Pratham Aggarwal

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Education

Bachelor of Science, Data Science GPA: 3.95

Halıcıoğlu Data Science Institute, University of California San Diego Expected Jun 2027

Relevant Coursework: Data visualization, Statistical & Predictive modeling, Data structures, Object-oriented programming

Skills

Programming Languages: MATLAB, SQL, Java, Python

Libraries: Pandas, NumPy, SciPy, Scikit-Learn, BeautifulSoup

Data Visualization: Tableau, Matplotlib, Seaborn

Other: Git & Github, Docker, Excel, Experiment Design, Research Ethics, Documentation, Terminal

Experience

Program Manager & Consultant Mar 2025 – Present

Solana Center *Data Science Student Society (DS3) Consulting*

- Lead a team of 4 members to analyze composting data for Solana Center, providing data-driven insights to support sustainable waste management strategies.
- Clean and transform large environmental datasets using Python, improving data quality and enabling in-depth analysis.
- Facilitate stakeholder coordination through LettuceMeet and shared calendars, ensuring effective communication, timely project milestones, and a positive customer experience.

Projects

Simulating Black Hole Evolution: Comparative Analysis of Light and Heavy Seeds *Learn more*

- Simulated supermassive black hole growth using Eddington and super-Eddington models, processing astrophysical datasets to analyze different formation pathways.
- Wrote a research paper contrasting black hole growth based on heavy and light seed masses, data using visualizations to compare their growth trajectories, resulting in clearer insights into the impact of seed mass on black hole development.
- Conducted 12 weeks of research under the guidance of PhD student Matthew Scoggins from Columbia University.

Predictive Modeling of Heating and Cooling Loads *Learn more*

- Predicted energy loads with 91% accuracy by utilizing machine learning and multidimensional linear regression and R-squared as a performance metric, optimizing energy consumption models and improving building energy efficiency.
- Identified a significant shift in energy load behavior by applying k-means clustering, leading to deeper insights into energy consumption patterns and informing more accurate forecasting models.
- Conducted a thorough Exploratory Data Analysis (EDA) on a building features dataset using Python, Pandas, and Matplotlib, uncovering key trends, outliers, and correlations, which enabled more targeted energy optimization strategies.

Rebooting Sitcom Friends with Data-Driven Strategies for Enhanced Engagement *Learn more*

- Made data-driven decisions on episode ratings and viewership trends by applying statistical testing (bootstrapping, hypothesis testing), improving decision-making for a potential reboot and refining content strategies for higher audience engagement.
- Improved storyline development by using sentiment analysis and Bayesian modeling to determine which Friends characters are best suited for specific roles, resulting in more engaging content and better-aligned character development.
- Determined the optimal 80 episode count by developing a linear regression model to maintain audience interest and engagement throughout the series.

TSwift Tunes: Data-Driven Insights and Recommender Systems *Learn more*

- Enhanced song categorization and deepened understanding of musical patterns by conducting exploratory data analysis (EDA) on 5 datasets, uncovering key trends and visualizing relationships between features.
- Built a personalized recommender system using over 10 audio features, optimizing the user experience and driving increased satisfaction and engagement through tailored track recommendations.
- Built a TF-IDF-based lyric search tool, which resulted in faster and more accurate identification of key themes in large-scale text data.

Honors & Awards

Inducted Member, Eta Kappa Nu (HKN), IEEE Honor Society Apr 2025

Provost Honors (2x), Revelle College, UC San Diego Win 2024

AP Scholar with Distinction, College Board Jul 2024