J-O-K-E

AI IMPACT



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Topic & Motivation

Question: Do higher-paying jobs face higher or lower overall threat levels from AI (riskLevel) compared to lower-paying jobs?

Our Hypothesis: Higher-paying jobs will face higher AI threat levels (riskLevel) because current AI tools excel at cognitive and data-driven tasks.

Motivation: As AI raises concerns about job security, college students are reconsidering their career paths. Since higher-paying jobs often require specialized education, we want to explore whether higher salaries are associated with greater or lower risk of AI displacement.

The Data

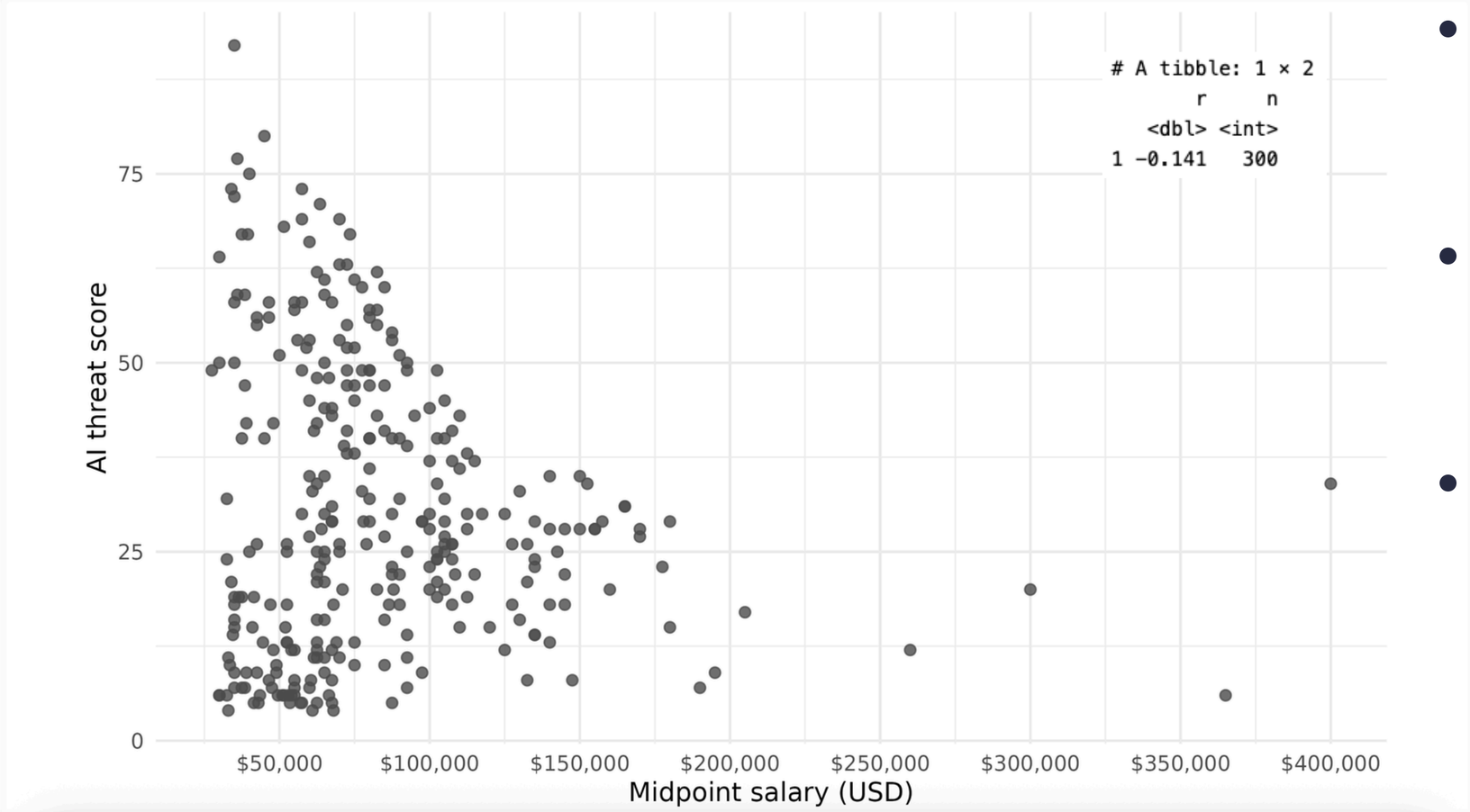
- Open-source data set evaluating 300 US occupations on AI displacement risk, using a published scoring rubric informed by O*NET, BLS, and AI Adoption Research

Key variables:

- **salary_mid (Average Salary):** Midpoint of each occupation's estimated salary range, calculated as ((salary_low_usd + salary_high_usd) / 2)
- **score (AI Threat Score):** Scored from 0-100; higher scores indicate greater AI displacement risk
  - based on 4 factors: task automation potential, AI tool maturity, employer adoption, and autonomous AI capabilities
  - scores are rubric-based estimates, each supported by written explanations

Scatterplot

Pay and AI Threat are Weakly Related

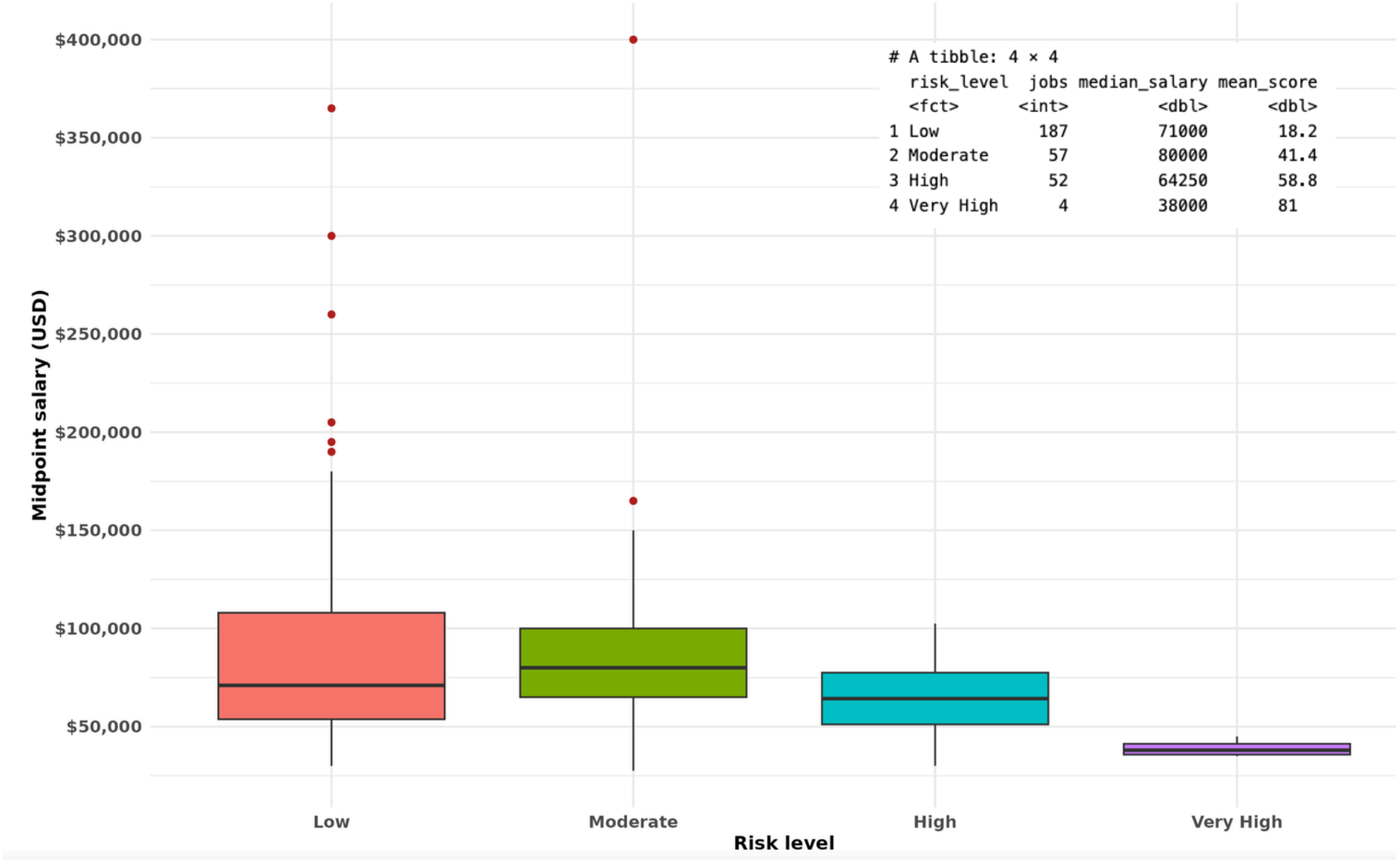


- r = -0.141, showing a weak relationship between Midpoint Salary and AI Threat Score
- Jobs scoring above a 75 AI threat score all have midpoint salaries below about $50,000
- Above $150,000, there are few jobs, and none score above about 35

Footnote: Salary is the midpoint of each job's reported range. The high-salary pattern rests on a small number of jobs.

Salary by Risk Level

Median Pay Doesn’t Fall Steadily as Risk Level Rises




```
# A tibble: 4 × 4
  risk_level  jobs median_salary mean_score
  <fct>      <int>         <dbl>      <dbl>
1 Low          187         71000       18.2
2 Moderate      57         80000       41.4
3 High          52         64250       58.8
4 Very High      4         38000       81
```

- **Median midpoint salary:** $71,000 for Low risk, $80,000 for Moderate, and $64,250 for High.
- **Takeaway:** Moderate-risk jobs have the highest median pay, and pay doesn’t fall steadily as risk rises.
- **Very High caution:** Only four jobs fall in this group, so its $38,000 median is unreliable.

Footnote: Salary is the midpoint of each job’s reported range. Boxes show the middle 50% of salaries, and red dots mark outliers.

Summary Table

A Collection of Three Summary Tables

Category Mean Scores with Median Salary:

A tibble: 15 × 4

	category	jobs	mean_score	median_salary
	<chr>	<int>	<dbl>	<dbl>
1	Administrative & Operations	20	57.8	45750
2	Marketing & Sales	20	45.9	71250
3	HR & Recruiting	10	44.1	81250
4	Legal	12	43.2	72000
5	Business & Finance	25	38.7	82500
6	Creative	20	38.2	66250
7	Project & Product Management	8	33	128750
8	Technology	30	31.7	135000
9	Education	15	29.2	65000
10	Science & Engineering	20	26.8	103750
11	Hospitality, Food & Personal Ser…	25	22	37500
12	Public Service & Safety	15	21.8	67500
13	Transportation & Logistics	20	20.6	53750
14	Healthcare	30	20.2	86250
15	Skilled Trades & Construction	30	9.87	55500

Salary Risk Summary:

A tibble: 4 × 4

	risk_level	jobs	median_salary	mean_score
	<fct>	<int>	<dbl>	<dbl>
1	Low	187	71000	18.2
2	Moderate	57	80000	41.4
3	High	52	64250	58.8
4	Very High	4	38000	81

Top Jobs by Score:

A tibble: 10 × 5

	title	category	score	risk_level	salary_mid
	<chr>	<chr>	<dbl>	<chr>	<dbl>
1	Data Entry Clerk	Administra…	92	Very High	35000
2	Administrative Assistant	Administra…	80	Very High	45000
3	Telemarketer	Marketing …	77	Very High	36000
4	Medical Transcriptionist	Healthcare	75	Very High	40000
5	Call Center Agent	Administra…	73	High	34000
6	Payroll Specialist	Administra…	73	High	57500
7	Receptionist	Administra…	72	High	35000
8	Content Writer	Marketing …	71	High	63500
9	Tax Preparer	Business &…	69	High	57500
10	Contract Reviewer	Legal	69	High	70000

- **Highest threat, lower pay:** The top 10 jobs for AI threat all have midpoint salaries of $70,000 or less, and most are administrative or clerical roles.
- **Administrative & Operations:** Highest mean threat score (57.8), with a median salary of $45,750.
- **Technology:** Median salary of $135,000, with a mean threat score of 31.7.
- **Project & Product Management:** Median salary of $128,750, with a mean threat score of 33.
- **Skilled Trades & Construction:** Lowest mean threat score (9.87), with a median salary of $55,500.

Footnote: Category figures are averages across 8 to 30 jobs each. Threat scores are means, and salaries are medians of each job's midpoint salary.

Conclusions, Discussion, & Critique

Key Findings

- Hypothesis not supported: Salary and AI threat had a weak negative correlation (r = -0.141).
- Salary alone is a weak predictor of AI displacement risk.

Interpretation & Implications

- Original hypothesis: Higher-paying white-collar jobs involve cognitive tasks that AI can more easily automate than physical labor.
- Why results differed: Lower-paying clerical jobs often involve repetitive digital tasks, while higher-paying roles may require complex judgment and human interaction.
- Key distinction: Automating tasks does not necessarily mean replacing entire jobs.

Limitations & Future Research

- Estimated risk: Scores reflect predicted vulnerability, not actual job losses.
- Limited data: Only 300 occupations; just four are classified as Very High risk.
- Future research: Examine task-level automation and compare predictions with actual employment trends.