

Vikram Thirumalai

[My LinkedIn](#)[My GitHub](#)

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MS Student | UNC Chapel Hill

Aug. 2018 – Dec. 2022



Education

Master of Science,
Computer Science;
UNC-Chapel Hill;
Jan. 2022-Dec. 2022

Bachelor of Science,
Computer Science (Primary),
Statistics(Secondary);
UNC-Chapel Hill;
Aug 2018-Dec.2021

GRE:330

Dean's List: All semesters

Major GPA: 3.91

CGPA: 3.87

Clubs: Carolina Analytics and
Data Science



Technical Skills

Languages: Java, Python,
C, R, JavaScript, CSS,
HTML, SQL, Octave,
MATLAB, C, Prolog;

Frame Works: MongoDB,
Pytorch, TensorFlow,
React.js;

OS: Windows, Linux;

Other tools: Git, GitHub,
Tableau, AMPL;



Course Work

Operating Systems, Computer
Security, Machine Learning,
Distributed Systems,
Algorithms and Analysis, Web
Programming, Data
Structures, Internet Services
and Protocols.

Work Experience

Happiest Minds Technologies, Machine Learning Intern

May – Aug. 2021

CCTV surveillance automation and Content Based Image Retrieval

- Created a use-case for **action recognition** models in automating CCTV surveillance. Developed a model using **3D Convolutional Neural Networks (3D CNN)** on **Pytorch**. Achieved 90% accuracy in detecting anomalous behavior from videos. Minimized the processing time per video to 1.5 seconds on a CPU.
- Built a **Content Based Image Retrieval System** to recommend and recover images of similar e-commerce products. System utilized a **Convolutional Autoencoder** backbone for feature extraction coded on Python. Used **ANNOY** to build an index and retrieve images with an 81% top-5-accuracy. Reduced retrieval time per image by 12.5 % on a single-core CPU.

Qikpod, Android App Development Intern

Jul. – Sep. 2017

Smart Locker interface design

- Created an **Android Application** that simulates the interface for **smart lockers** that are used for secure deliveries of e-commerce packages
- Developed a virtual interface, using **XML** and **Android studio (Java)**, to enhance the security of smart lockers through digital verification of passcodes to minimize manual labor required for management of locker spaces.

UNC Department of Computer Science, Teaching Assistant

Jan. - May 2022.

- Maintained and added front-end and back-end features to a **clojure** codebase for a class management website that allows students to take programming tests and assignments online and receive feedback immediately.
- Created **API** endpoints in clojure to enable different levels of user privilege and used **POSTGRESQL** to manage the data required by the application.
- Collaborated with the Professor to grade, evaluate and assist with creation of homework assignments.

Research Experience

UNC Department of Computer Science, Research Assistant

Oct. 2019.- Present

Source Code Similarity Detection

- Implemented two **software similarity detection algorithms** in **python** using the concepts of **Normalized Compression Distance** and **Winnowing** to assist in identifying Intellectual property theft in universities and the corporate world. Achieved performance similar to services provided by GradeScope and helped verify 6 possible cases of plagiarism for a COMP course.
- Collaborated with a team of researchers to build an **educational machine learning software** that aids students with assignments by recommending potential solutions to errors gathered from similar past data. Reduced amount manual intervention required by enabling faster debugging of programs.

Personal Projects [\(My GitHub\)](#)

Melanoma Detection

May 2020

- Conducted a survey on the performance of **CNNs** and **SVMs** on the task of **detecting malignant melanoma** from images of moles. Developed the candidate models using **Pytorch** and **Sklearn**. The CNN out-performed the SVM and achieved an accuracy of 86.52%.

Online Multiplayer Chess

Jun. 2020

- Built a website that enables users to create an account, view their game history and play chess with friends online. Used **React** and **Semantic UI** on the frontend and **Express, MySQL** to develop the **REST API** and database. Facilitated online play with the help of **socket.io**.

Distributed Map Reducer to Find Mutual Friends on Facebook

Feb. 2021

- Used **Java's RMI** (Remote Method Invocation) package and **Threads** to write a distributed software that leverages the **Map Reduce, Model View Controller**, and **Factory** design patterns to find mutual friends among a group of Facebook users.