AYUSHI NIRMAL

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EDUCATION

Master of Science in Computer Science with **Thesis**   Expected May 2024
Arizona State University (ASU), Tempe, AZ   **GPA**: 3.87/4
- Fundamentals of Stat. Learning, Knowledge Representation & Reasoning, Data Mining, Semantic Web Mining, Social Media Mining, Information, Assurance and Security, and Software Verification/Validation/Testing.

Bachelor of Technology in Electronics and Communications with **Honors**   May   2019
Indian Institute of Information Technology, Allahabad   **GPA**:8.83/10
- Data Structures, Computer Organization and Architecture, Operating Systems, Database Management Systems, Mobile Computing, Computer Networks, Discrete Mathematics, and Digital Electronics.

EXPERIENCE

DMML, ASU, Tempe, USA: *Graduate Research Assistant*   May 2023 – Dec 2023
- Drove **full technology stack** buildout and launch of **SocioHub**, an innovative **SaaS** platform consolidating dispersed social media data into a unified **analytics** engine. Increased researcher efficiency 40% by centralizing analysis of user attributes and inter-platform connections.
- Led seminal **research** quantifying ChatGPT's potential to propagate **misinformation** at scale. Pinpointed linguistic patterns exploited by AI to circumvent leading **fake news** detectors through systematic testing. Results positioned our lab at the forefront of understanding and addressing this emerging threat.

Citicorp Services India Pvt. Ltd., Pune, India: *AssociateSoftware Developer*   July 2019 – July 2022
- Architected **Simpliciti's** scalable backend using **Kafka**, powering real-time Counterparty Risk generation at **0.29 trades/second** to accelerate Market Credit Risk Assessment by 40%.
- Independently drove **12x** system throughput improvement via **microservices** and **Restful APIs**, resolving legacy latency and stability deficiencies.
- Led collaboration enabling **20%** faster **Docker** pipeline deployment while boosting system **reliability 30%** through **DevOps** automation.
- Spearheaded modernization of Risk Analysis applications using **Spring Boot** and **Restful APIs**, boosting mobile delivery and precision **10%**, cementing role as key software innovator.

RELEVANT PROJECTS

User Migration across Multiple Social Media Platforms   Fall 2023
- Pioneered analysis of **14,000+ social media** migrants across emerging platforms with custom data pipelines, achieving best-in-class 85% accuracy in stance classification through fine-tuned Large Language Modeling.
- Unveiled breakthrough insights into **user behaviors** and perceptions revealing mass exodus from **Twitter** based on temporality, sustainability, and relatability - published in **SDM'2023** (*arXiv:2309.12613*).

Disinformation Detection: An Evolving Challenge in the Age of LLM   Summer 2023
- Built an **adversarial testing framework** that demonstrated how vulnerable state-of-the-art (**SOTA**) fake news classifiers are to **disinformation created by AI**, with misclassification rates for **GPT-4** (all scale) of **4.7%, 11.9%, and 22.2%** for **Dgpt std, Dgpt mix, and Dgpt cot**, respectively. – published in **SDM'2023 (*arXiv:2309.15847*).**
- **Enhanced** datasets through fine-tuned **Large Language Models (LLMs)**, revealing critical vulnerabilities in existing systems using Fake News Bert Detect (FNBD) model on augmented fake news dataset.

Understanding the Impact of Ideological Bias on NLP Tasks   Spring 2023
- Architected political ideology detection system processing 10K tweets; operationalized suite of advanced NLP classifiers (SVM, CNN, BERT) achieving 82% accuracy in inferring media bias.
- Evaluated trained model on a different political wing revealed a decrease in accuracy to 28%, indicating presence of ideological bias.

Social Media Data Analysis   Fall 2022
- Uncovered biased attitudes towards Covid-19 vaccine through exploratory data analysis and visualization by running network analysis over 500-600 polarized tweets utilizing **Tweepy API**, **Pandas**, and **NetworkX**.

TECHNICAL SKILLS

Programming Languages & Technologies: Java, C++, C, Python, R, HTML, Javascript, Kafka, MATLAB, Object-Oriented Programming, Machine Learning, Data Science, Natural Language Processing, Software Engineering, Data Analysis, Software Design, Artificial Intelligence, Web Applications.
Architecture and Framework: Hibernate, JPA, API Documentation, MVC, Bitbucket, Jenkins, Code Review, IP Solutions.
Databases, and Tools: SQL, MongoDB, Git, Microservices, R Studio, Kubernetes, Docker, Postman, AWS, Eclipse, IntelliJ.

AWARDS AND ACCOMPLISHMENT

Copper Award: Recognized for contributions to **Internal Audit team**, driving a remarkable 0.10x increase in throughput.
Gold Award: Rewarded from **Simpliciti** team for outstanding delivery of **EMM products** into production.
Publication: Accepted Paper as a **First Author** on "**SocioHub**: An Interactive Tool for Cross-Platform Social Media Data Collection" at 16th International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation **(SBP-BRiMS 2023)-** *arXiv:2309.06525*.