

Data Science Salary Insights: Trends Across Roles, Experience, and Remote Work(US)

IST 719 - Information Visualization

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Story

The data science and tech job market is rapidly evolving, driven by shifts in work arrangements, demand for specialized skills, and organizational priorities. This analysis uncovers how salaries are influenced by experience levels, employment types, remote work ratios, and company sizes, offering a detailed view of industry trends.

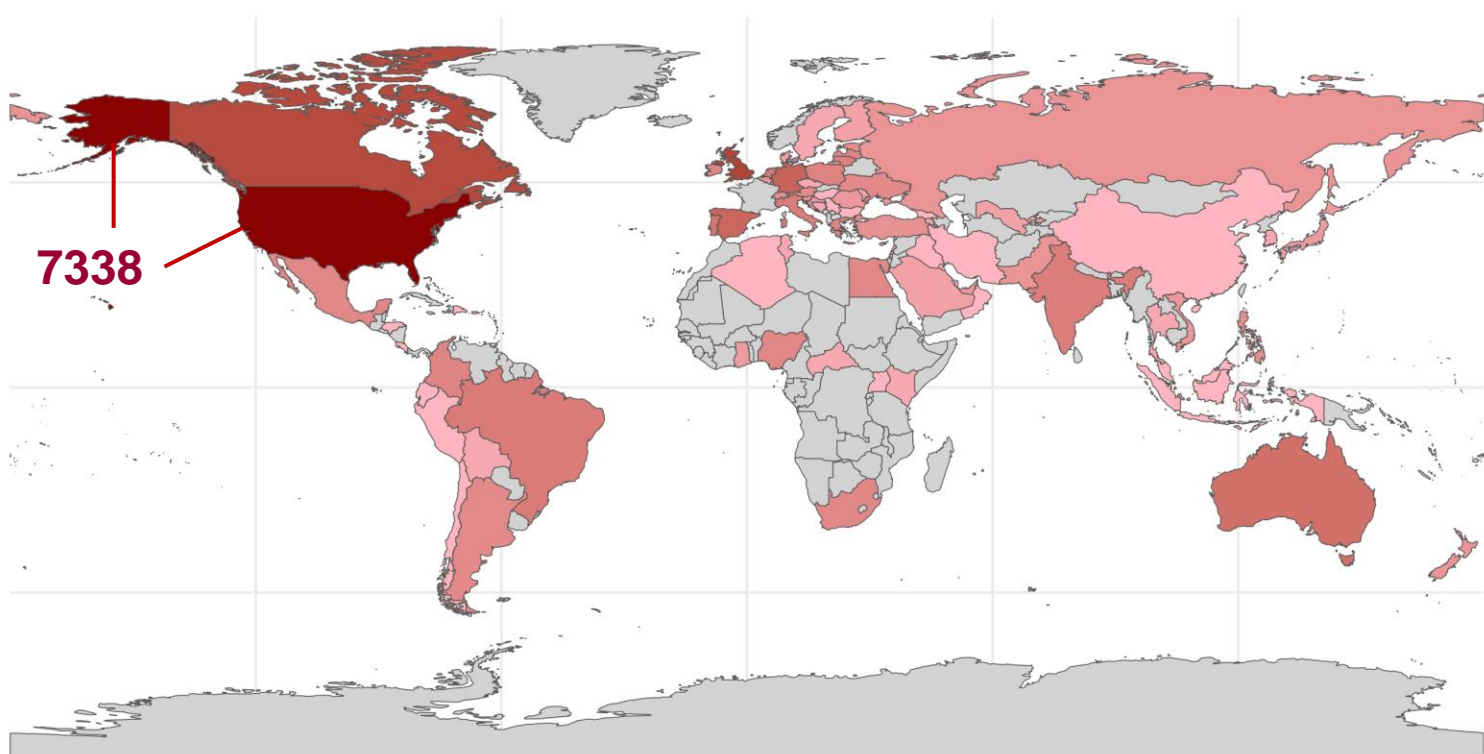
Motivation

Understanding salary trends is crucial for job seekers negotiating pay, employers strategizing talent acquisition, and industry professionals making career decisions. This analysis provides actionable insights to help stakeholders navigate the competitive and dynamic tech job market effectively.

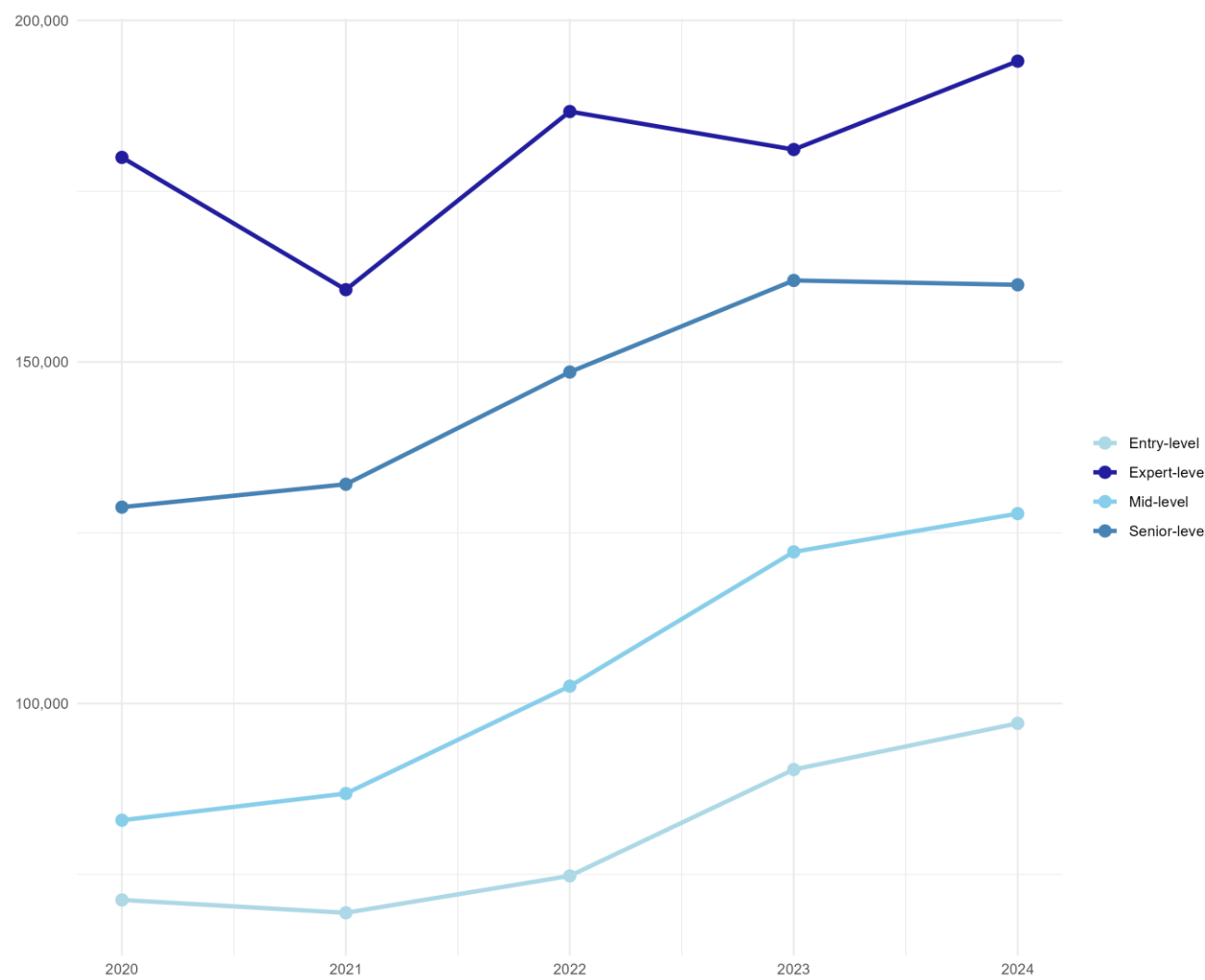
Data Description

The dataset includes salary data across roles in the tech industry, consisting of 14,838 observations and 11 variables. It contains attributes such as experience level, employment type, job title, remote ratio, and company size. The salary values are reported in USD, providing a standardized basis for global comparison and analysis.

Global Distribution of Job Titles

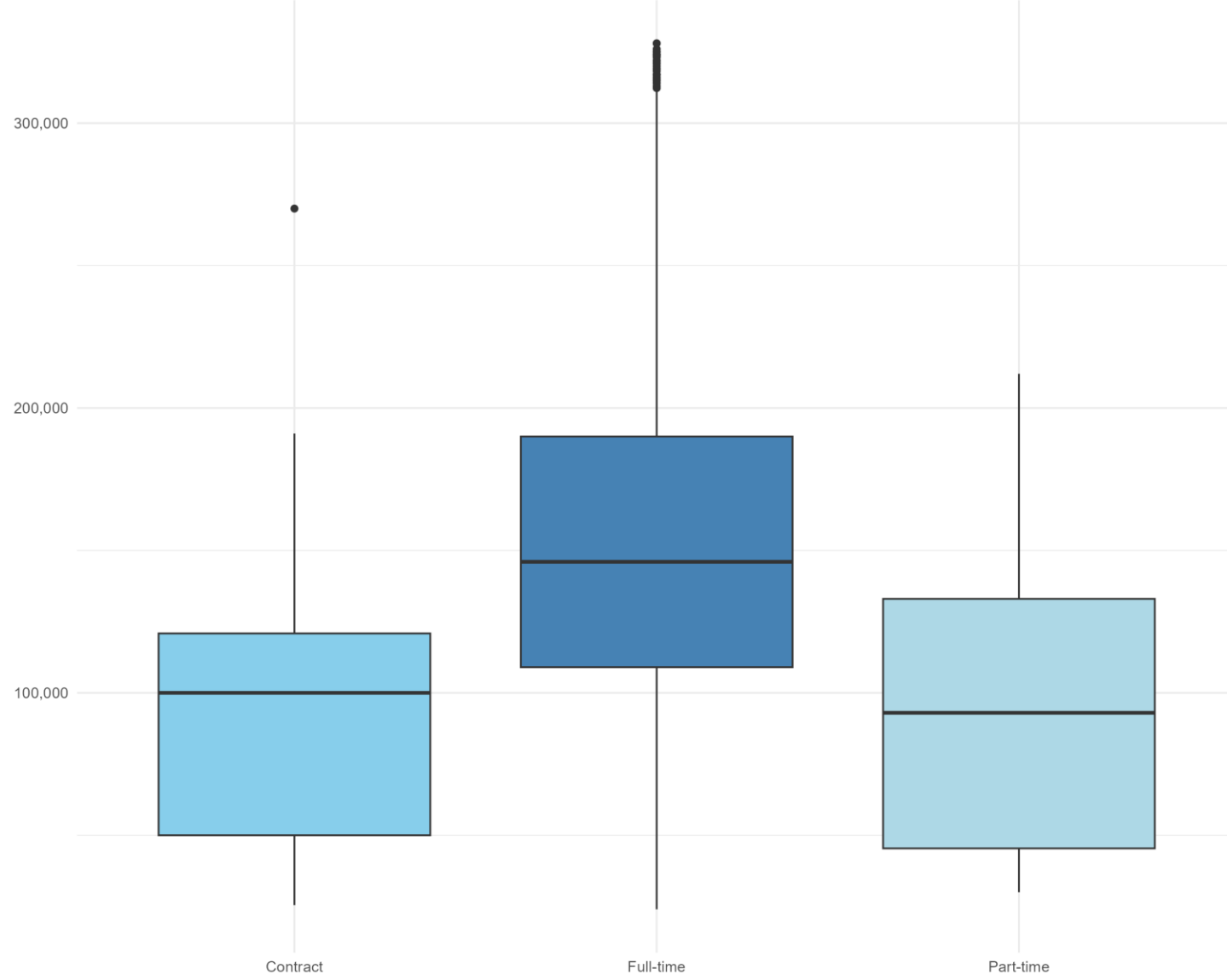


What is the salary trend across different experience levels over the years?



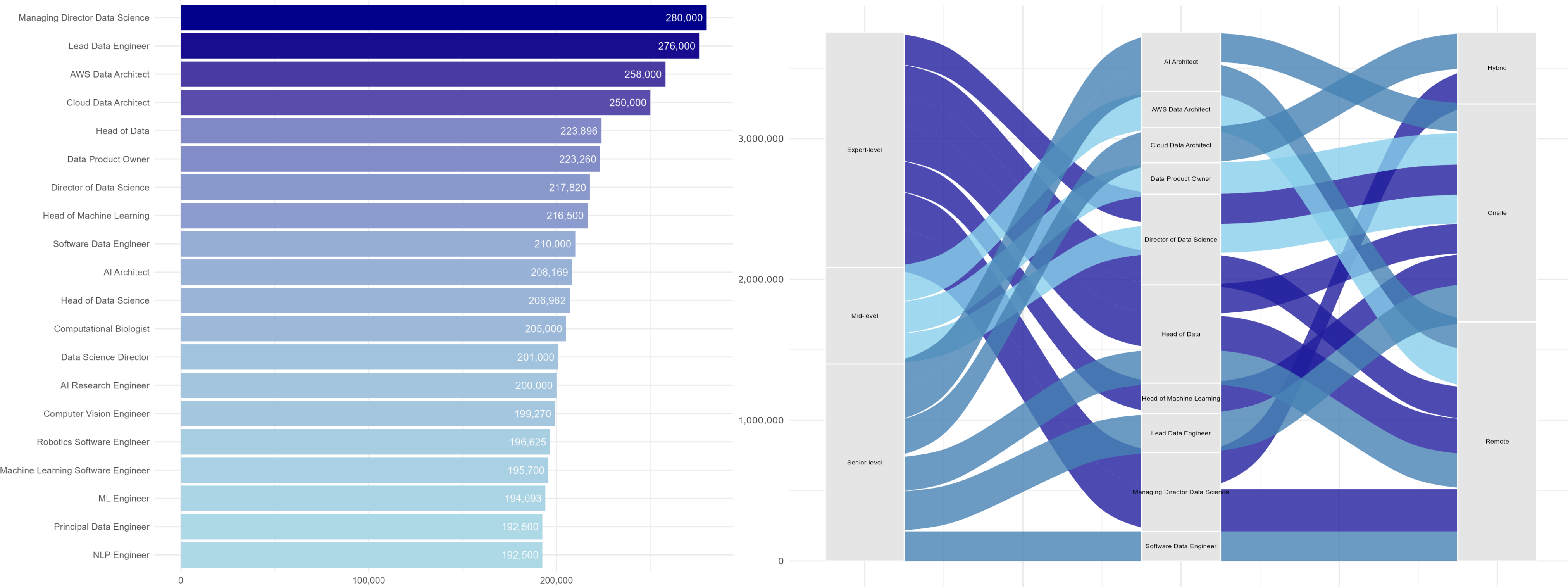
Entry-level salaries steadily increased from \$71,248 in 2020 to \$97,104 in 2024, indicating growing demand for new professionals. Mid-level salaries saw rapid growth, jumping from \$86,830 in 2021 to \$127,807 in 2024, while Senior-level salaries plateaued at around \$161,301 in 2024 after peaking in 2023. Expert-level professionals consistently earned the highest, with salaries rising from \$179,958 in 2020 to \$194,047 in 2024.

How do salaries vary by employment type?



The majority of employees are in the Full-time category, with significantly fewer in Contract and Part-time.

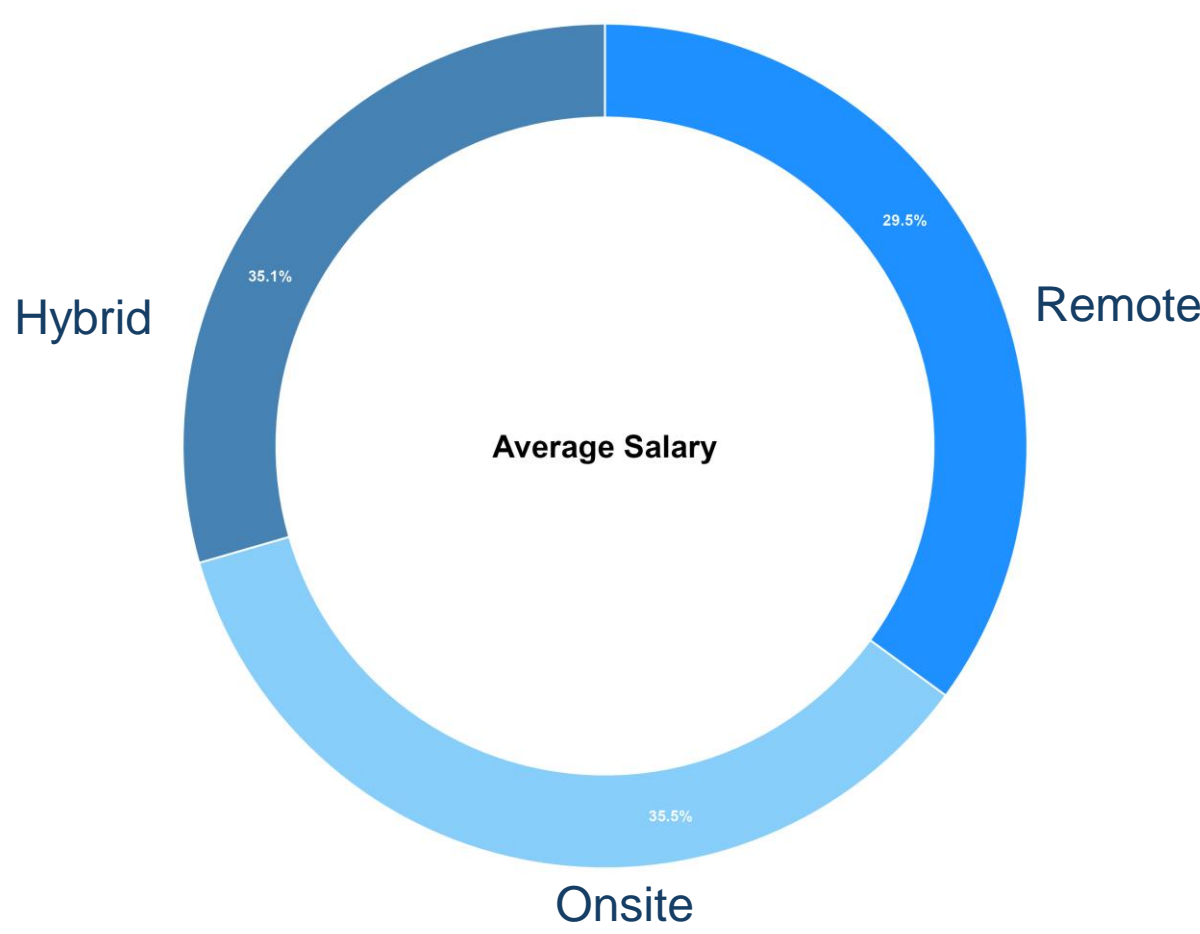
What are the top-paying job titles, and how do they differ by experience level and remote working ratio?



The highest-paying role is *Managing Director Data Science* with an average salary of \$280,000, followed by leadership and technical positions like *Lead Data Engineer* and *AWS Data Architect*. Salaries for the top 20 roles range from \$192,500 to \$280,000, highlighting strong demand for expertise in AI, data science, and machine learning. The prevalence of roles with "Data", "AI", and "Engineer" emphasizes the growing value of these specialized fields in the US.

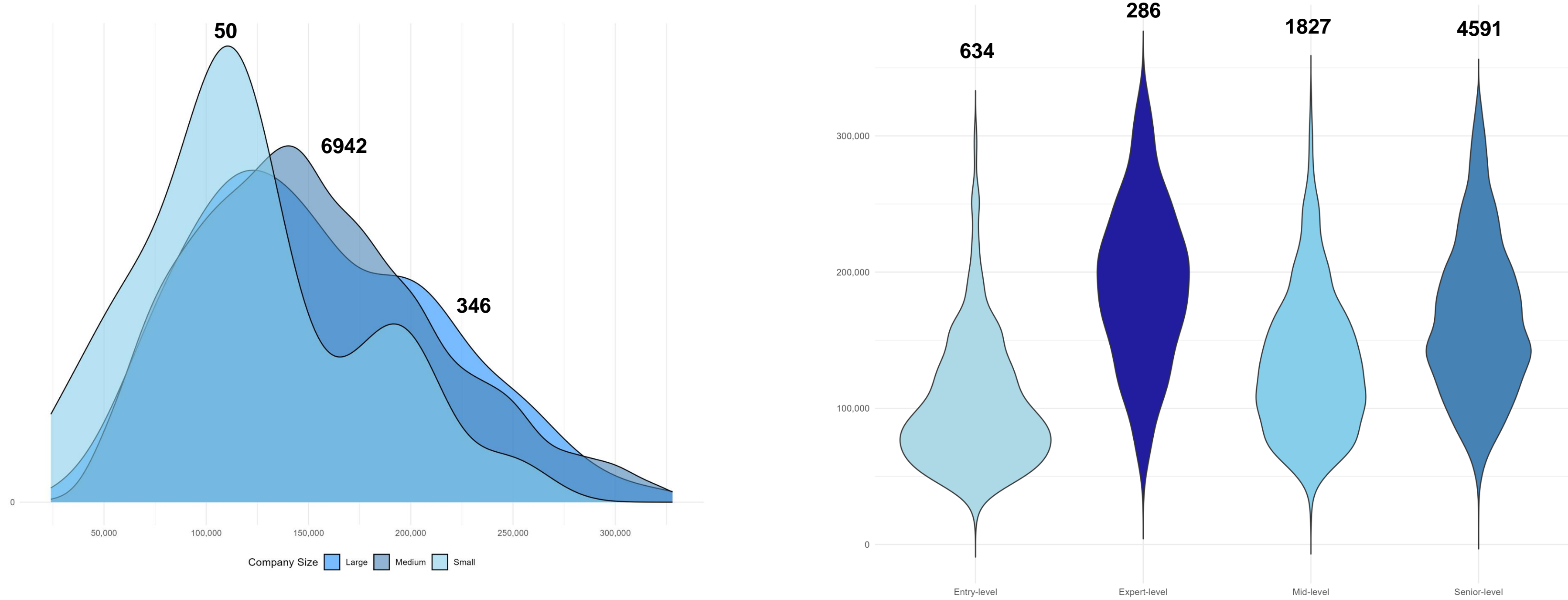
The plot shows how salary distribution varies across job titles, experience levels (Entry-level, Mid-level, Senior-level, Expert-level), and remote work setups (Onsite, Hybrid, Remote). The flow width represents the distribution of salary across these categories, with color coding indicating experience levels.

What is the impact of remote work ratios on salary distribution?



This donut plot shows that Hybrid and Remote work arrangements each account for around 35% of the total average salary, while Onsite work makes up approximately 29%. It visually highlights the differences in salary distribution across various remote work options.

How does the salary distribution differ across company sizes and employment level?



This KDE (Kernel Density Estimation) plot highlights the differences in salary distributions across small, medium, and large companies. It shows that large companies (346 employees) and medium companies (6,942 employees) have a broader salary range, while small companies (50 employees) display a more concentrated salary distribution.

Senior-level employees are the largest group (4,591), followed by Mid-level (1,827), Entry-level (634), and Expert-level (286). This highlights workforce composition and salary variation at different levels.

Source: <https://www.kaggle.com/datasets/saurabhbadole/latest-data-science-job-salaries-2024>

Tools: R studio

R libraries used: dplyr, ggplot2, rnatuarearth, natuarearthdata, ggalluvial.