Varad Patwardhan

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EDUCATION

NC State University, Raleigh, NC

Ph.D. Student in Computer Science   Aug 2025 – Expected May 2030

M.S. in Computer Science   Aug 2023 – July 2025
Thesis: Reconstructing Student Coding Behavior from Keystroke-Level Data: A Plugin-Based Approach

EXPERIENCE

Teaching Assistant | *NC State University*   Aug 2025 – Present
- Support undergraduate CS courses, mentor students, hold office hours, and guide projects in Java and algorithms.
- Assist in grading and labs, ensuring fairness and consistency.

Graduate Research Assistant | *NC State University*   Jan 2024 – Aug 2025
- Built Eclipse plugin capturing keystrokes, cursor, and environment data (8M+ events from 36+ students).
- Reconstructed real-time code progress, identifying coding behaviors (burst vs. consistent)
- Applied insights to intelligent tutoring systems, plagiarism detection, and real-time feedback dashboards.

Studios Advisor (Pentair Graduate Fellow) | *NC State University Libraries*   Jan 2024 – Aug 2025
- Developed a staff-facing RAG system (LangChain, GPT-5, ChromaDB) for instant answers on policies and workflows.
- Created AI demos (LLMs, game AI, chatbots) showcased in various pop-ups.
- Delivered 10+ interactive educational AI experiences.

NLP Research Intern | *L3cube*   Jun 2022 – May 2023
- Collected/processed Hindi-English code-mixed datasets; optimized HingBERT achieving 95% F1 in NLP tasks.
- Conducted comparative benchmarking of BERT, RoBERTa, HingBERT, HingRoBERTa for low-resource settings.

PROJECTS

StudiosLLM | *LangChain, GPT-5, ChromaDB*   Aug 2025
- Designed and deployed a Retrieval-Augmented Generation model for NCSU Libraries staff.
- Indexed internal policies, workflows, and IT documentation, enabling staff to query complex queries via natural language.
- Reduced onboarding and support resolution time with instant, context-aware answers.

Bookbot AI | *LangChain, LLaMA, DeepSeek, Python*   Dec 2024
- Built a retrieval-augmented Q&A system over PDFs with LangChain and LLaMA and DeepSeek.
- Enhanced accuracy and contextual reasoning for diverse queries through custom dataset integration.

Detecting Osteoarthritis in Dogs | *Machine Learning, Computer Vision, Python*   April 2024
- Developed a multi-modal ML model using gait video data and Tekscan pressure data.
- Achieved 93% accuracy via feature engineering, deep learning pipelines, and validation.

TECHNICAL SKILLS

Languages: Python, C++, C, Java, SQL, Bash, JavaScript, C#
AI/ML Frameworks: PyTorch, TensorFlow, Keras, Hugging Face, LangChain, RAGs, ChatGPT API, LLaMA, DeepSeek
Tools: Git, Docker, Jupyter Notebook, Android Studio, Firebase
Expertise: Artificial Intelligence, Machine Learning, Deep Learning, Natural Language Processing (NLP), Large Language Models (LLMs), Data Analytics, Algorithms

PUBLICATIONS

Reconstructing Student Coding Behavior from Keystroke-Level Data: A Plugin-Based Approach.   Master's Thesis, 2025
Varad Patwardhan

EclipseMonitor: A Real-Time Student Programming Environment Data Collection Tool.   SIGCSE TS, 2025
Saminur Islam, Zhikai Gao, John Bacher, Gabriel Silva De Oliveira, **Varad Patwardhan**, Sarah Heckman, Collin Lynch

Language Augmentation for Code-Mixed Text Classification.   Elsevier NLP Journal, 2023
Gauri Takawane, Abhishek Phaltankar, **Varad Patwardhan**, Aryan Patil, Raviraj Joshi, Mukta S. Takalikar