Artificial Intelligence 2020, New York.
- Awarded **Registration Scholarship** by AAAI for ICWSM 2020. This is presented to young researchers from countries with minority representation in social computing research.

TEACHING AND PROFESSIONAL SERVICE

- **Teaching Assistant (Monsoon Semester 2018)** — IIIT-Delhi
  T.A for the elective course Mobile Computing taken by more than 150 students. (Link) — Aug 2018 - Dec 2018

- **Member of Program Committee, IEEE BigMM 2020** — New Delhi, India
  Multi-modal AI for Social Good Workshop & Grand Data Challenge (Link) — May 2020 - Sep 2020

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL (Postgres), JavaScript, TypeScript, HTML/CSS, R
Frameworks: Spring Boot, React.JS, Next.JS, Django (Python), Flask, JUnit, Material-UI, Jest (Cucumber), Scikit, NLTK, SpaCy, TensorFlow, Keras
Developer Tools: Git, Visual Studio, PyCharm, IntelliJ, Eclipse, Android Studio
Libraries: Reacting Testing Library, Pandas, NumPy, Matplotlib, Scipy

RELEVANT COURSEWORK

Natural Language Processing, Introduction to Media Computing, Privacy and Security in Online Social Media, Semantic Web, Information Retrieval, Mobile Computing, Graph Theory, Designing Human-Centered Systems, Introduction to Engineering Design, Image Analysis, Fundamentals of Database Systems, Advanced Programming.