

Zoe Ludena

📍 San Diego, CA ✉ zoeludena@gmail.com ☎ 858 333 1303 🌐 Website in Zoe Ludena 📄 zoeludena

Education

University of California, San Diego

Mar 2025

Bachelor of Science in Data Science, Minor in Business Economics

Experience

Student Worker

San Diego, CA

San Diego Sheriff's Office

Feb 2024 – Present

- Build scalable, cloud-based data pipelines in Azure Synapse to clean and transform employee and operational data for analytics use.
- Communicate insights through interactive PowerBI reports and stakeholder presentations, driving data-informed decision-making.
- Analyze large and continuously growing text and structured datasets using machine learning techniques, Regex, Python, Pandas, and SQL to uncover patterns, anomalies, and insights.

Data Science Instructional Assistant

La Jolla, CA

Halcioğlu Data Science Institute

Mar 2023 – Mar 2025

- Enhance student performance and engagement by hosting office hours twice a week and creating 5+ educational videos and examples, leading to improved class comprehension and higher assignment scores.
- Improve assignment quality and exam rigor by developing midterm materials and grading assignments for 200+ students.
- Achieve consistent resolution of forum inquiries, answering 10+ questions weekly to clarify complex concepts in statistics, Python, Java, Pandas, and NumPy.

Projects

San Diego Sheriff's Office: Personnel

Feb 2025 – Present

- Migrating San Diego Sheriff's Department personnel data from PeopleSoft to Azure Data Lake, establishing a scalable cloud-based infrastructure for workforce analytics.
- Rebuilding and modernizing a legacy Power BI report using the cloud to visualize personnel trends, flag potential issues, and highlight staff achievements, supporting data-driven decision-making in internal operations.

San Diego Sheriff's Office: IPEmail

Feb 2024 – Feb 2025

- Developed scalable pipelines using Microsoft Azure Content Safety, PySpark, and Synapse Analytics to analyze incarcerated person's emails for indicators of gang activity and self-harm, enabling real-time alerts for investigations and mental health interventions.
- Created Power BI dashboards to communicate patterns and trends from email analysis to stakeholders; now advising on the development of an application to enable more efficient, vectorized semantic search across email data at scale.

SeeRise: Visualizing Emulated Sea Level Rise on Coastal Regions

[SeeRise Page](#) 📄

- Recreated Gaussian Process and CNN-LSTM emulators from ClimateBench by replicating model architectures and tuning hyperparameters, enabling analysis of sea level rise projections.
- Built the SeeRise website and interactive app by developing front-end features, visualizations, and explanatory content, improving public access to sea level rise predictions.

Technologies

Languages: Python, Pyspark, LaTeX, SQL, Javascript, Java, HTML

Technologies: Git/Github, Windows OS, Microsoft SQL Server, SQLite, Microsoft Office, VSCode, Tableau, PowerBI, Microsoft Azure Synapse

Honors: UCSD Provost Honors, IEEE - Eta Kappa Nu, 2025 Outstanding Tutor Award, 2025 Outstanding Capstone Project Award