Anagha Narasimha Joshi

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EDUCATION

University of Georgia, Athens, GA, USA **2021**

M.S. Computer Science (3.93/4.0)

Thesis: Interpretable Image Classification (Explainable AI)

Thesis Advisor: Dr. Jaewoo Lee, PhD (https://www.ai.uga.edu/directory/people/jaewoo-lee)

Pune University, India **2015**

B.E. Electronics & Telecommunication Engineering (Grade: First class with distinction)

RESEARCH EXPERIENCE

Independent Research **2022-2024**

Project: SynSculpt**:** Boolean tensor completion model for syntax error repair in context-free languages

- Developed a method for repairing syntax errors in context-free languages
- Proposed a language intersection model that synthesizes and ranks repairs within a fixed Levenshtein distance, achieving 90% accuracy in identifying valid code fixes across languages (Accepted preprint: [1])

Independent Research **2022-2024**

Project: Enhancing Core-Set Active Learning for Text Classification

- Introduced dimensionality reduction techniques like t-SNE within Core-Set methodologies, leading to a 2–3% F1 score improvement on diverse datasets
- Uncovered limitations in adapting computer vision-oriented techniques to text data, exemplified by Core-Set underperforming random sampling by 5% in the F1 score on one dataset (Accepted preprint: [2])

Graduate Research Student, *Institute for Artificial Intelligence (https://www.ai.uga.edu), University of Georgia* **2020-2021**

PI: Dr. Jaewoo Lee (https://www.ai.uga.edu/directory/people/jaewoo-lee)

MS Thesis: Interpretable Image Classification

- Independently engineered TPNet, an interpretable transformer-based image classifier that reduces complexity compared to existing models, showcasing advanced architectural design capabilities
- Conducted comprehensive performance evaluations of TPNet against baseline models, demonstrating proficiency in model analysis and experimental methodology in AI research.

Graduate Research Assistant, *AI4STEM Lab (https://coe.uga.edu/research/labs/ai4stem), University of Georgia* **2021-2021**

PI: Dr. Xiaoming Zhai (https://people.coe.uga.edu/xiaoming-zhai)

Project: ML-based Text Classification for Enhanced Autograding

- Successfully designed and implemented machine learning classifier-based autograding
- Automated 100% of the grading effort and reduced manual grading time by 90%, enhancing the assessment accuracy and efficiency.
- Published a Django-based web app. for the AI4STEM (AI-based Assessment in STEM Education) lab.

Undergraduate Research Assistant, *Pune University* **2014-2015**

PI: Dr. Milind V. Kulkarni (https://scholar.google.co.in/citations?user=rIAalqEAAAAJ&hl=en)

Project: Analysis of Fractal Image Compression Using Quadtree Partitioning

- Analyzed methodologies like fractal DCT. wavelet compression to evaluate and synthesize advanced computational techniques.
- Contributed to image compression processes, including affine transformations and block-based techniques.

RESEARCH PUBLICATIONS

- **A. Joshi**, "Revitalizing Language Processing with Intelligent Syntax Repair and Boolean Tensor Completion," *2024 IEEE International Conference on Big Data (BigData)*, From Theory to Practice: Workshop on Large Language and Foundation Models, Washington D.C., USA, Dec. 2024 (accepted). (**preprint: [1]**)
- **A. Joshi**, "Enhancing Core-Set Active Learning: Unlocking New Frontiers in Text Classification," *2024 International Conference on Natural Language Processing and Information Retrieval (NLPIR '24)*, Association for Computing Machinery, Okayama, Japan, Dec. 2024 (accepted). (**preprint: [2]**)
- **A. Joshi**, "Interpretable Image Classification," *University of Georgia ProQuest Dissertations & Theses*, 2021. **(doi: [3])**
- **A. Joshi,** M. Kulkarni, "Analysis of Fractal Image Compression Using Quadtree Partitioning", Bulletin of Marine Science & Technology, Volume10, 2015, ISSN: 0974-8474 (published in physical print only)

[1] Paper 1 OSF preprint: https://osf.io/pwytb/
[2] Paper 2 OSF preprint: https://osf.io/tyvba/
[3] MS Thesis pdf: https://esploro.libs.uga.edu/esploro/outputs/9949390565902959

PROFESSIONAL EXPERIENCE

Software Development Engineer, Amazon, Austin, TX **2024-Present**

- Monitor performance and payment systems and analyze large data sets, allowing partners to make intelligent business decisions. (**Splunk, Amazon internal AI tools**)
- Implement strategies to optimize payment system performance, scalability, and reliability.
- Develop and maintain comprehensive technical documentation, guidelines, and training materials for payment and identity systems.

Full Stack Software Engineer, NCR Voyix, Atlanta, GA **2021-2024**

- Designed, developed, and implemented user interfaces for software products using Java, JavaScript, HTML, CSS, and React, improving user engagement by 25%
- Led collaborations with back-end developers to design and implement interactions between front-end applications and RESTful APIs, reducing API response times by 30%.
- Wrote unit and integration tests using Junit, JNI, and Mockito to ensure code reliability and maintainability, reducing bugs in production by 20%.
- Utilized GCP cloud services for deploying and managing applications, ensuring high availability and scalability, leading to a 40% reduction in downtime.
- Led the technical design and integration of tiered pricing features into large-scale Android applications, enhancing Point of Sale capabilities and supporting a growing customer base, resulting in a 20% increase in sales.
- Established monitoring, logging, and documentation systems to track the real-time health, performance, and behavior of microservices. (**Splunk** for logging, alerts, and dashboards)

  Environment: Java 11, Spring Boot, React, Node JS, Micro Services, Mongo DB, Kafka, Splunk, Swagger, Sonar, JSON, Gradel, Junit4, Git, Jenkins, Docker, Kubernetes.

Software Development Engineer, ScriptLanes, India **2018-2019**

- Developed and maintained dynamic, responsive web applications using Angular and NgRx, which improved page load speeds by 35%.
- Implemented performance optimization techniques, including code-splitting and lazy loading, to improve load times by 40%.
- Using Mongo Repository in Data Access Layer to access and update information in the database also on improving performance of Mongo DB collections.
- Ensured applications were fully responsive and optimized for various devices and screen sizes using CSS3 and frameworks like Bootstrap, increasing mobile traffic by 25%.

  Environment: Java 8, JavaScript, TypeScript, Angular, Node JS, Micro Services, Mongo DB, JSON, Junit4, BitBucket.

Co-founder and CTO – Imexzen (Branded as Nixis on Amazon) – India **2016-2018**

- Achieved monthly sales of $1.5K within 12 months by optimizing Amazon PPC campaigns and UX design.
- Successfully grew the business, maintaining a store with over 1K items.

Software Engineer – Softlink International – India **2015-2016**

- **Developed NCDR certified data registry suite**: Created a comprehensive medical data registry suite using C# and .NET framework improving client -data management efficiency.
  Environment: C#, .NET Core, Java Script, JQuery, HTML, CSS, Apache and MySQL.

SCHOLARSHIP, HONORS AND AWARDS

- **Spotlight Award –** Recognized for leading development of a cross-functional product knowledge library and fostering teamwork, NCR Voyix Inc. **2022**
- **Graduate Teaching Assistantship:** Data Security and Privacy Preservation (Instructor: Dr. Jaewoo Lee), Computer Networks (UGA, CS dept.) **2020-2021**
- **Best Presentation Award (2nd position)** for talk titled "Analysis of Fractal Image Compression using Quadtree partitioning," in *Tectonic 2015*, inter-collegiate technical competition **2015**
- **AICTE** (All India Council of Technical Education [4]) **Undergraduate Scholarship** **2014**

SERVICE & LEADERSHIP

- **Technical Paper Reviewer**, Association for Computational Linguistics (ACL) Workshop on Computational Methods for the Study of Endangered Languages (ComputEL) [5] **2024**
- **Public Relations Chair,** Indian Student Association (UGA) **2019-2021**

[4] https://www.aicte-india.org/
[5] https://computel-workshop.org/computel-8/

OPEN-SOURCE CONTRIBUTION

- Performance Evaluation of ML Algorithms on Fiber and Kubeflow: Used technologies such as Python, Google Cloud Platform, Kubernetes & Kubeflow, Docker, Uber-Fiber to contrast which cloud deployment tool performed the best. **2018**

PROFESSIONAL ASSOCIATIONS

- **Member**, IEEE **2024 – Present**
- **Member,** Women In Technology (WIT) (https://mywit.org) **2024 – Present**
- **Member,** UGA Institute for Cybersecurity and Privacy **2020-2021**

EXTRA CURRICULARS

- **Powerlifting athlete (deadlift 1 RM 200lbs)** **2023**
- **Best Speaker Award,** Entrepreneur Toastmasters Club **2018**
- **Black belt (Dan) certificate in Muay Thai,** a form of martial art **2018**
- **Professionally trained in Hindustani Classical Vocal Singing** ('Praveshika Purn' Level 3 certification) **2008**

COMMUNITY SERVICE

- **Teaching volunteer, Women-In-NCR,** Atlanta, GA **2023**
- **Fundraising volunteer, ASHA Foundation,** Atlanta, GA **2023**
- **Toys for Tots Christmas volunteer,** Atlanta, GA **2022**
- **Mental health awareness volunteer, Manmukti,** a mental health non-profit (UGA), Athens, GA **2021**
- **Raising AIDS awareness volunteer,** Pune **2010**
- **Blood donation camp volunteer,** Pune **2008**

TECHNOLOGY SUMMARY

- **Programming Languages:** Python, Core Java, Java 8
- **ML Frameworks:** PyTorch, Tensorflow, Keras, AWS SageMaker, QuickSight
- **Data streaming Technologies**: Python, Scala, Java, Samza, Kafka, Cassandra.
- **Web Technologies**: HTML5, CSS3, Java Script, jQuery, Ajax, ES5 & ES6, Angular
- **Web Servers:** Apache 2.4, Tomcat.
- **Databases:** MYSQL, Mongo DB, PostgreSQL, Oracle
- **Other Frameworks:** Spring Boot 2.4, MVC, MVVM, Ansible
- **Cloud Services**: AWS (Amazon Web Services), Google Cloud Platform (GCP)
- **Version Control:** GIT
- **Repositories:** Bit Bucket, Git Hub.
- **Dev-ops:** GIT, Jenkins, Docker, JFrog, Kubernetes, Terraform.
- **Code Scanning:** SonarQube, Fortify
- **IDE:** IntelliJ, VS Code, Eclipse, Spring Tool Suite
- **Remote Server Connections:** Putty, File Zilla, Win SCP, RDC
- **Build Tools:** Maven, Gradle, XAMPP
- **External Logging:** Splunk
- **Remote DB:** Mongo Compass, Db Visualizer, MySQL Work Bench
- **Rest Clients:** Postman, Swagger
- **Cache**: Redis
- **Agile Methodologies**: Scrum, Jira, Confluence, TDD (Test-Driven Development)
- **CI/CD**: Jenkins, GitHub Actions
- **Design Principles:** Object-oriented design principles and REST API design.