

# Akeen Karkare

Stony Brook, New York

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## EDUCATION

### Stony Brook University

Bachelor of Science in Physics, Minor in Electrical Engineering

Aug 2024 - May 2027

Stony Brook, New York

## TECHNICAL SKILLS

- **Programming Languages:** Python, Java, C++, JavaScript, Bash, HTML, CSS
- **Frameworks & Libraries:** Next.js, React.js, React Native, Three.js, TensorFlow, SKLearn, Streamlit, Pandas, NumPy, OpenCV
- **Tools & Technologies:** Linux, Supabase, Frappe, Claude Code, VSC, Cursor

## PROFESSIONAL EXPERIENCE

### Stony Brook University

Research Assistant

Sep 2025 - Present

Stony Brook, New York

- Developed an AI-based academic assistant in C++ using Claude Code and SKLearn that delivers personalized study recommendations, includes data-access controls and privacy safeguards, and helps students locate relevant resources more quickly
- Built backend pipelines with CI integration to automate grading workflows, processing 150+ assignments weekly with real-time feedback
- Designed machine-learning workflows to generate adaptive tutoring recommendations, improving student practice accuracy by 15% during testing
- Implemented scalable APIs using FastAPI and data pipelines in Java, supporting dynamic user interactions and analytics that enable real-time insight into student activity
- Collaborated with cross-functional teams using Git and Docker to deploy production-ready academic tools across university systems, resulting in adoption by multiple departments

### HybrowLabs

Intern

May 2025 - Aug 2025

Pune, India

- Developed production-grade features for ERPNext-based university systems using Frappe and Python, improving financial reconciliation workflows
- Designed backend logic for product-bundle management in Frappe, enabling flexible pricing options and faster order processing
- Debugged and resolved system issues in collaboration with senior engineers, improving platform stability
- Contributed to technical documentation and modular system design for maintainability

### Re:think Educational Systems

Intern

Apr 2022 - May 2022

Pune, India

- Developed an automated OMR grading system using Python, TensorFlow, and NumPy, integrating test automation and continuous integration pipelines to process answer sheets digitally and deliver scores within minutes, cutting grading time by over 90%
- Implemented Python-based answer-detection algorithms using OpenCV, accurately extracting marked choices from scanned answer sheets and achieving 98% extraction accuracy
- Enabled instructors to receive scored results within minutes through an automated testing pipeline and CI integration

## PROJECTS

### YeetCode (Website) | <https://yeetcode.xyz>

- Built a full-stack competitive programming platform with real-time duels, leaderboards, and ranking systems used by 1000+ users, using TypeScript, FastAPI, Next.js, and utilizing LeetCode and Resend API
- Designed matchmaking system enabling head-to-head coding competitions with dynamic opponent pairing
- Engineered leaderboard algorithms based on performance metrics such as solve time and problem difficulty
- Optimized code execution and evaluation pipeline to reduce latency and improve responsiveness

### Asteroid (Discord Bot)

- Developed and deployed a multi-purpose Discord bot used by 70,000+ users across 200+ servers using python and the discord.py library
- Implemented moderation, automation, and utility features to improve server management and user engagement
- Designed scalable backend services to handle concurrent events and high-frequency user interactions
- Deployed and maintained bot on cloud infrastructure with focus on uptime and reliability

### AI Exoplanet Detector (ML Model)

- Built machine learning pipeline to classify exoplanet candidates using astronomical observational data (e.g., transit signals)
- Designed preprocessing workflow to clean, normalise and extract features from noisy datasets using PyTorch, Seaborn, SciKitLearn
- Implemented feature engineering techniques to capture periodic light-curve patterns associated with planetary transits
- Trained and evaluated classification models using Scikit-learn and TensorFlow, optimizing for accuracy and generalization

### BrainSquared (SBUHacks 2025 Winner)

- Built a browser-based "second memory" system that continuously captures and indexes user browsing history for semantic retrieval
- Designed and implemented vector-based search using embeddings and Qdrant to enable fuzzy recall of previously visited content
- Developed Chrome extension to locally collect browsing data with privacy-first architecture, avoiding external data exposure
- Engineered retrieval pipeline combining user query + historical context + embedding similarity to surface relevant results