Akshay Kolgar Nayak

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EDUCATION

OLD DOMINION UNIVERSITY — Norfolk, VA, USA
PhD in Computer Science (GPA: 3.8) — *January 2023 - Current*

NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY — Bengaluru, Karnataka, India
Bachelors in Computer Science and Engineering (GPA: 3.4) — *June 2016 - August 2020*

TECHNICAL SKILLS

Programming Languages and Frameworks: Python, JavaScript, Java, C, C++, HTML, CSS, MySQL, SQL, NoSQL, C#, MATLAB, Shell Scripting, CUDA, React, Next.js, Node, Express, Nest JS, Web Chrome extensions, Django, DRF, SocketIO

Libraries and Tools: PyTorch, TensorFlow, Hugging Face Transformers, spaCy, NLTK, Sklearn, Pandas, Numpy, OpenCV, Git, Docker, Jupyter Notebooks, Matplotlib, Seaborn, Plotly, Figma, SurveyMonkey, Conda, Weka, LIWC

Accessibility : WCAG, WAVE, ARIA, Screen Readers - NVDA, VoiceOver, Narrator, JAWS, Talkback, Braille Display, Screen Magnifiers - ZoomText, Windows Magnifier, OCR, Voice Assistants, Eye tracking, Tobii Pro Studio, Chrome Lighthouse

AI Concepts & Models: Multi-Modal LLMs, SAM-2, Prompt Engineering, RAG, CNN, GAN, RNN, ResNet-50, U-Net, AutoEncoders, Reinforcement Learning, YOLO, Time Series, Transformers(BERT, LSTM, T5), GPT-4 Vision

WORK EXPERIENCE

Software Engineer
BetaNXT (Formerly London Stock Exchange Group) — *July 2022 - December 2022*

- Lead Developer for Refinitiv Beta Classic, modernizing legacy BETAHost systems into web applications within the Thomson ONE platform, reducing manual data entry by 70% and streamlining financial workflows for wealth management professionals.
- Developed scalable and secure RESTful APIs using WebSphere IIB and Java, facilitating vendor integrations with the Refinitiv Wealth Management Platform, capable of handling over 2 million daily requests, ensuring high performance and data accuracy.
- Implemented workflow solutions that allowed seamless management of high-volume trading data, including equities, fixed income, and mutual funds, ensuring straight-through processing and reducing operational inefficiencies.
- Worked closely with the Worldwide Wealth Services (WWS) team, contributing to systems that securely connected third-party vendors, ensuring robust and compliant integration into financial systems while supporting critical trade data flows.

Associate Software Engineer
London Stock Exchange Group - Refinitiv — *September 2020 - June 2022*

- Cloud and Infrastructure Engineer within the LSEG Site Reliability Engineering (SRE) team, responsible for managing and enhancing the infrastructure using AWS, VMware, and HyperV to ensure scalable and resilient cloud operations.
- Spearheaded automation efforts by developing scripts that reduced manual intervention by 80%, automating key processes such as security patching, server upgrades, license key management, backups/restores, and performance monitoring across the cloud and on-prem environments.
- Managed virtualized environments using VMware and HyperV, improving system availability and optimizing resource allocation for mission-critical services.
- Actively contributed to the design and execution of the Infrastructure and Cloud Roadmap, enhancing the platform's reliability and aligning cloud operations with business objectives to support LSEG's long-term goals in delivering advanced financial data and analytics solutions.

Graduate Research Assistant
HandsOn Lab - Old Dominion University — *June 2023 - August 2023*

- Software Architect for Taste of India, an Asian-Indian festival in Virginia, where I designed and implemented the frontend admin infrastructure using NextJS, ReactJS, CSS, and JavaScript. This system streamlined event management and improved the overall user experience.

- Prostate Cancer Data Analysis: Collaborated with leading oncologists from Eastern Virginia Medical School (EVMS) on a comprehensive study of prostate cancer. This project involved building a predictive model using machine learning for survival rates, treatment outcomes, and biomarker identification in prostate cancer patients, enhancing decision-making in clinical settings through data-driven insights.
- Employee Survey Analysis: Built an AI-powered language model to process and analyze employee feedback, providing actionable insights for improving organizational efficiency and understanding employee sentiment.
- Alzheimer's Patient Agitation Study: Conducted a temporal study using wearable technologies to monitor agitation levels in Alzheimer's patients. The study focused on developing intervention methods, including real-time environmental controls such as noise reduction, temperature regulation, and lighting adjustments. These interventions were designed to assess and implement the most effective methods for calming patients during episodes of agitation, contributing to improved care strategies for individuals with Alzheimer's.

Graduate Teaching Assistant

Old Dominion University   *January 2023 - Current*

- Instructor for CS 121G: Teach Introduction to Information Literacy and Research, guiding students in critical skills such as information retrieval, evaluation, and presentation, using scientific problem-solving methods. The course covers research methods using digital libraries, databases, and collaborative tools, while emphasizing information security and ethics
- NLP with Large Language Models (LLMs) and Prompt Engineering: Delivered lectures and hands-on labs on advanced topics in Natural Language Processing (NLP), guiding students through practical applications of LLMs and prompt engineering to demonstrate cutting-edge AI capabilities and their real-world uses in language tasks.
- Automated Grading System: Designed an automated system to generate real-time grade reports for students and developed an email notification service to alert students who are falling behind in coursework, significantly streamlining the grading and communication process.
- Curriculum Development: Enhanced course materials and introduced innovative teaching methods to improve student engagement and participation, fostering a more interactive and responsive learning environment.

RESEARCH PUBLICATIONS

- Yash Prakash, Pathan Aseef Khan, **Akshay Kolgar Nayak**, Sampath Jayarathna, Hae-Na Lee, and Vikas Ashok. Towards Enhancing Low Vision Usability of Data Charts on Smartphones. IEEE Transactions on Visualization and Computer Graphics (2024).
- Yash Prakash, **Akshay Kolgar Nayak**, Mohan Sunkara, Sampath Jayarathna, Hae-Na Lee, and Vikas Ashok. 2024. All in One Place: Ensuring Usable Access to Online Shopping Items for Blind Users. Proc. ACM Hum.-Comput. Interact. 8, EICS, Article 257 (June 2024), 25 pages.
- Yash Prakash, **Akshay Kolgar Nayak**, Shoaib Mohammed Alyaan, Pathan Aseef Khan, Hae-Na Lee, and Vikas Ashok. 2024. Improving Usability of Data Charts in Multimodal Documents for Low Vision Users. In Proceedings of the 26th International Conference on Multimodal Interaction (ICMI '24). Association for Computing Machinery, New York, NY, USA, 498–507.
- Yash Prakash, **Akshay Kolgar Nayak**, Sampath Jayarathna, Hae-Na Lee, and Vikas Ashok. 2024. Understanding Low Vision Graphical Perception of Bar Charts. In Proceedings of the 26th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '24). Association for Computing Machinery, New York, NY, USA, Article 59, 1–10.
- Sunkara, Mohan, **Akshay Kolgar Nayak**, Sandeep Kalari, Satwik Ram Kodandaram, Sampath Jayarathna, Hae-Na Lee, and Vikas Ashok. Assessing the Accessibility and Usability of Web Archives for Blind Users. In International Conference on Theory and Practice of Digital Libraries, pp. 203-221. Cham: Springer Nature Switzerland, 2024.

EXTRACURRICULAR ACTIVITIES

- **Treasurer** in ODU Indian Students Association - August 2023 - January 2024
- **Marketing** in NMIT Anaadyanta - January 2019 - May 2019