

Dataset Overview

Dataset Information:

- Number of rows: 6599
- Number of columns: 12
- Columns: job_title, experience_level, employment_type, work_models, work_year, employee_residence, salary, salary_currency, salary_in_usd, company_location, company_size, job_title_grouped

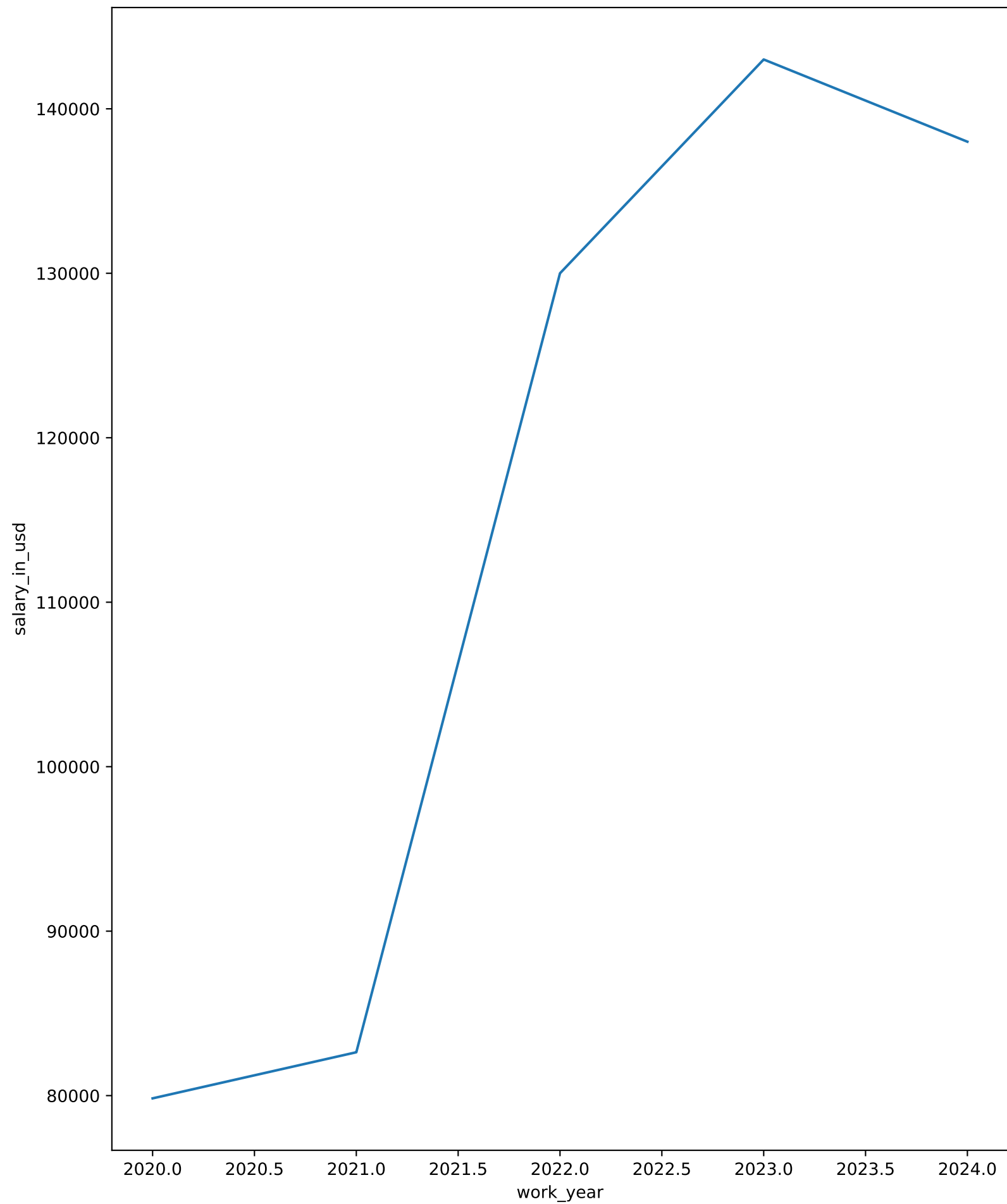
First 5 rows:

	job_title	experience_level	employment_type	work_models	work_year	employee_residence	salary	salary_currency	salary_in_usd	company_location	company_size	job_title_grouped
0	Data Engineer	Mid-level	Full-time	Remote	2024	United States	148100	USD	148100	United States	Medium	Data Engineer
1	Data Engineer	Mid-level	Full-time	Remote	2024	United States	98700	USD	98700	United States	Medium	Data Engineer
2	Data Scientist	Senior-level	Full-time	Remote	2024	United States	140032	USD	140032	United States	Medium	Data Scientist
3	Data Scientist	Senior-level	Full-time	Remote	2024	United States	100022	USD	100022	United States	Medium	Data Scientist
4	BI Developer	Mid-level	Full-time	On-site	2024	United States	120000	USD	120000	United States	Medium	BI Analyst

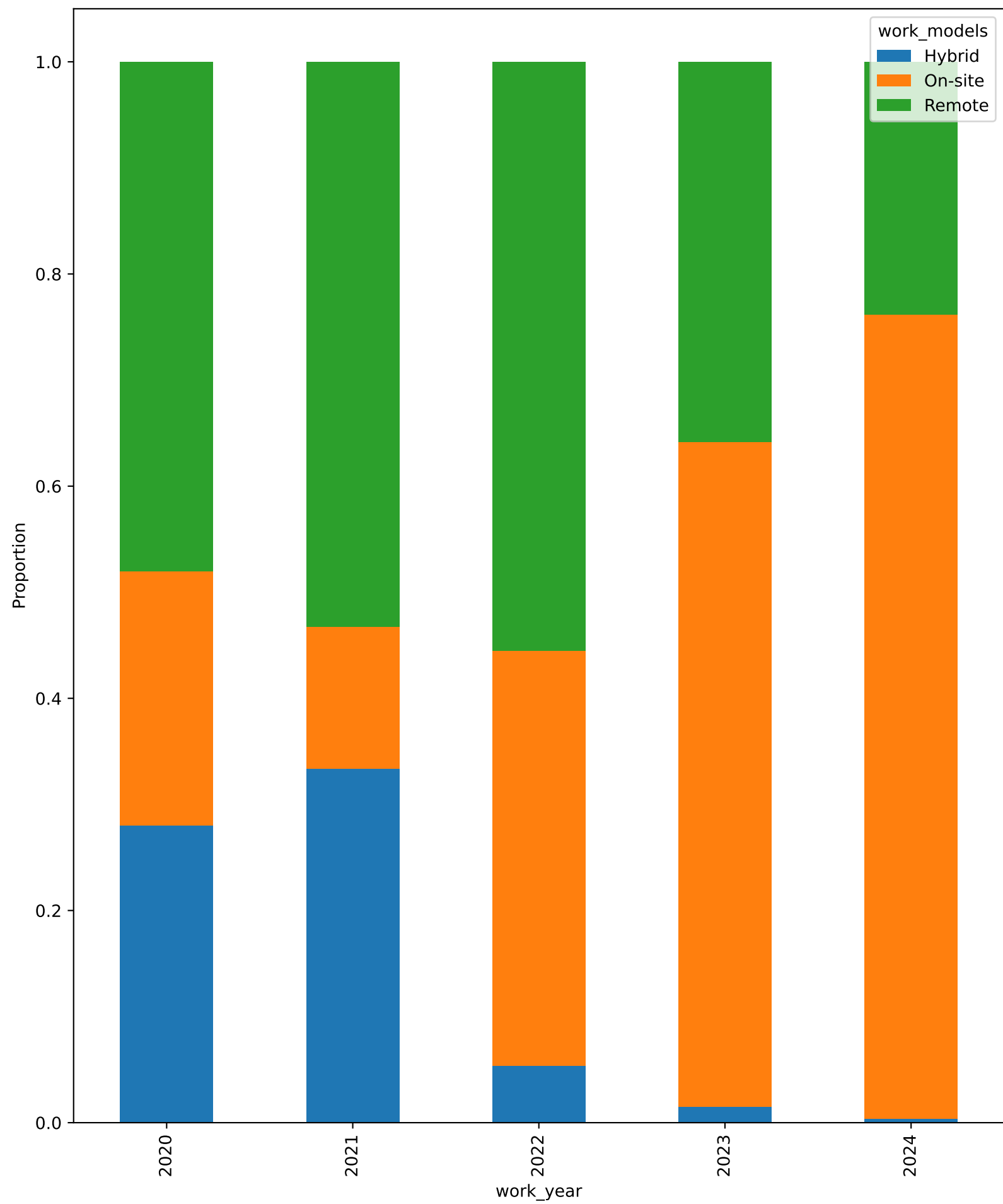
Data Types:

job_title	object
experience_level	object
employment_type	object
work_models	object
work_year	int64
employee_residence	object
salary	int64
salary_currency	object
salary_in_usd	int64
company_location	object
company_size	object
job_title_grouped	object

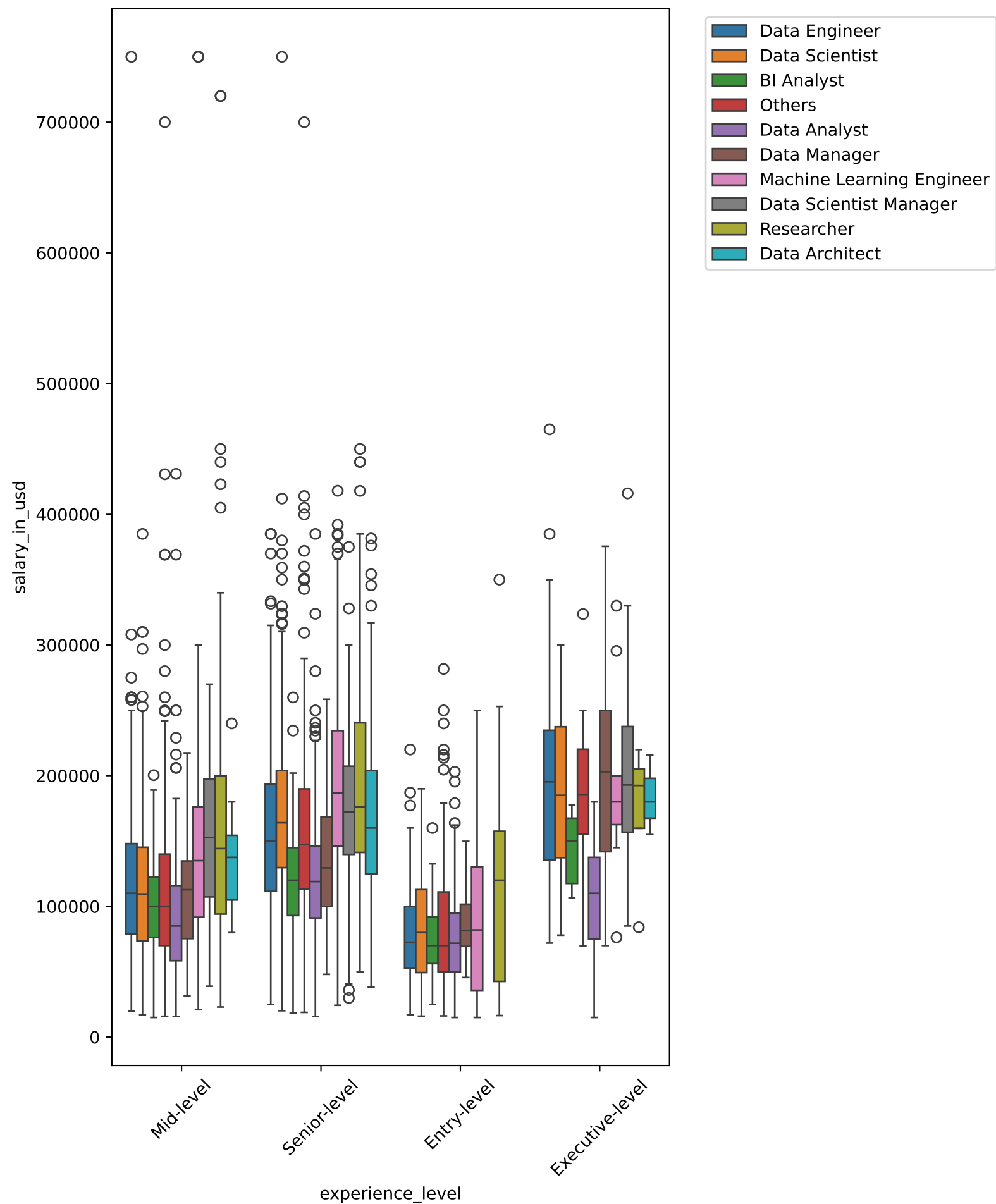
Median Salary Trend Over Years



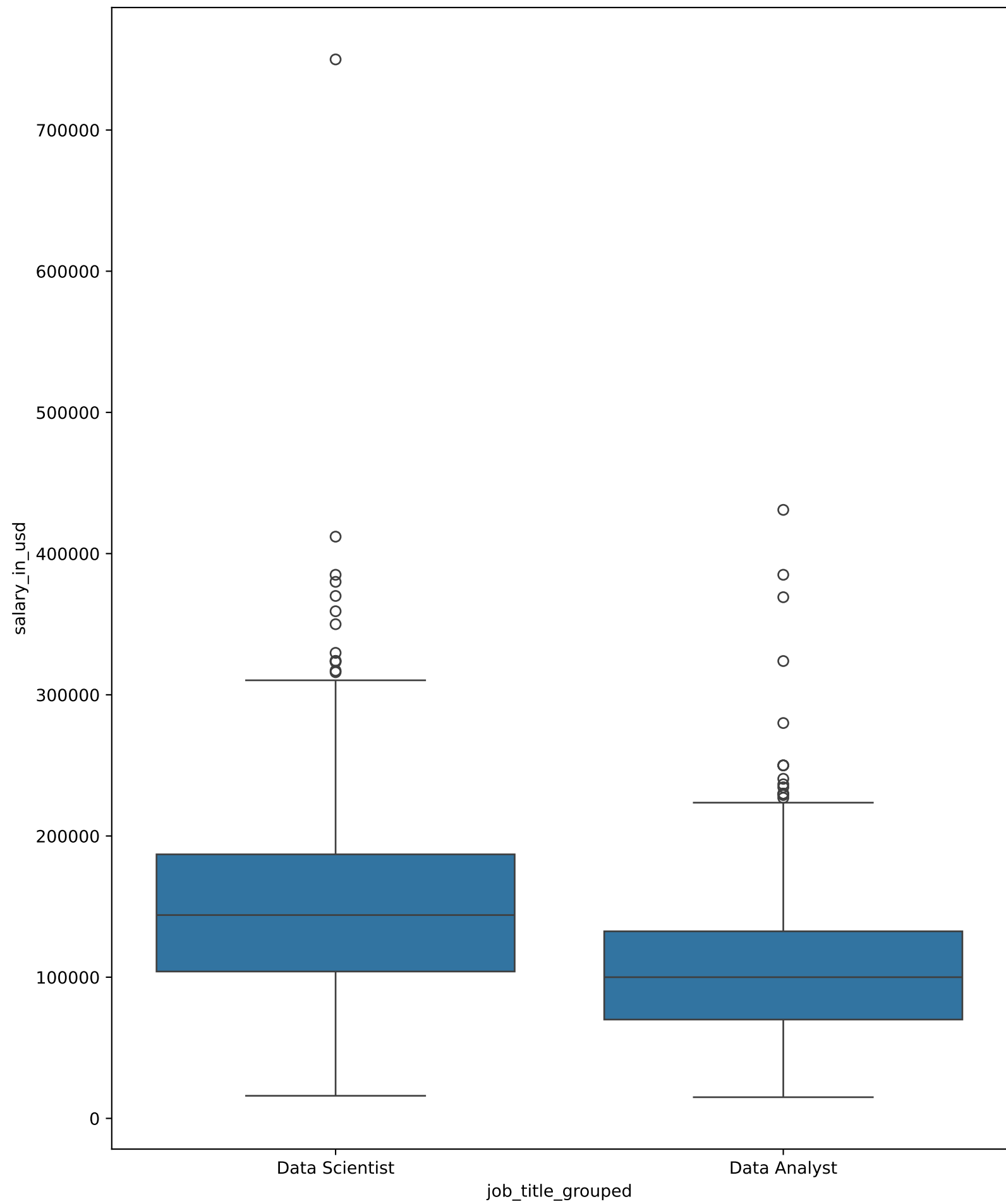
Remote Work Trend Over Years



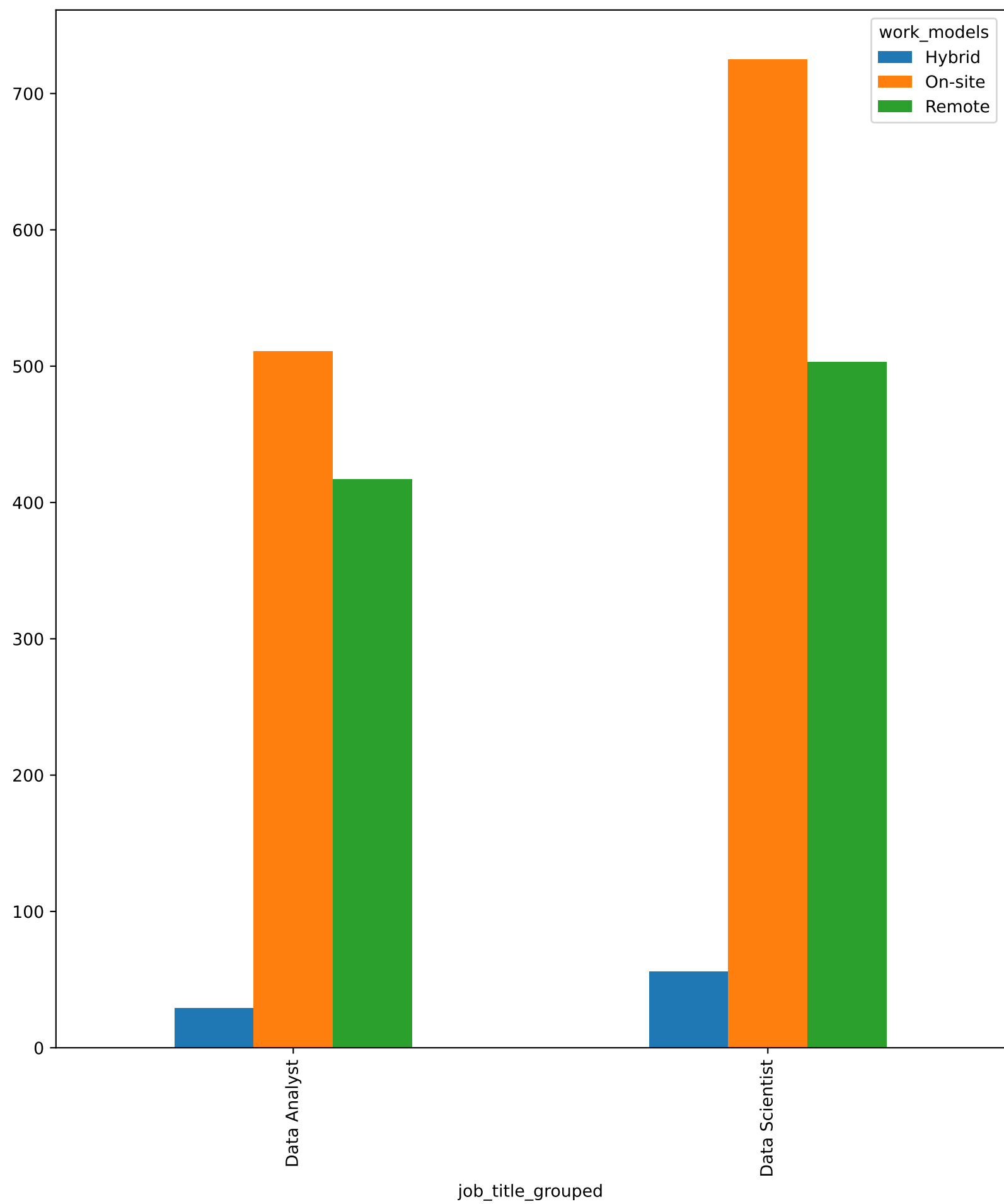
Salary Distribution by Experience Level and Job Role

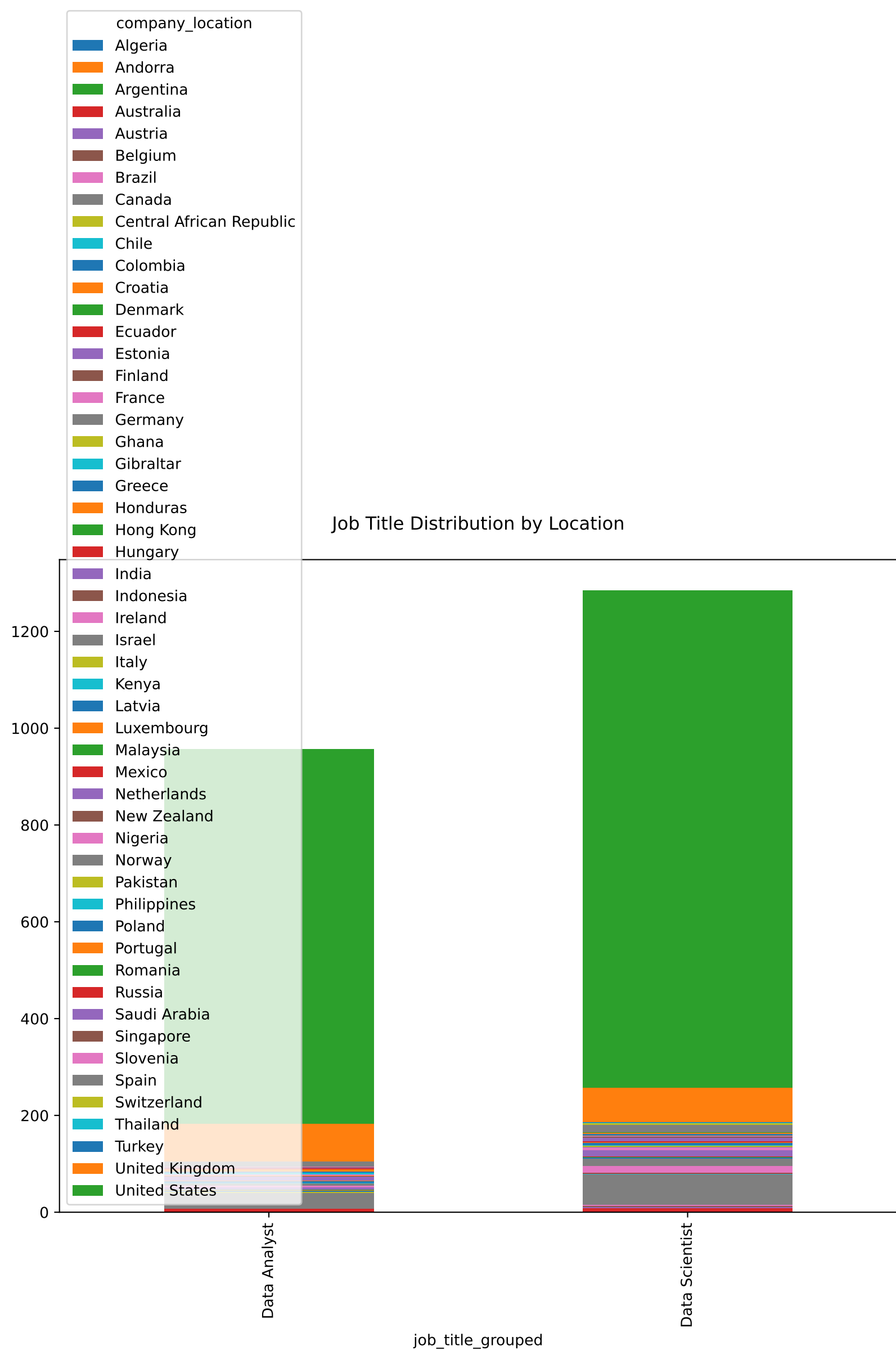


Salary Comparison: Data Analyst vs Data Scientist

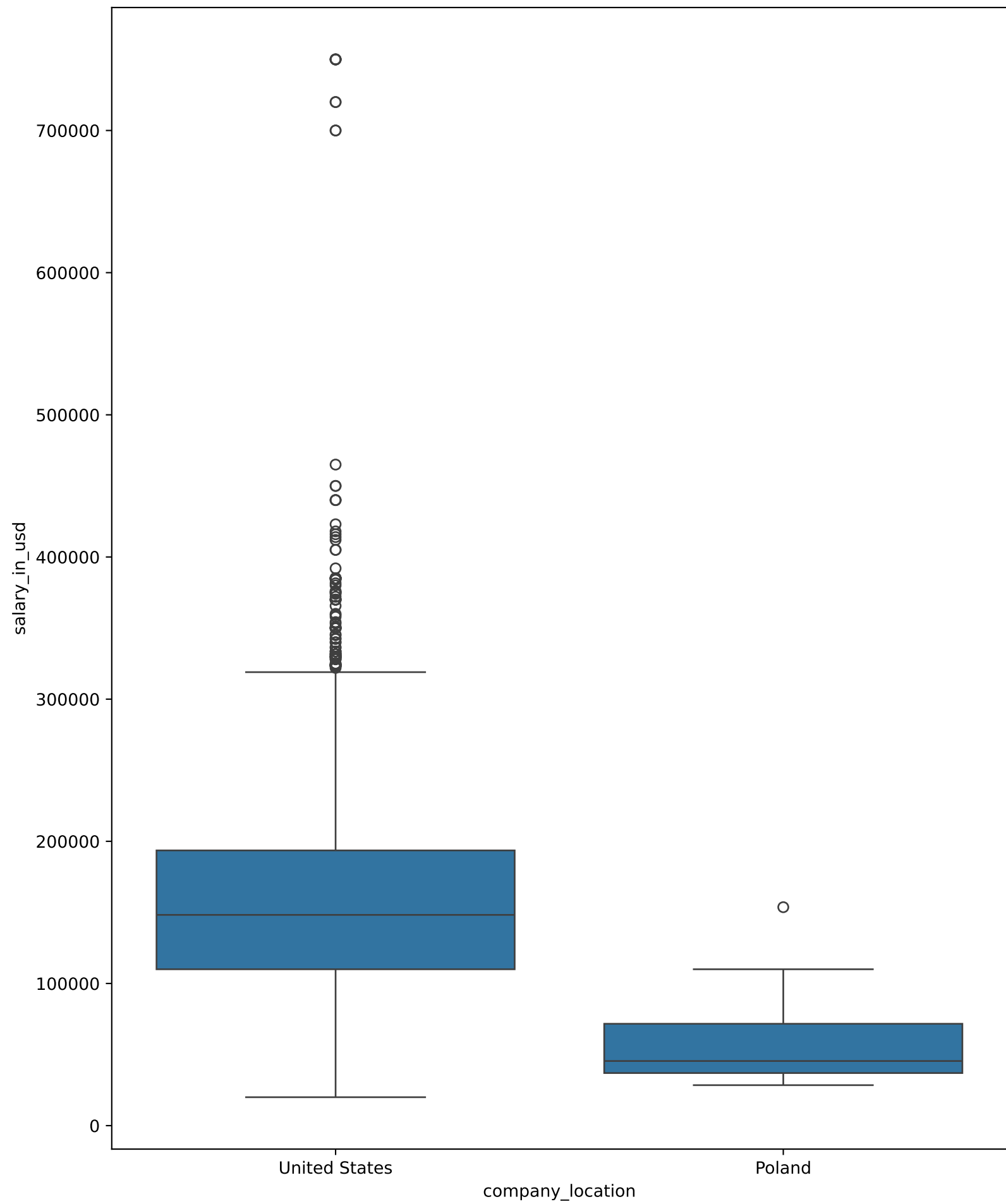


Work Model Preference: Data Analyst vs Data Scientist

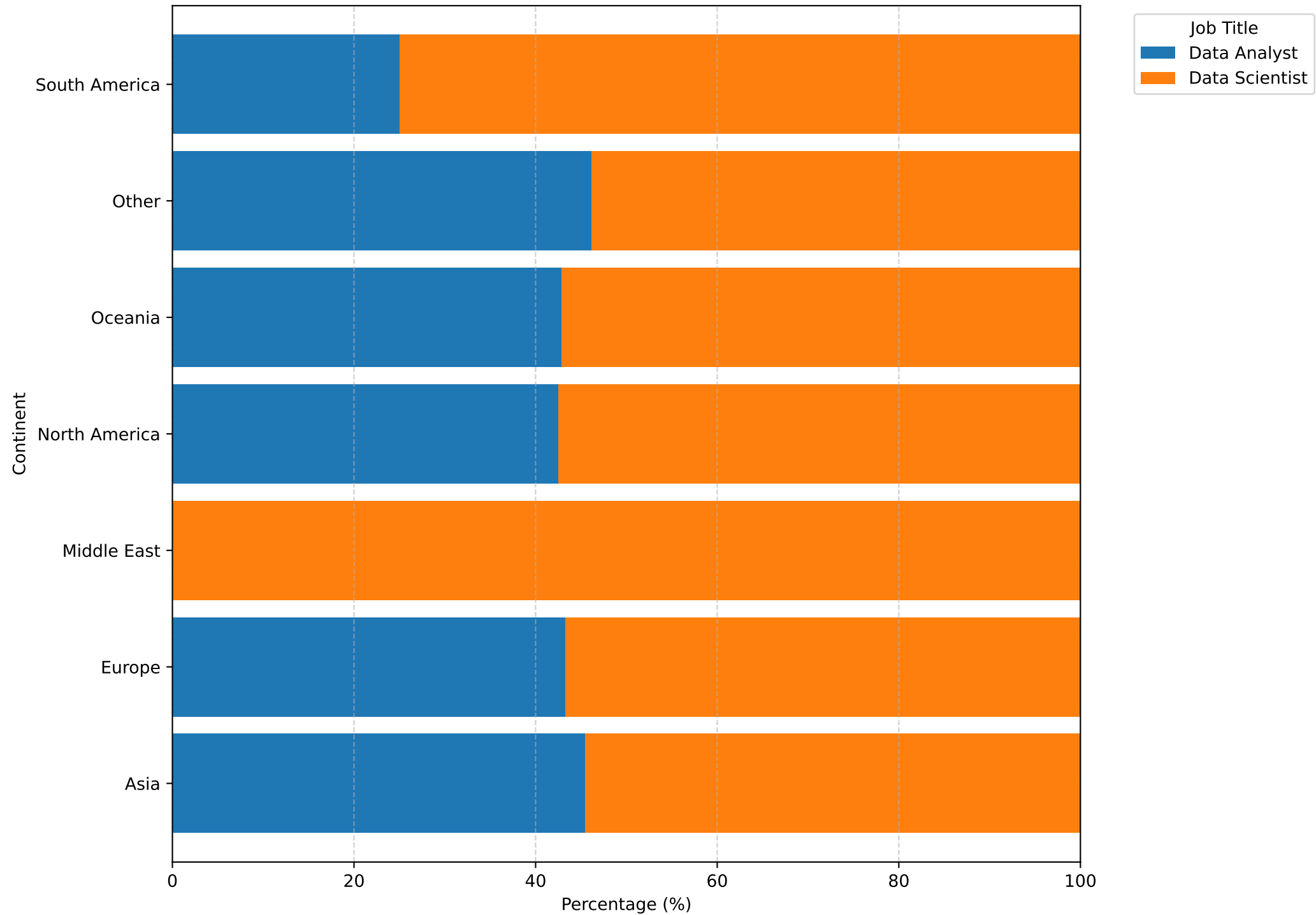




Salary Comparison: US vs Poland



Job Title Distribution by Continent (Percentage)



Outlier Detection

Outliers detected by Z-score method:

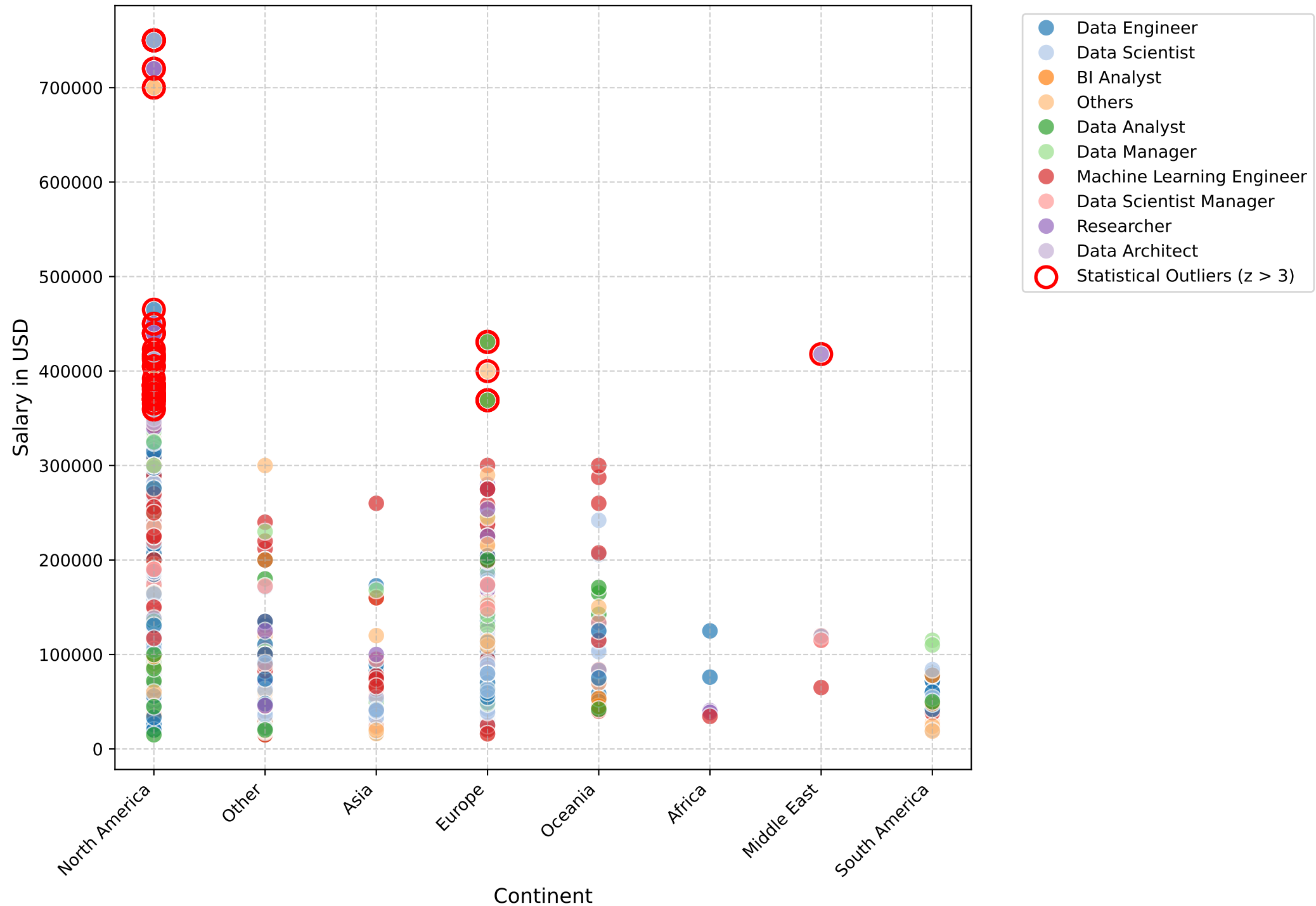
	job_title_grouped	experience_level	continent	salary_in_usd
82	Machine Learning Engineer	Senior-level	North America	418000
84	Researcher	Senior-level	North America	440000
111	Data Engineer	Senior-level	North America	385000
113	Data Scientist	Mid-level	North America	385000
129	Researcher	Mid-level	North America	440000
150	Researcher	Senior-level	North America	450000
170	Researcher	Senior-level	North America	440000
203	Others	Senior-level	North America	414000
213	Data Architect	Senior-level	North America	381500
296	Machine Learning Engineer	Mid-level	North America	750000
321	Researcher	Mid-level	North America	720000
329	Researcher	Mid-level	North America	720000
848	Machine Learning Engineer	Mid-level	North America	750000
852	Machine Learning Engineer	Mid-level	North America	750000
1041	Data Scientist	Senior-level	North America	359170
1095	Others	Senior-level	North America	700000
1278	Machine Learning Engineer	Senior-level	North America	370000
1354	Data Engineer	Executive-level	North America	465000
1355	Data Engineer	Executive-level	North America	385000
1509	Others	Mid-level	North America	700000
1540	Data Engineer	Mid-level	North America	750000
1611	Data Scientist	Senior-level	North America	750000
1858	Researcher	Senior-level	North America	370000
1992	Others	Senior-level	North America	372000
2094	Researcher	Senior-level	North America	370000
2337	Researcher	Mid-level	North America	405000
2433	Data Engineer	Senior-level	North America	385000
2453	Researcher	Senior-level	North America	385000
2465	Others	Senior-level	North America	360000
2697	Data Engineer	Senior-level	North America	385000
2768	Data Manager	Executive-level	North America	375500
2811	Machine Learning Engineer	Senior-level	North America	385000
2918	Data Engineer	Senior-level	North America	370000
2969	Data Scientist	Senior-level	North America	370000
3344	Machine Learning Engineer	Senior-level	North America	383910
3414	Machine Learning Engineer	Senior-level	North America	392000
3457	Machine Learning Engineer	Senior-level	North America	365630
3581	Researcher	Senior-level	North America	374000
4126	Data Architect	Senior-level	North America	376080
4306	Data Analyst	Senior-level	North America	385000
4571	Researcher	Senior-level	Middle East	417937
4666	Others	Mid-level	Europe	369120
4674	Others	Mid-level	Europe	369120
4676	Data Analyst	Mid-level	Europe	369120
4789	Others	Senior-level	Europe	399880
4830	Others	Mid-level	Europe	430640
5203	Machine Learning Engineer	Senior-level	North America	375000
5509	Data Scientist Manager	Senior-level	North America	375000
6031	Others	Senior-level	North America	405000
6032	Data Scientist	Senior-level	North America	380000
6120	Data Analyst	Mid-level	Europe	430967
6388	Data Scientist Manager	Executive-level	North America	416000
6403	Researcher	Mid-level	North America	423000
6529	Researcher	Mid-level	North America	450000
6554	Data Scientist	Senior-level	North America	412000

Outlier Detection

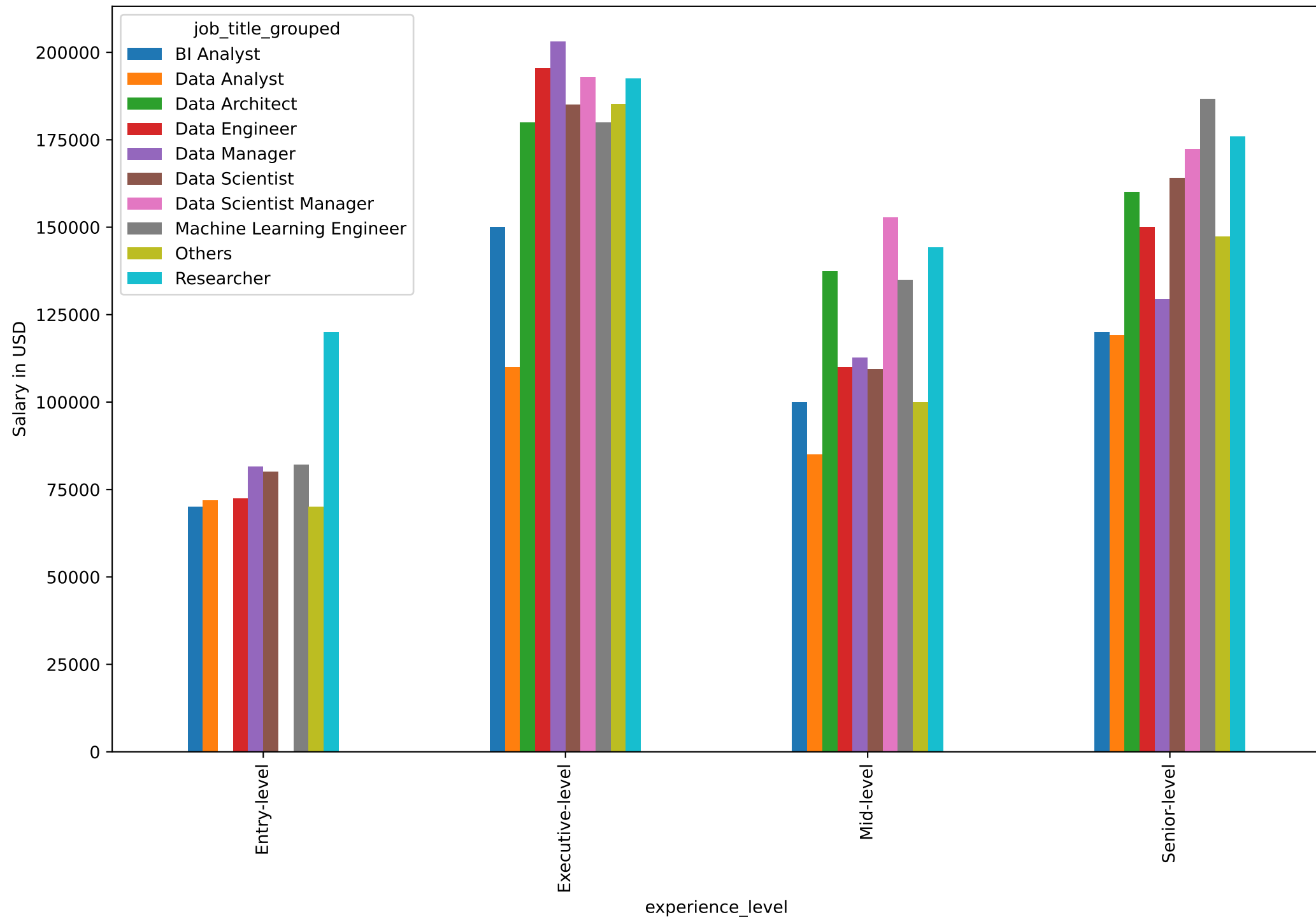
Outliers detected by IQR method:

	job_title_grouped	experience_level	continent	salary_in_usd
50	Machine Learning Engineer	Senior-level	North America	322000
68	Others	Executive-level	North America	323700
82	Machine Learning Engineer	Senior-level	North America	418000
84	Researcher	Senior-level	North America	440000
109	Machine Learning Engineer	Senior-level	North America	324000
111	Data Engineer	Senior-level	North America	385000
113	Data Scientist	Mid-level	North America	385000
129	Researcher	Mid-level	North America	440000
150	Researcher	Senior-level	North America	450000
162	Machine Learning Engineer	Senior-level	North America	331640
170	Researcher	Senior-level	North America	440000
195	Machine Learning Engineer	Senior-level	North America	357900
203	Others	Senior-level	North America	414000
213	Data Architect	Senior-level	North America	381500
241	Machine Learning Engineer	Senior-level	North America	324000
296	Machine Learning Engineer	Mid-level	North America	750000
321	Researcher	Mid-level	North America	720000
329	Researcher	Mid-level	North America	720000
400	Data Scientist	Senior-level	North America	324000
796	Data Engineer	Senior-level	North America	333500
848	Machine Learning Engineer	Mid-level	North America	750000
852	Machine Learning Engineer	Mid-level	North America	750000
854	Others	Senior-level	North America	351000
1041	Data Scientist	Senior-level	North America	359170
1054	Machine Learning Engineer	Senior-level	North America	331640
1058	Researcher	Entry-level	North America	350000
1095	Others	Senior-level	North America	700000
1278	Machine Learning Engineer	Senior-level	North America	370000
1287	Data Engineer	Executive-level	North America	350000
1354	Data Engineer	Executive-level	North America	465000
1355	Data Engineer	Executive-level	North America	385000
1509	Others	Mid-level	North America	700000
1540	Data Engineer	Mid-level	North America	750000
1611	Data Scientist	Senior-level	North America	750000
1625	Machine Learning Engineer	Senior-level	North America	331640
1689	Machine Learning Engineer	Senior-level	North America	336300
1704	Researcher	Senior-level	North America	323300
1737	Machine Learning Engineer	Senior-level	North America	324000
1858	Researcher	Senior-level	North America	370000
1900	Machine Learning Engineer	Senior-level	North America	333500
1904	Data Architect	Senior-level	North America	354200
1952	Machine Learning Engineer	Senior-level	North America	328400
1971	Data Scientist	Senior-level	North America	329700
1992	Others	Senior-level	North America	372000
2094	Researcher	Senior-level	North America	370000
2145	Machine Learning Engineer	Senior-level	North America	324000
2337	Researcher	Mid-level	North America	405000
2353	Data Manager	Executive-level	North America	353200
2429	Others	Senior-level	North America	350000
2433	Data Engineer	Senior-level	North America	385000
2453	Researcher	Senior-level	North America	385000
2465	Others	Senior-level	North America	360000
2526	Machine Learning Engineer	Senior-level	North America	330000
2572	Data Scientist	Senior-level	North America	324000
2664	Machine Learning Engineer	Executive-level	North America	330000
2676	Data Manager	Executive-level	North America	329500
2690	Machine Learning Engineer	Senior-level	North America	340000
2697	Data Engineer	Senior-level	North America	385000
2708	Machine Learning Engineer	Senior-level	North America	330000
2716	Machine Learning Engineer	Senior-level	North America	328133
2768	Data Manager	Executive-level	North America	375500
2811	Machine Learning Engineer	Senior-level	North America	385000
2844	Machine Learning Engineer	Senior-level	North America	323300
2918	Data Engineer	Senior-level	North America	370000
2969	Data Scientist	Senior-level	North America	370000
3001	Data Architect	Senior-level	North America	330000
3007	Machine Learning Engineer	Senior-level	North America	325000
3065	Data Scientist	Senior-level	North America	323300
3094	Others	Senior-level	North America	350000
3344	Machine Learning Engineer	Senior-level	North America	383910
3414	Machine Learning Engineer	Senior-level	North America	392000
3434	Researcher	Senior-level	North America	331640
3441	Data Engineer	Senior-level	North America	331640
3457	Machine Learning Engineer	Senior-level	North America	365630
3526	Data Scientist Manager	Executive-level	North America	330000
3547	Researcher	Senior-level	North America	345000
3581	Researcher	Senior-level	North America	374000
3702	Data Engineer	Executive-level	North America	333500
3765	Data Manager	Executive-level	North America	329500
3783	Data Scientist Manager	Senior-level	North America	328000
3835	Data Analyst	Senior-level	North America	323905
3849	Data Manager	Executive-level	North America	336400
3915	Others	Senior-level	North America	342810
3955	Machine Learning Engineer	Senior-level	North America	342300
4126	Data Architect	Senior-level	North America	376080
4185	Researcher	Mid-level	North America	340000
4306	Data Analyst	Senior-level	North America	385000
4342	Others	Senior-level	North America	350000
4571	Researcher	Senior-level	Middle East	417937
4666	Others	Mid-level	Europe	369120
4674	Others	Mid-level	Europe	369120
4676	Data Analyst	Mid-level	Europe	369120
4789	Others	Senior-level	Europe	399880
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5509	Data Scientist Manager	Senior-level	North America	375000
5514	Data Scientist	Senior-level	North America	350000
5607	Data Architect	Senior-level	North America	345600
6016	Data Engineer	Executive-level	North America	324000
6031	Others	Senior-level	North America	405000
6032	Data Scientist	Senior-level	North America	380000
6120	Data Analyst	Mid-level	Europe	430967
6388	Data Scientist Manager	Executive-level	North America	416000
6403	Researcher	Mid-level	North America	423000
6529	Researcher	Mid-level	North America	450000
6546	Data Manager	Executive-level	North America	325000
6554	Data Scientist	Senior-level	North America	412000

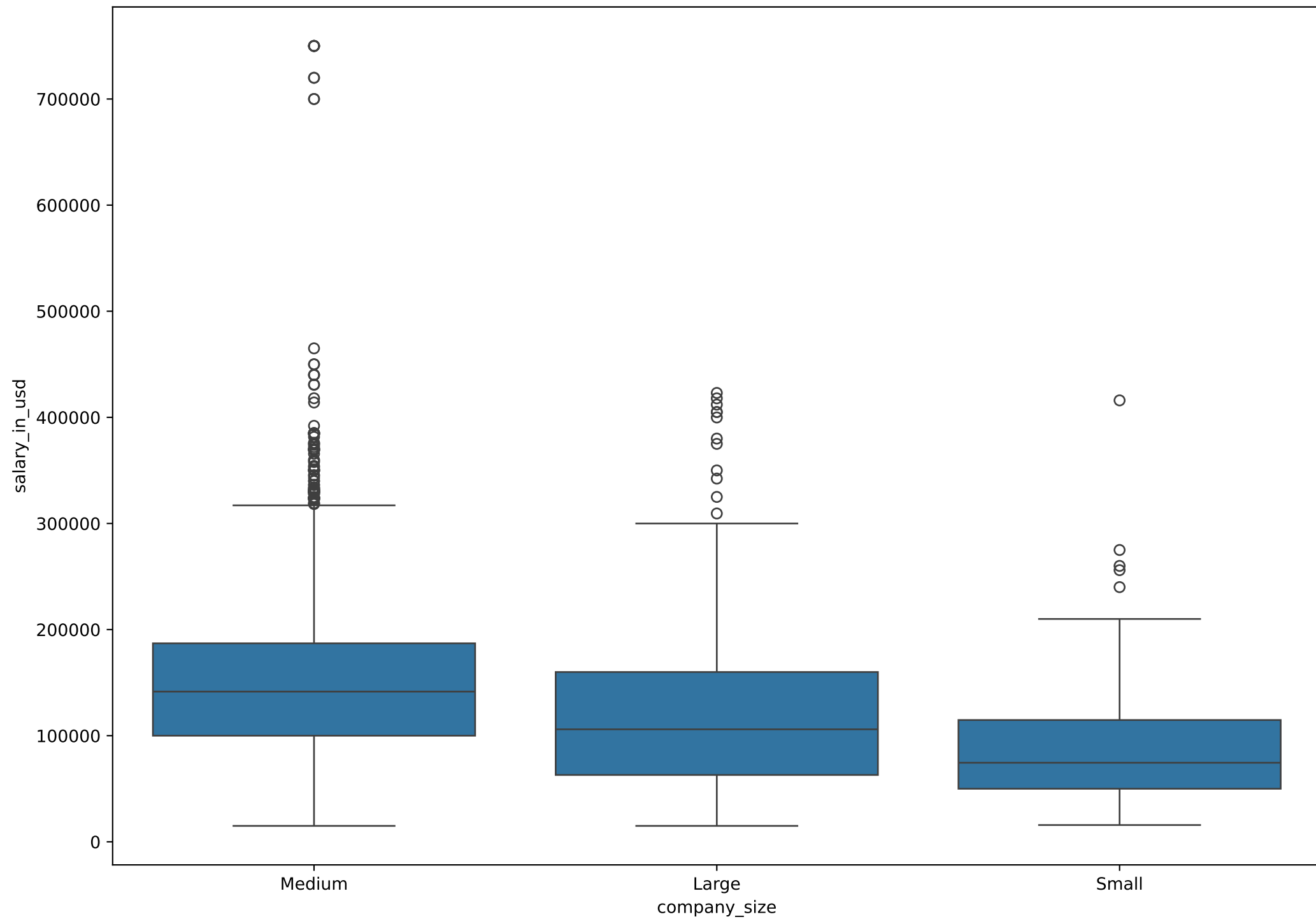
Salary Outliers by Continent and Job Title



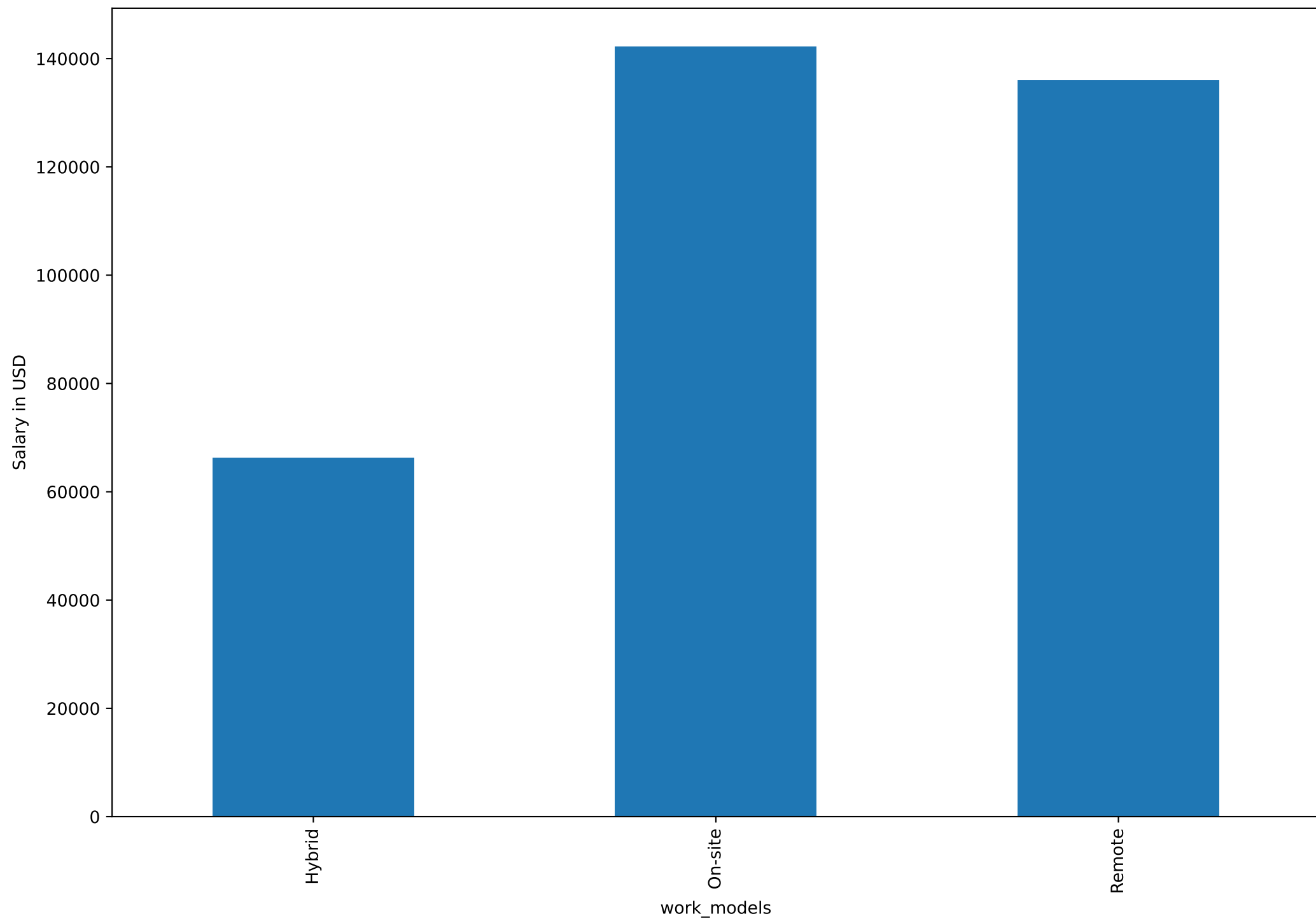
Median Salary by Experience Level and Job Title



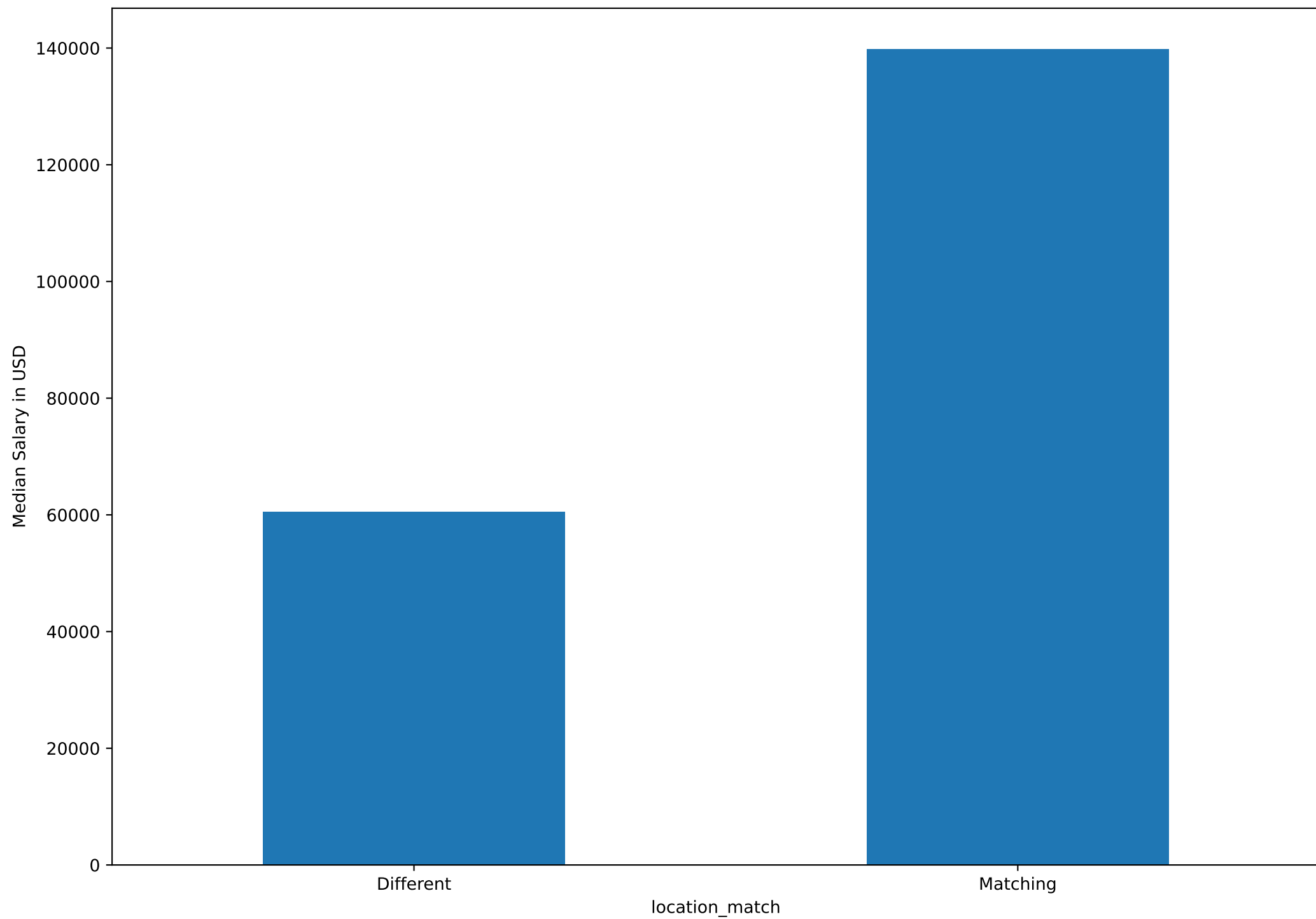
Salary Distribution by Company Size



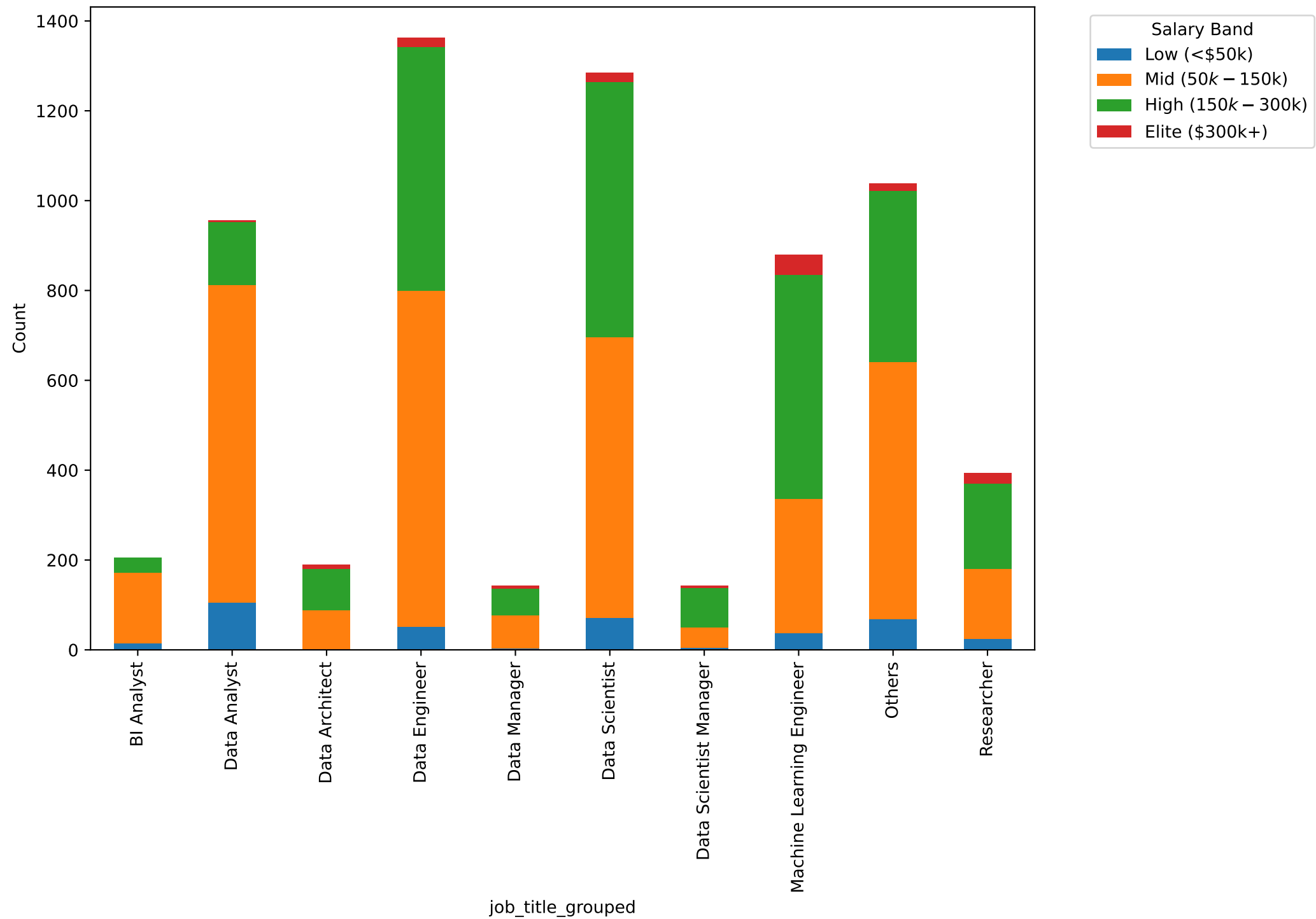
Median Salary by Work Model



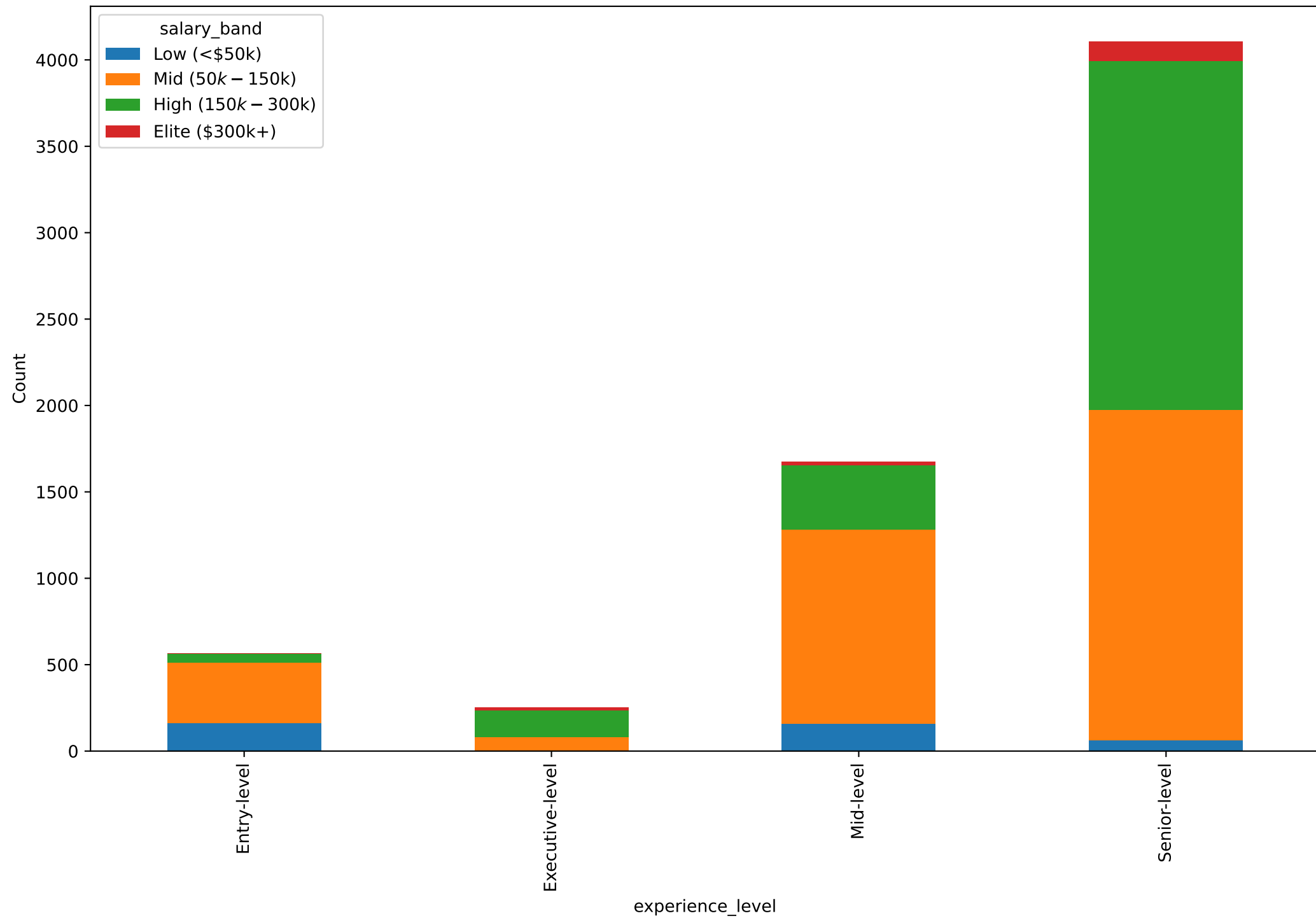
Salary Comparison: Matching vs Different Locations



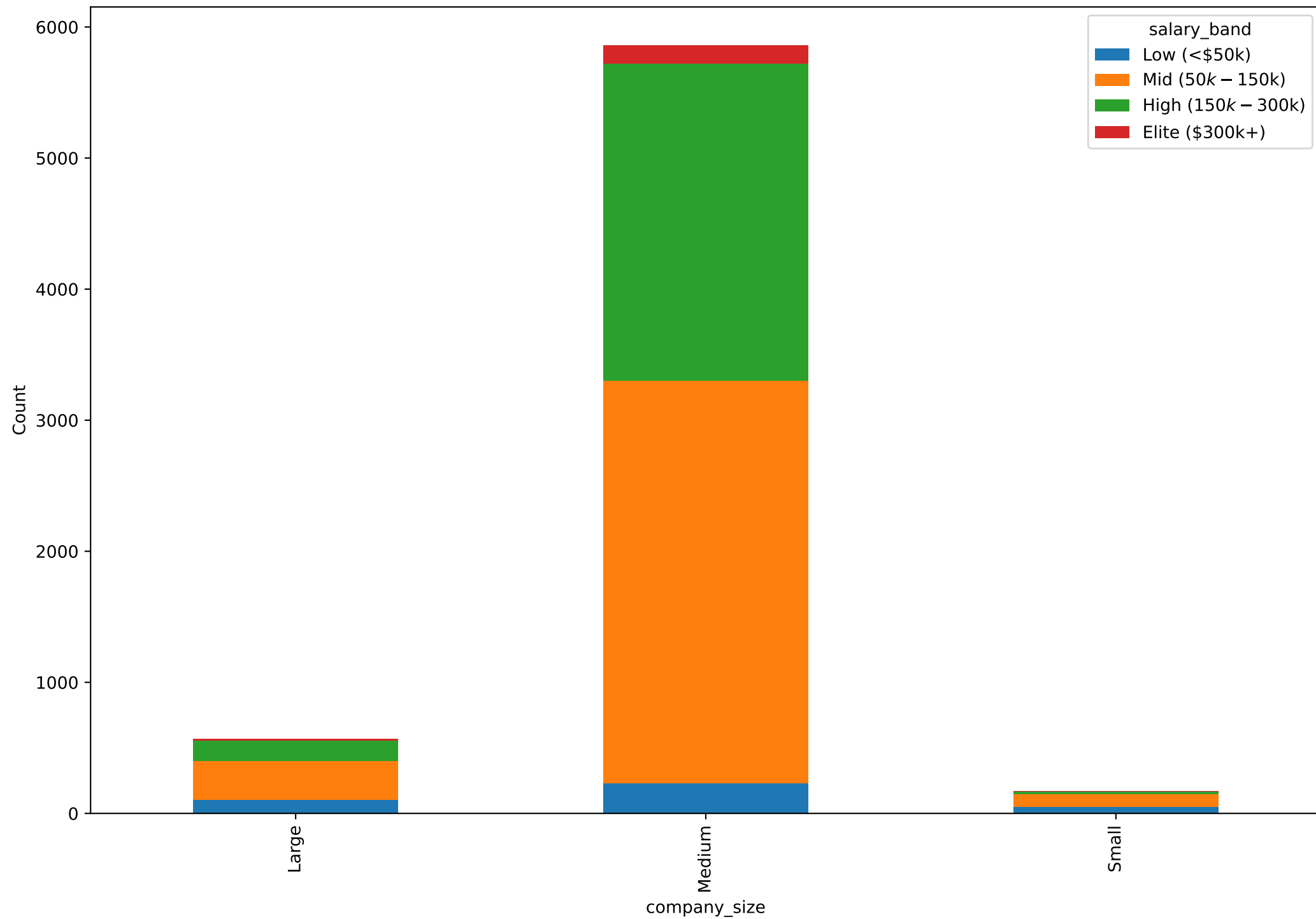
Job Title Distribution Across Salary Bands



Experience Level Distribution Across Salary Bands



Company Size Distribution Across Salary Bands



Key Metrics and Top Lists

Remote work premium (average difference): \$-12,049.96

Top 5 Overpaid Roles vs Market Average:

job_title_grouped	
Machine Learning Engineer	32713.598249
Data Scientist Manager	28439.714158
Researcher	27545.855136
Data Architect	21080.736167
Data Manager	12650.714158

Top 5 Underpaid Roles vs Market Average:

job_title_grouped	
Data Analyst	-40071.402875
BI Analyst	-36560.558569
Others	-5734.706789
Data Engineer	-1004.383955
Data Scientist	2869.812147

Top 5 Countries with Highest Remote Work Adoption:

company_location	
Argentina	1.0
Ecuador	1.0
Saudi Arabia	1.0
Qatar	1.0
Puerto Rico	1.0

Top 5 Job Titles with Highest Experience Diversity:

job_title_grouped	
BI Analyst	4
Data Analyst	4
Data Engineer	4
Data Manager	4
Data Scientist	4

Final Insights and Recommendations

Global Tech Job Market Insights:

- Average salary across all roles: \$145,560.56
- Most common job title: Data Engineer
- Remote work percentage: 38.8%

Highest Paid Individual:

- Role: Machine Learning Engineer
- Experience: Mid-level
- Location: United States
- Salary: \$750,000.00

Job Seeker Recommendations:

- Consider remote roles for potential salary premiums
- Target senior-level positions in high-paying countries
- Research company size as it affects compensation
- Some roles have wider salary bands than others

Analysis Questions Covered & Key Takeaways

Questions Explored in This Analysis:

1. Pattern Discovery:

- How have salaries trended over recent years?
- How has remote work adoption changed over time?
- How does salary growth vary by experience level across different roles?

2. Storytelling with Contrasts:

- How do salaries compare between Data Analysts and Data Scientists?
- What are the work model preferences for different roles?
- How does job title distribution vary by continent?
- How do salaries compare between different regions (e.g., US vs Poland)?

3. Anomaly & Outlier Investigation:

- Which salary values are statistical outliers?
- Where are these outliers concentrated by location and job title?

4. Insight-Driven Questions:

- Which roles offer the highest salaries per experience level?
- How does company size affect salaries?
- Is there a pay premium for remote work?
- Does location matching (company vs employee) affect salaries?

5. Salary Bands Analysis:

- How are different job titles distributed across salary bands?
- How does experience level distribute across salary bands?
- How does company size distribute across salary bands?

6. Derived Metrics:

- What is the salary per year of experience?
- What is the remote work salary premium?

7. Top N Lists:

- Which roles are most overpaid/underpaid vs market average?
- Which countries have highest remote work adoption?
- Which roles have most experience diversity?

Key Recommendations:

1. Consider continental salary differences when job hunting
2. Target roles with highest salary growth potential
3. Remote work offers both flexibility and potential pay premiums
4. Larger companies tend to offer higher salaries for senior roles
5. Some roles have wider salary bands than others - negotiate carefully