

Varad Patwardhan

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EDUCATION

NC State University, Raleigh, NC

Ph.D. Student in Computer Science

Aug 2025 – May 2030 (expected)

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

- Mentored students in algorithms and Java projects through office hours and 1:1 guidance, helping them reason about correctness, edge cases, and complexity.
- Assisted with grading and labs using rubric-based checks, ensuring fairness and consistent feedback across submissions.

Graduate Research Assistant | NC State University

Jan 2024 – Aug 2025

- Engineered an Eclipse plugin capturing keystrokes/cursor/environment data (8M+ events from 36+ students) to reconstruct code timelines and analyze burst-vs-steady patterns.
- Applied insights toward intelligent tutoring, plagiarism detection, and real-time feedback dashboards.

Pentair Graduate Fellow (Studios Advisor) | NC State University Libraries

Jan 2024 – Aug 2025

- Built a staff-facing RAG assistant (LangChain + ChromaDB + OpenAI API) for policy/workflow questions, enabling instant, context-aware answers.
- Created and showcased interactive AI demos (LLMs, game AI, chatbots) adopted 10+ in pop-ups and trainings.

NLP Research Intern | L3cube

Jun 2022 – May 2023

- Collected and 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 Studios staff.
- Indexed internal policies, workflows, and IT documentation to answer complex questions in natural language
- Delivered an order-of-magnitude drop in support lookup time (minutes to seconds) through context-aware retrieval.

Bookbot AI | LangChain, LLaMA, DeepSeek, Python

Dec 2024

- Built a retrieval-augmented Q&A system over PDFs with LangChain and LLaMA/DeepSeek.
- Improved answer accuracy and contextual grounding via 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 92% accuracy via feature engineering, deep learning pipelines, and validation.

TECHNICAL SKILLS

Languages: Python, C/C++, Java, JavaScript, SQL, Bash, C#

AI/ML: PyTorch, TensorFlow, Keras, Hugging Face, LangChain (RAG), OpenAI API, LLaMA, DeepSeek

Tools: Git, Docker, Jupyter, Android Studio, Firebase

Areas: Artificial Intelligence, Machine Learning, Deep Learning, Natural Language Processing, LLMs, Data Analytics

PUBLICATIONS

Reconstructing Student Coding Behavior from Keystroke-Level Data: A Plugin-Based Approach.
Varad Patwardhan

Master's Thesis, 2025

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