

# Pranchal Shah

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## EDUCATION

Northeastern University, Boston, MA

May 2025

Khoury College of Computer Sciences

MS in Computer Science - Align (Concentration: Systems and Software)

GPA: 4.00

Related Courses: Database Management Systems, Algorithms, Machine Learning, Object oriented Programming.

Harvard University, Cambridge, MA

December 2022

Masters in Architecture and Computational Design, (Incomplete)

Sardar Patel University, India

December 2019

Bachelors in Architecture

## TECHNICAL SKILLS

**Programming Languages:** Python, Java, C/C++, C#, JavaScript, TypeScript.

**Frameworks & Libraries:** Django, ReactJS, ExpressJS, NodeJS, JUnit, Pygame, Mockito, Swing, Matplotlib, GraphX.

**Others:** noSQL, MongoDB, mySQL - Relational Databases, Unix Shell Scripting, Git, Linux and macOS.

## WORK EXPERIENCE

Computational Designer

August 2020 - July 2022

Sangath LLP, India

- **C# Plugin Development:** Crafted and deployed over 10 C# plugins and scripts utilizing Visual Studio and RhinoCommon SDK. Achieved a 30% reduction in modeling time, optimizing generative design algorithms.
- **Generative design algorithms:** Innovated generative design algorithms incorporating parametric modeling and structural analysis techniques. Significantly reduced energy usage by 27%.
- **Automated CAD with Python:** Automated 40% of repetitive documentation tasks through Python scripts, resulting in the elimination of over 200 man-hours per project. Accelerated 3D model and documentation generation by 45%.
- **Led Data Processing and Analysis Initiatives:** Spearheaded data processing and analysis efforts, contributing to a substantial 27% reduction in construction waste. Demonstrated a data-driven approach, fostering sustainable practices.
- **Collaborated with cross-functional team:** Teams comprising architects and engineers.

## PROJECTS

S&P 500 Price Forecasting & Analysis

July 2023 - Present

- **Interactive Web Interface** Designed and constructed web application - HTML, CSS, and JavaScript to display price predictions over time, enabling comparisons with historical prices.
- **Server-Side Functionality:** backend with Node.js for model prediction delivery and dynamic visualization updates.
- **Data Scraping and Processing:** Extracted and processed five years of Google Trends data, engineering predictor features for model training and validation.
- **Machine Learning for Forecasting:** a Python-based machine learning model harnessing Google Trends data to predict S&P 500 closing prices for following day.

RealEstatePro: Predictive Property Price Platform

July - September 2023

- **Full-Stack Web Application:** Developed a feature-rich full-stack web application from scratch using the MERN stack. This modern tech stack enabled the creation of a dynamic and responsive user interface.
- **Database Integration:** Implemented a database MongoDB to efficiently store and manage housing data, ensuring seamless data retrieval and updates for the web application, hosted on Amazon Web Services(AWS).
- **User Authentication:** Implemented robust user authentication and authorization functionalities using PassportJS. This ensured data privacy and security for users and enabled personalized user experiences.
- **Machine Learning Model:** Designed and implemented a machine learning model using Python and popular libraries like scikit-learn and TensorFlow. Utilized historical housing data, distance to water, central districts and indicators.

PlantPulse - Real-Time Plant Health Tracker

July 2023 - October 2023

- Developed an end-to-end real-time plant monitoring web application using MERN Stack.
- Engineered **robust backend APIs** with Node.js and Express to handle image uploads, computer vision requests, data storage and response serving.
- Implemented asynchronous API routes and concurrent database queries, reducing average API response times by 55%.
- **Built reusable React components** for onboarding flows, and dashboard creation using React Hooks and Context API.
- Leveraged cloud services like AWS - S3, Lambda, EC2 to scale on-demand and manage costs effectively.