

Aksharvan Senthilkumar

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EDUCATION

University of North Carolina at Chapel Hill

Bachelor of Science in Computer Science

Exp. May 2026

Dept. GPA: 3.86

- **Relevant Coursework:** Algorithms & Analysis, Distributed Systems, Randomized Algorithms, Machine Learning, Deep Learning, Aligning Humans & Large Language Models, Introduction to Quantitative Finance

EXPERIENCE

Undergraduate Researcher

University of North Carolina at Chapel Hill

Aug. 2024 – Dec. 2024

Chapel Hill, NC

- Developed an ensemble ML model (LSTM, ARIMA, VGG-16) for S&P 500 stock price prediction; achieved RMSE of 1.82 and outperforming baseline metrics for 88% of the companies; advised by Professor Junier Oliva
- Analyzed LLM ambiguity detection using the CLAMBER benchmark and designed a confidence calibration pipeline improving F1 scores by 30%; advised by Professor Snighda Chaturvedi

Social Media Manager

Sunrisers Realty LLC

Jan. 2023 – Present

Cary, NC

- Boosted social media post frequency by 40% and improved content quality by leveraging third-party automation tools such as ContentStudio, resulting in a 27% increase in engagement
- Increased customer engagement by 35% through targeted campaigns and segmentation via CRM tools like HubSpot, leading to a 9% boost in customer retention

Software Engineer Intern

Maxbyte Technologies

Jun. 2022 – Jul. 2022

Remote

- Contributed to a remote, holographic AR-based product repair solution, improving repair time by 15%
- Applied AR technology in product repair use cases, deepening practical knowledge of ARKit and Unity, leading to a more seamless user experience during testing

PROJECTS

GPT-2 Transformer from Scratch | Python, NumPy, TensorFlow, Google Colab

Nov. 2024

- Implemented GPT-2 from scratch, including multi-head self-attention, feed-forward networks, and positional embeddings, to load pre-trained weights and generate meaningful text completions.
- Experimented with decoding strategies like greedy decoding and temperature-based sampling to control creativity in text generation, analyzing outputs across different prompts and model sizes (e.g., 124M parameters)
- Compared text generation quality between smaller and larger GPT-2 models, observing improved coherence and contextual understanding with larger models

MealWarden | Swift, SwiftUI, Git

Aug. 2023 – May 2024

- Designed and developed a user-friendly iOS application utilizing Apple's Vision framework for advanced image recognition, enabling seamless interpretation of food labels, achieving a 79% user satisfaction rate
- Integrated Google Gemini's API to deliver personalized nutritional insights, allergy alerts, and dietary recommendations, resulting in a 23% improvement in user recommendation scores

TECHNICAL SKILLS

Languages: Python, Java, C/C++, Swift, SwiftUI, SQL, JavaScript, HTML, CSS

Frameworks: React, Node.js, Flask

Developer Tools: Amazon Web Services, Git, Docker, Visual Studio Code, XCode

Libraries: Pandas, NumPy, Matplotlib, PyTorch, Keras, LangChain

SELECT CERTIFICATIONS

AWS Certified Cloud Practitioner

Jul. 2024

Google Cloud - Prompt Design in Vertex AI

Jun. 2024

GIAC Foundational Cybersecurity Technologies

Oct. 2023

SELECT AWARDS

ICPC North American Championship Qualifying Team

Nov. 2024

USACO Gold Division Qualifier

Dec. 2022