

Zoe Ludena

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Introduction

Passionate data engineer and analyst driven by impact, known for delivering high-quality work and translating complex ideas into clear insights. Fast learner, effective communicator, and experienced public speaker who thrives on solving real-world problems.

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

- Built multiple scalable, cloud-based data pipelines in Azure Synapse. This cleaned and transformed employee and operational data, modernized legacy processes, and enabled timely analytics that support mental health care for incarcerated individuals and active investigations.
- Delivered actionable insights via interactive Power BI reports and stakeholder presentations, directly supporting data-driven decisions that improve public safety and investigative outcomes.
- Analyzed large and continuously growing structured and unstructured datasets using machine learning, Regex, Python, Pandas, and SQL to uncover patterns, anomalies, and insights. This enhances investigative efficiency and identifying systemic issues.

Data Science Instructional Assistant

La Jolla, CA

Hahcioğlu Data Science Institute

Mar 2023 – Mar 2025

- Fostered student understanding and engagement by hosting office hours twice weekly and creating 5+ educational videos and examples. This helped students with limited prior knowledge grasp complex concepts and boosting assignment performance.
- Supported academic success and course quality by co-developing rigorous midterm materials and grading assignments for 200+ students, ensuring fairness and clarity in assessment.
- Promoted a positive, inclusive learning environment by actively resolving 10+ weekly forum inquiries, explaining challenging topics in statistics, Python, Java, Pandas, and NumPy in accessible terms to build confidence and community in the data science space.

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 using Microsoft Azure Synapse and Pyspark.
- Rebuilding and modernizing a 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.

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