

Rupak Dey

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EDUCATION

New Mexico State University, Las Cruces, NM

May 2026

Bachelor of Science in Computer Science (Artificial Intelligence) | Minors: Mathematics and Economics

- **GPA:** 3.969/4.00 | **Awards:** Honors, Crimson Scholar, College of A&S Dean's List, International Competitive Scholarship
- **Relevant Courses:** Artificial Intelligence, Data Mining, Deep Learning, Linear Algebra, Statistics, Operating Systems

TECHNICAL SKILLS

Languages: Python, C++, C, Java, SQL, HTML/CSS, JavaScript, TypeScript | **Libraries:** PyTorch, NumPy, Pandas, Scikit-learn, Rasterio, GeoPandas, Matplotlib | **Frameworks & Tools:** Django, Flask, Next.js, MySQL, SQLite, Git/GitHub, Linux

CONFERENCE PRESENTATIONS

[1] L. D. V. Neakrase, N. Chanover, V. L. Hartwick, L. Huber, S. Ajo-Montaño, **R. Dey**, and N. Miller, "The PDS Atmospheric Modeling Annex: A new repository for modeling output," to be presented at the 58th Annual Meeting of the AAS Division for Planetary Sciences, Spokane, WA, USA, Oct. 25-30, 2026.

RESEARCH & PROFESSIONAL EXPERIENCE

Machine Learning Research Assistant, Forage Utilization Project

September 2025 - Present

KDD Lab, New Mexico State University, Las Cruces, NM | Advisor: *Dr. Huiping Cao*

- Built 10 LSTM models predicting NPP and biomass change from satellite, precipitation, cattle GPS, and land cover data.
- Designed a multi-branch LSTM over 1.3M records, one encoder per source, raising biomass change R^2 from 0.36 to 0.93.
- Ablation established rainfall and land cover drive nearly all skill; cattle GPS added none, validated against MLP and RF.

Research Assistant/Software Engineer, Atmospheres Node, NASA Planetary Data System (PDS)

May 2024 - Present

New Mexico State University, Las Cruces, NM | Supervisor: *Dr. Lynn Neakrase*

- Develop the ELSA web application to enable planetary scientists to generate and archive metadata for large datasets.
- Lead frontend for the Atmospheric Modeling Annex, a new PDS service archiving planetary atmospheric model data.
- Deployed an AI Assistant, Guided Bundle Creation, and 2FA; rebuilt the ELSA UI in Bootstrap 5 for responsive UX.

SELECTED PROJECTS

pantry.ai - 1st Place, Desert Dev Lab Hackathon, NM | Next.js, TypeScript, SQLite, Google Gemini API

April 2026

- Built a PWA with Gemini Vision to identify pantry items, estimate expiry dates, and suggest recipes before items expire.
- Promoted local produce, generated personalized meal plans, and tracked food waste to encourage sustainability.

Airbnb Price Prediction & Feature Analysis | Python, Pandas, Scikit-learn

August 2025 - November 2025

- Optimized a KNN regression model by using a Decision Tree to identify and select the top ten predictive features.
- Applied StandardScaler to normalize inputs and validated the final model using MAE and R^2 scores.

"Aggie Find-It" Lost & Found Management System | Java, JavaFX, MongoDB

August 2024 - December 2024

- Developed a full-stack MVC with a JavaFX frontend integrated with MongoDB for real-time item reporting and search.

Compiler Construction | C, Flex, Bison, RISC-V Assembly

August 2024 - December 2024

- Built a C-like compiler with Flex/Bison parsing an AST and a code generator handling stack, recursion, and control flow.

LEADERSHIP & SERVICE

Founding President, CS Student Association (CSSA), New Mexico State University, Las Cruces, NM

August 2025 - May 2026

- Launched hackNMSU, NMSU's first hackathon (55 participants and 18 teams); led sponsorship, judges, and operations.
- Built CSSA into NMSU's main CS community, addressing gaps in engagement; secured \$5K/year in operational funding.
- Organized programming contests, industry panels, and social events to strengthen career readiness and belonging.

Student Ambassador, College of Arts and Sciences, New Mexico State University, Las Cruces, NM

August 2023 - May 2026

- Represented the College on the NMSU Strategic Planning Board and advocated for CS at community events.

Vice-President, Google Developer Student Club, New Mexico State University, Las Cruces, NM

September 2024 - May 2025

- Facilitated bi-weekly meetings for 30+ students, focusing on competitive programming and technical skills.

Peer Mentor, TRIO Student Support Services, New Mexico State University, Las Cruces, NM

August 2023 - May 2024

- Mentored 35 STEM students in understanding and solving Java and C problems, obtaining CRLA Level 1 certification.