# Sujay Patel

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## EDUCATION

**University of North Carolina at Chapel Hill**  Chapel Hill, NC
*Computer Science B.S., Biomedical Engineering B.S.*  *Aug. 2022 – May 2026*
- **GPA: 3.98/4.00**
- Relevant Coursework: Data Structures and Analysis, Discrete Structures, Scientific Programming, Foundations of Programming, Systems Fundamentals, Calculus 3, Differential Equations

## PROJECTS

**NBA Premier Stats** | *Spring Boot, React.js, PostgreSQL, Scikit-Learn, Webscraping, APIs*  Website | Source Code
- Succesfully created a full stack application using **spring boot** and **react** that displays historic NBA rankings from the last 10 years, and predictions about future player stats using a **scikit-learn** Random Forest Regressor.
- Utilized Jupyter Notebooks and webscraping of the NBA.com site to obtain data of over **400** NBA players for 10 seasons and imported data into a **PostgreSQL** database.
- Connected a public ESPN **API** to display new NBA related news from a variety of sources with options to filter news by factors such as player name and team.

**Housing Prices Predictor** | *Scikit-learn, Django, React.js, HTML/CSS*  Source Code
- Developed a full-stack machine learning application that predicts housing prices, using data from Zillow and the Federal Reserve.
- Utilized **Scikit-learn** with a **random forest regressor** to predict housing prices, and pre-processed data from over **100** regions using Jupyter Notebooks.
- Implemented **matplotlib** to show descriptive statistics and data of house prices and values over time.

**Your Clash Stats** | *Node.js, EJS, CSS, APIs*  Website | Source Code
- Developed a full stack application that displays user stats as well as metrics such as win percentage for card, opponents cards, and trophy changes for the mobile game Clash Royale, by integrating the Clash Royale **API**.
- Utilized **Node.js** to make API requests and posts with access to data and stats for over 1 million users.

## EXPERIENCE

**Research Assistant**  Jan 2024 – Present
*UNC Department of Physical Sciences*  *Chapel Hill, NC*
- Utilized **Python** and **C++** to successfully run particle simulations of crowd's dynamics in contained spaces to study brownian forces and motion.
- Developed a full fledged simulation that tracks particle movements to within **5%** accuracy of real-time analysis.
- Succesfully integrated simulation model with post analysis using libraries such as matplotlib, numpy, and pandas to extract data for further research.

**Undergraduate Teaching Assistant**  January 2024 – May 2024
*UNC Department of Physics and Astronomy*  *Chapel Hill, NC*
- Lead physics lab sessions with over **50** undergraduate students to explain physics concepts and equipment use.
- Increased student scores on lab reports in my lab section by **10 percent** compared to other lab sections in the same class.

## LEADERSHIP AND CLUB ACTIVITES

**Coding Leader**  Jan 2024 – Present
*Biomedical Devices Club*  *Chapel Hill, NC*
- Taught basic scientific programming in python, and libraries such as numpy and matplotlib to over **40** club members, and demonstrated basic abilities in data processing and analysis.
- Led meetings to teach **C++** in the Arduino IDE for creating circuits and basic electrical devices.

## TECHNICAL SKILLS

**Languages**: Java, Python, C++, C, SQL, JavaScript, HTML/CSS, Swift
**Frameworks and Libraries**: AWS, React, Node.js, Angular, Django, Bootstrap, NumPy, Matplotlib, pandas
**Developer Tools**: Git, Docker, XCode, VS Code, IntelliJ