Trends in AI, Machine Learning, and Data Science Jobs (2020–2025) | Unit 2

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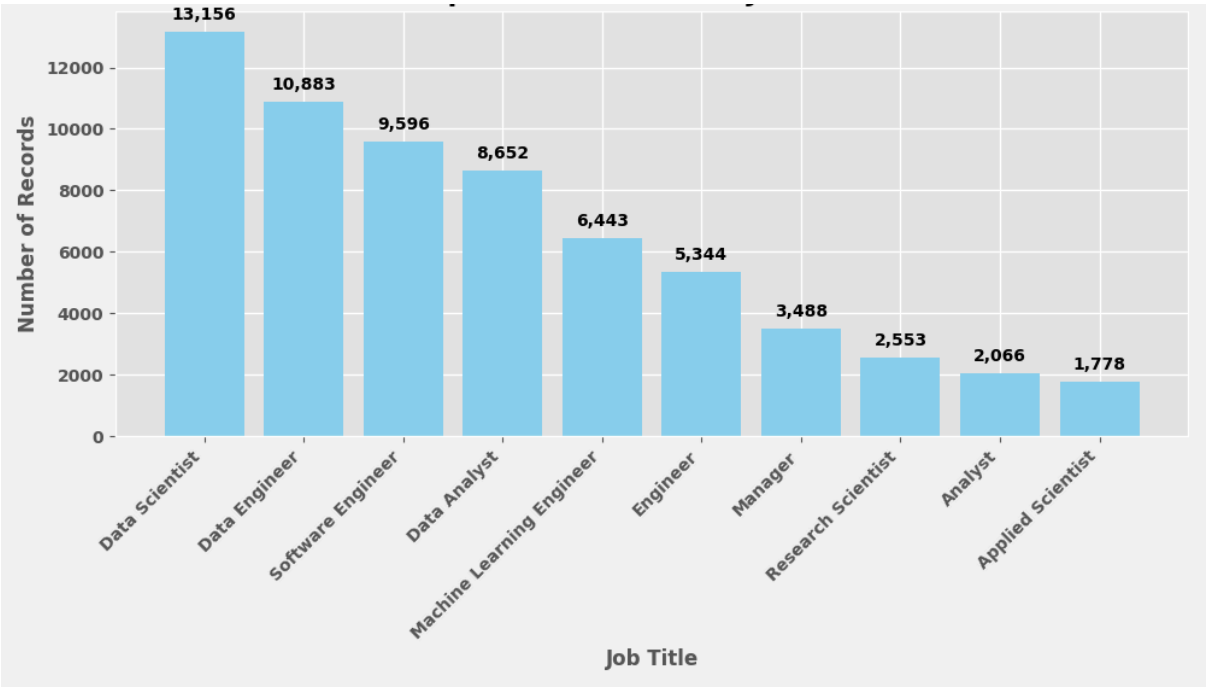
Dataset Overview

This dataset looks at salary and job trends for people working in AI, Machine Learning, and Data Science between 2020 and 2025. It has over 88,000 records, including job titles, experience levels, salaries (in USD), remote work levels, and company details. The goal of this project is to understand trends such as which jobs are common, how experience affects pay, and how remote work has changed over time. These visuals are made to help both job seekers and employers make better decisions (Chimminiyan, n.d.).

Figure 1

Bar Chart - Top 10 Most Common Job Titles



This bar chart shows the ten most common job titles in the dataset. The most frequent are data scientists, followed by data engineers and software engineers. These roles are in high demand and reflect what companies mostly hire for. This chart gives a quick idea of where the biggest job opportunities are in AI and Data Science (Yi, n.d.).

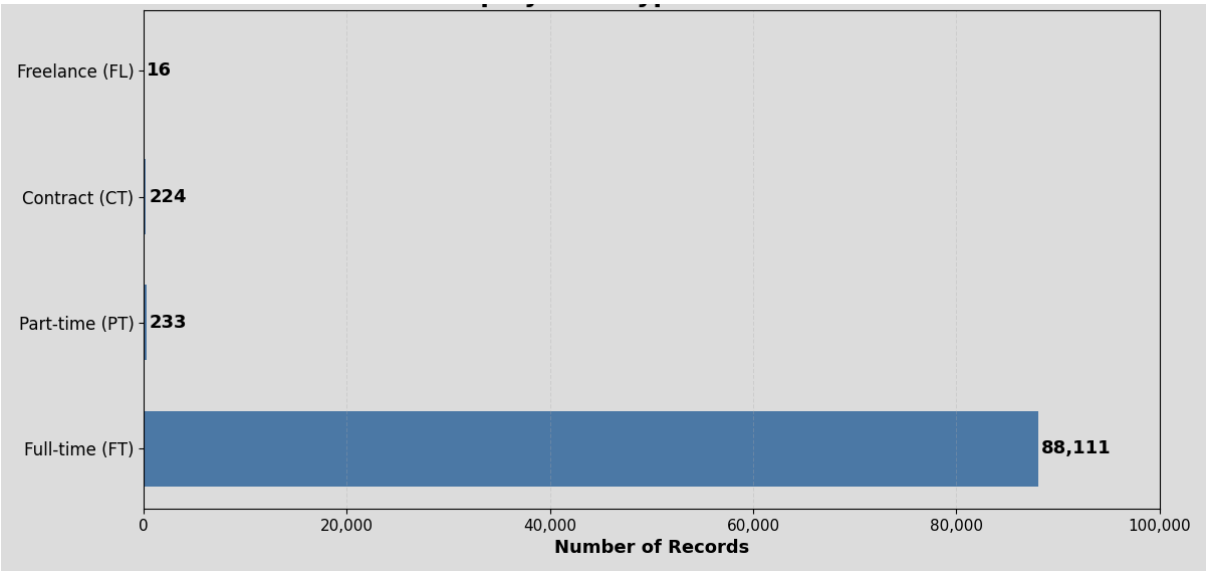
Figure 2

Stacked Bar Chart - Size Distribution (Adjusted for Readability)

This stacked bar chart shows how many records came from companies of different sizes: Small (S), Medium (M), and Large (L). Most of the jobs are from medium companies (96.7%), with large companies (3.1%) and small companies (0.2%) far behind. To make the chart easier to read, the smaller bars were made bigger than their actual size, but the correct percentages are still shown clearly. This gives us a good picture of where people in this field are mostly working (Yi, n.d.).

Figure 3

Horizontal Bar Chart - Employment Type Distribution

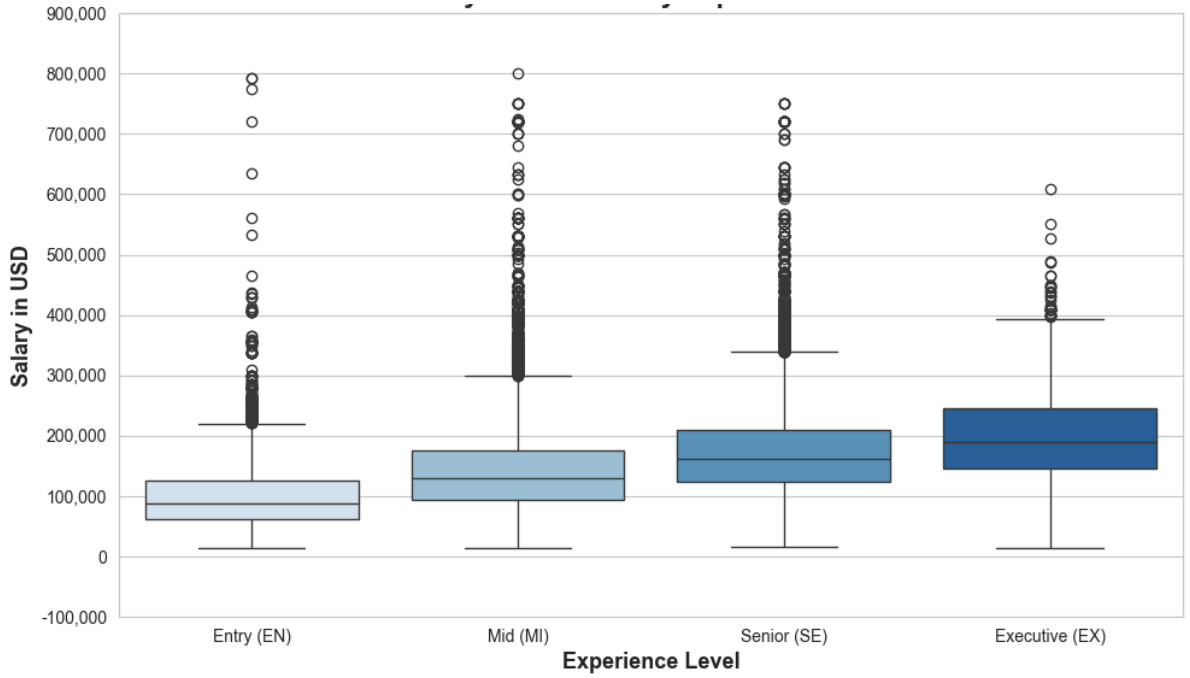


This horizontal bar chart shows how many people in the dataset were working in different job types: Full-time, Part-time, Contract, and Freelance. Most of the jobs (88,111)

are Full-time. Part-time and Contract roles are rare, and Freelance roles are even fewer. This tells us that Full-time work is the norm in this field (GeeksforGeeks, 2024).

Figure 4

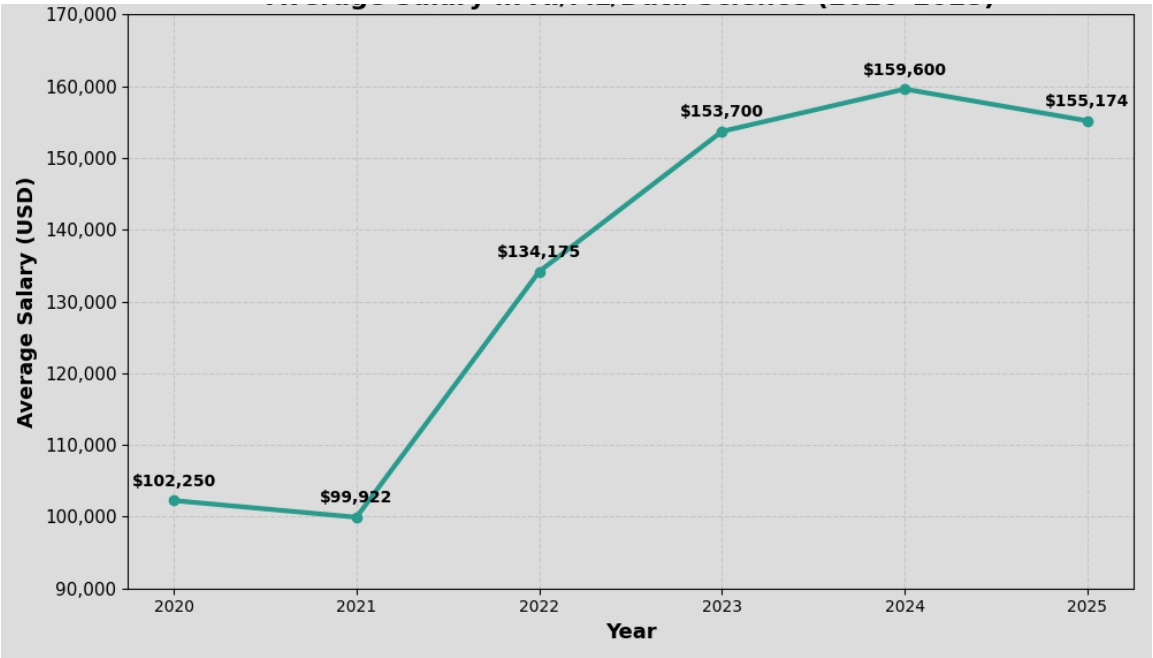
Box Plot - Salary Distribution by Experience Level



This box plot compares salaries for different experience levels: Entry, Mid, Senior, and Executive. As you might expect, more experience usually means higher pay. Executive roles have the biggest salary range, probably due to different industries or job locations. Entry-level salaries are lower but more consistent. This helps set realistic expectations for salaries based on your experience (Plotly, n.d.).

Figure 5

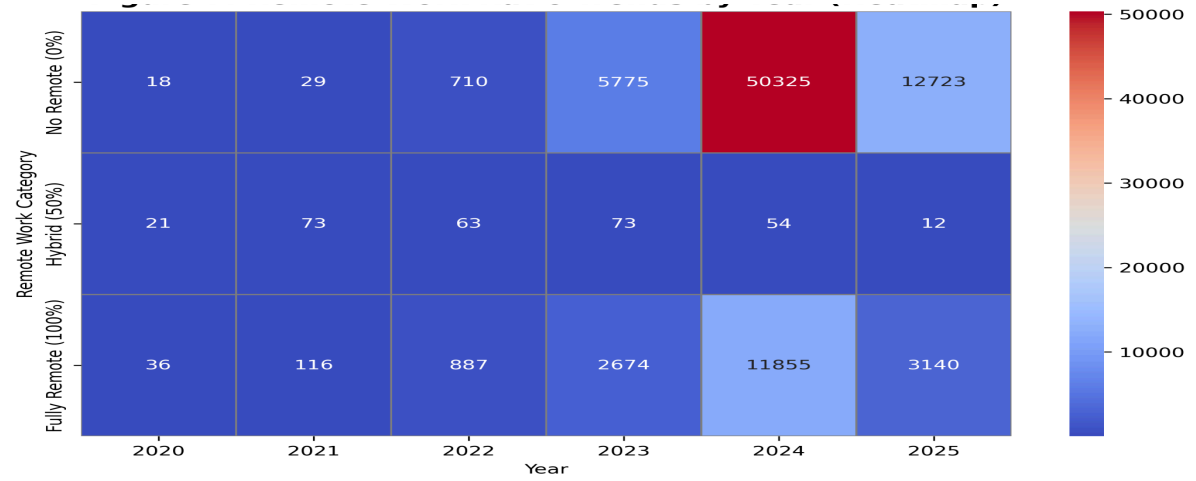
Line Chart - Average Salary in AI/ML/Data Science (2020–2025)



This line chart shows how average salaries have changed from 2020 to 2025. Pay stayed steady in 2020 and 2021, then rose significantly starting in 2022. The highest average was in 2024, followed by a slight drop in 2025. This chart shows how the value of these roles has grown over time and can help businesses and workers understand pay trends (Thompson, 2024).

Figure 6

Heatmap - Remote Work Ratio Trends by Year (Heatmap)



This heatmap shows how remote work has changed between 2020 and 2025. It breaks work styles into three groups: No Remote (0%), Hybrid (50%), and Fully Remote (100%). In 2024, there is a big jump in No Remote roles, which could mean companies were bringing people back to the office. However, Fully Remote jobs also increased steadily, showing that remote work is still an important part of the industry (Python Graph Gallery, n.d.).

Conclusion

This project helped show clear trends in the AI/ML/Data Science job market from 2020 to 2025. Most people work full-time, and medium-sized companies hire the most. Roles like Data Scientist and Data Engineer are very popular. Salaries increase with experience, and there has been strong salary growth since 2022. Remote work is also evolving, with more Fully Remote jobs showing up over the years. These charts give a helpful overview for anyone looking to understand this fast growing industry better.

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