

Grand Challenge
Impact of AI on Occupations

<http://social-dynamics.net/aii/>

Will AI work for us or replace us?

Will AI work for us or replace us?

unprepared

without **planning**, we will be **unprepared!**

prepared?

Can we avoid productivity loss & social backlash?

Can we avoid productivity loss & social backlash?

Can we **guide workforce planning?**

Can we avoid productivity loss & social backlash?

Can we guide workforce planning?

Can we **shape funding?**

Can we avoid productivity loss & social backlash?
Can we guide workforce planning?
Can we shape funding?

Yes!

Can we avoid productivity loss & social backlash?
Can we guide workforce planning?
Can we shape funding?

HOW?

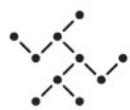


CHI 2025



The Hall of AI Fears and Hopes

Comparing the Views of AI Influencers
and those of Members of the U.S. Public
Through an Interactive Platform



**Social and Responsible
AI Team** social-dynamics.net

hopes and fears: two sides of the same coin

Fears

Reduced employment opportunities

Irresponsible use of AI

Increased spread of misinformation

AI becoming uncontrollable

Decline in inventive thinking

42

Hopes

Increased employment opportunities

Ability to handle repetitive tasks

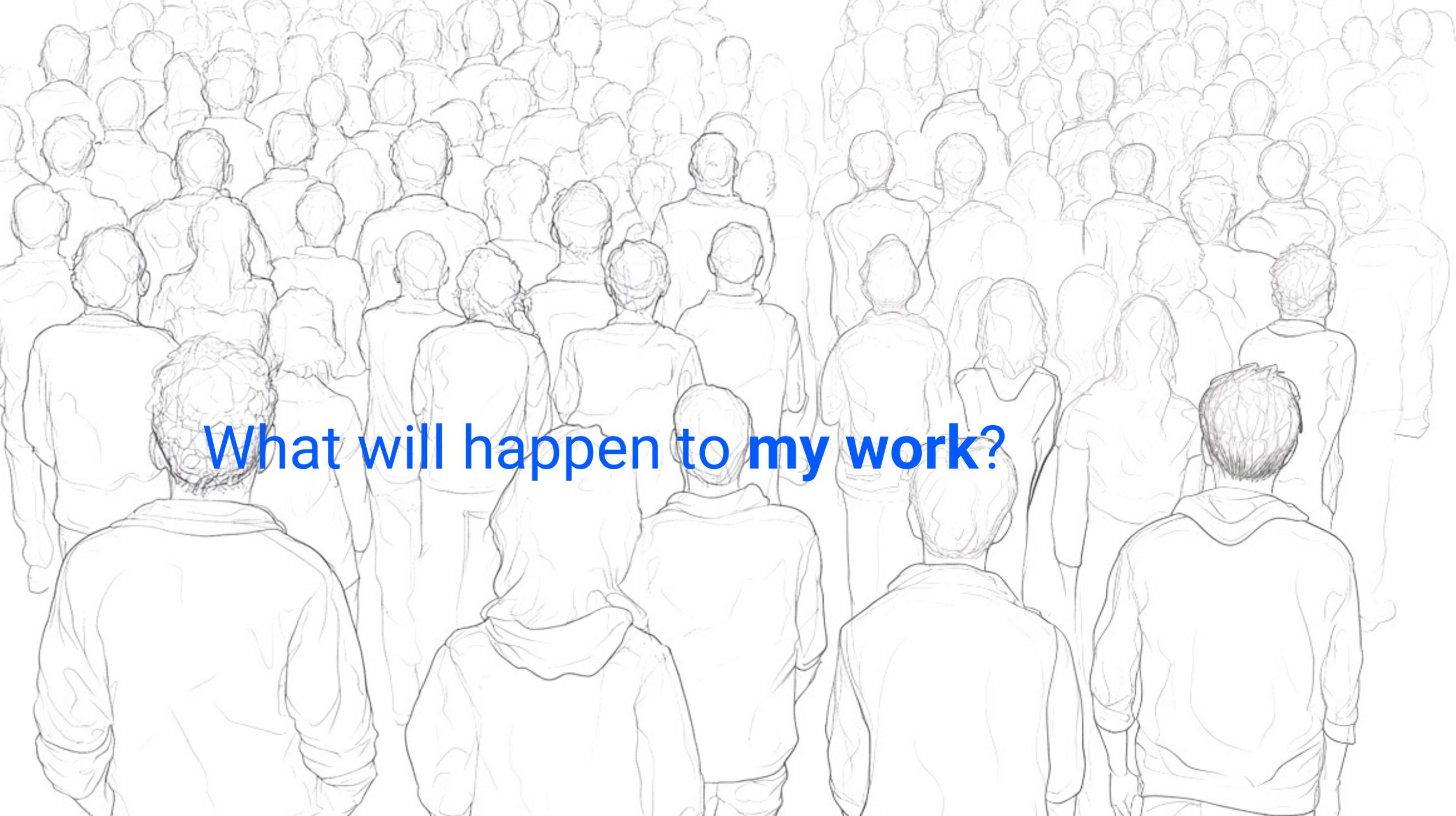
Increased access to information

Advance in social services

Increased innovation

. .

40

A large crowd of people is depicted in a sketchy, line-art style. The figures are drawn with simple outlines and are viewed from behind, creating a sense of being part of the crowd. The crowd is dense and fills the entire frame. The text "What will happen to my work?" is overlaid in the center in a blue, sans-serif font.

What will happen to my work?



AI may cause mass unemployment



Risk of unemployment

The Big Lie

AI Impacts Jobs

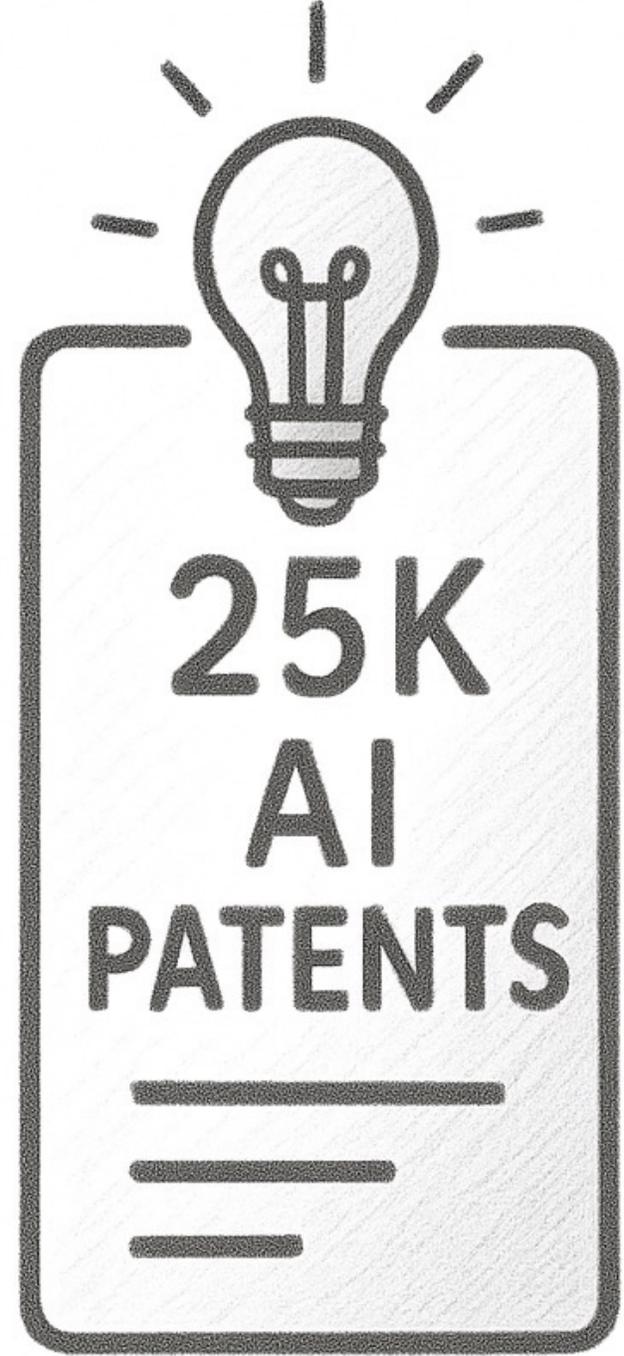
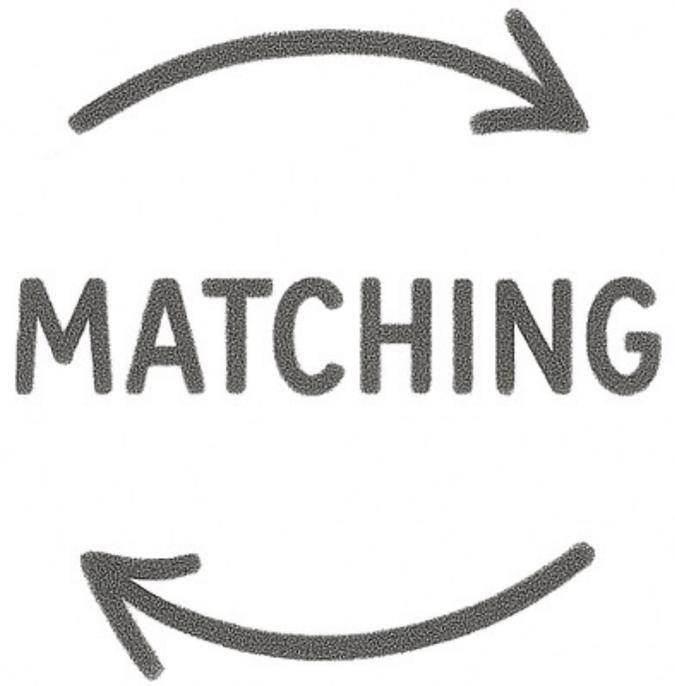
Job Tasks
AI Impacts ~~Jobs~~

The Potential Impact of AI Innovations on U.S. Occupations

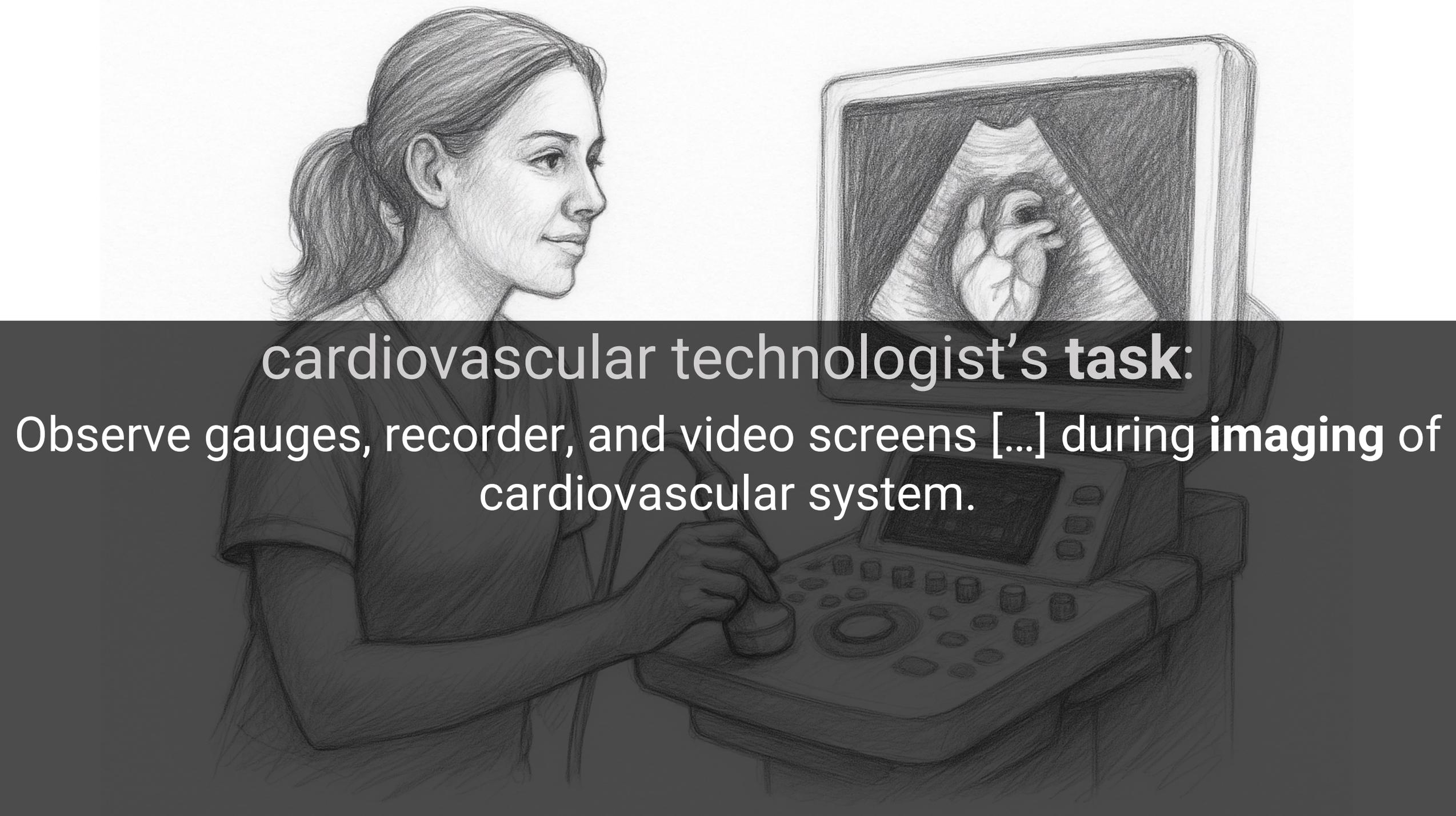
Ali Akbar Septiandri¹, Marios Constantinides¹, and Daniele Quercia^{1*}

18K Job Tasks

18K Job Tasks — AI Patents

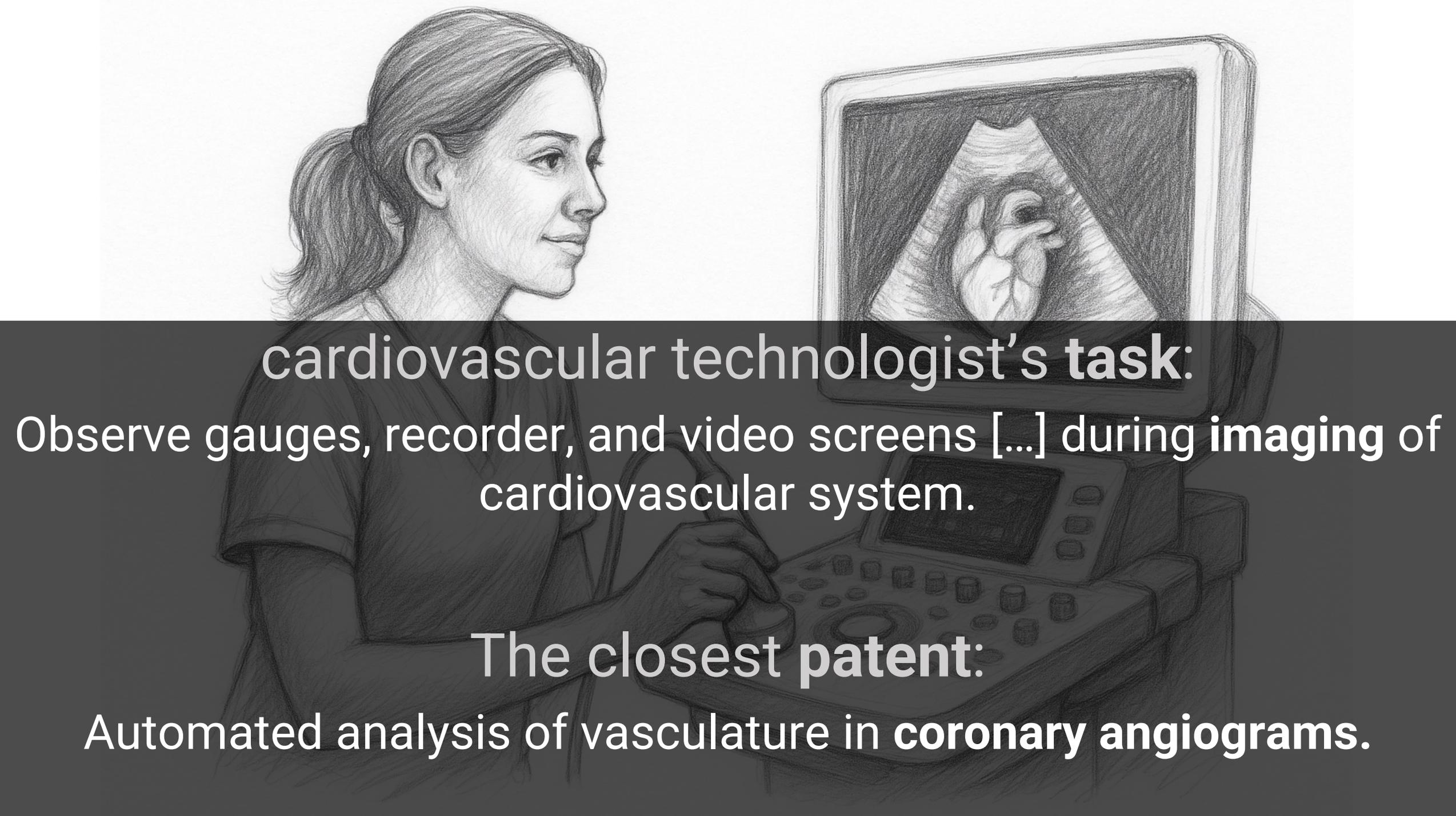


All: AI Impact



cardiovascular technologist's **task:**

Observe gauges, recorder, and video screens [...] during **imaging** of cardiovascular system.



cardiovascular technologist's **task:**

Observe gauges, recorder, and video screens [...] during **imaging** of cardiovascular system.

The closest **patent:**

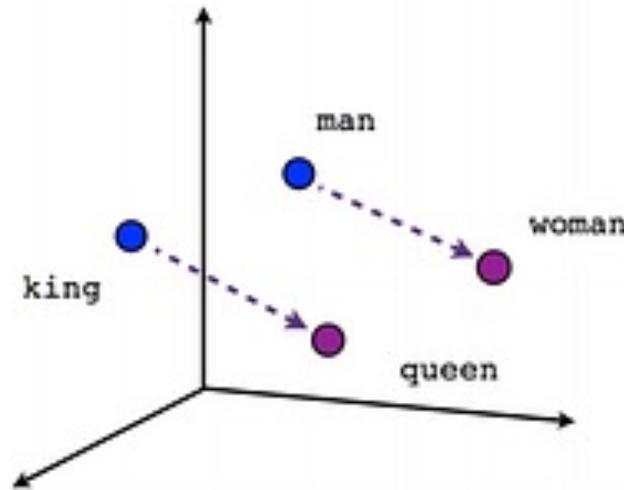
Automated analysis of vasculature in **coronary angiograms.**

Sentence-T5

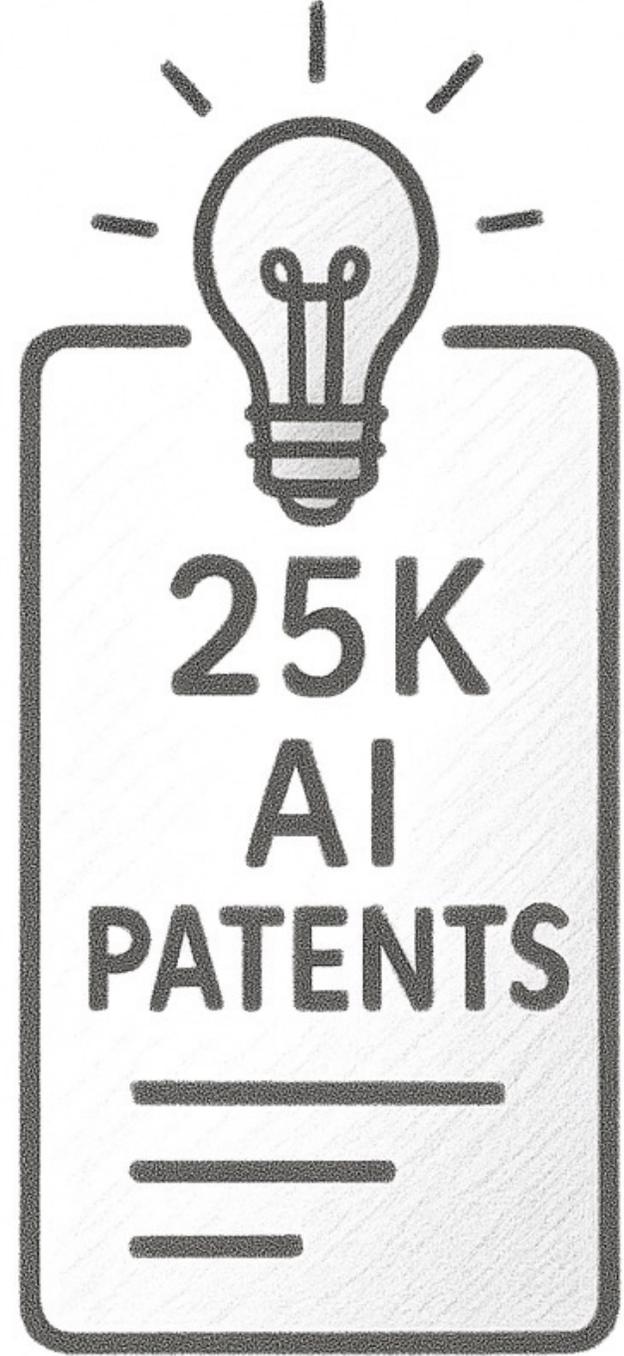
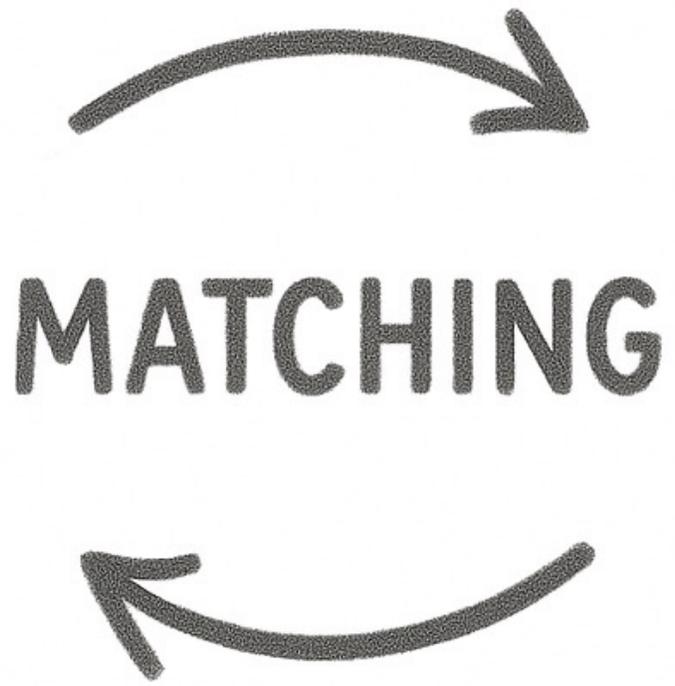
Find “related” words/sentences by “**projecting**” words/sentences into vectors in d dimensions

Sentence-T5

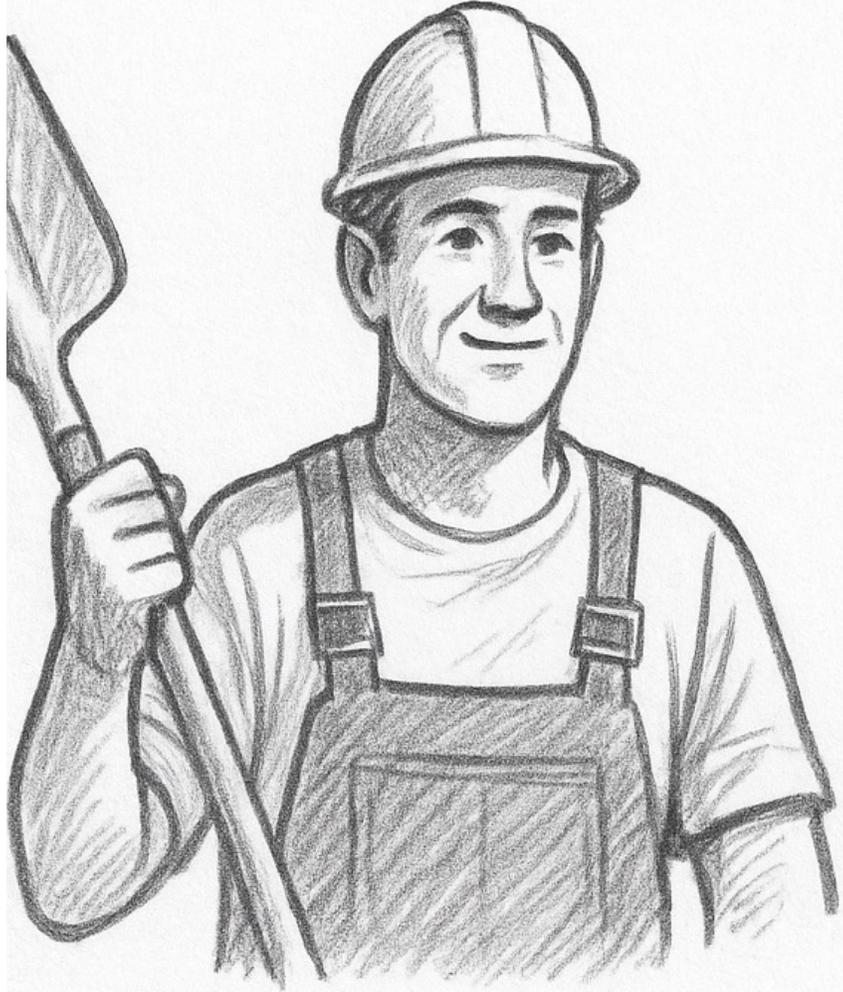
Find “related” words/sentences by “projecting” words/sentences into vectors in d dimensions



Male-Female



Least impacted jobs



Manual jobs



Interpersonal jobs

Most impacted jobs



Healthcare
Technicians



Coders

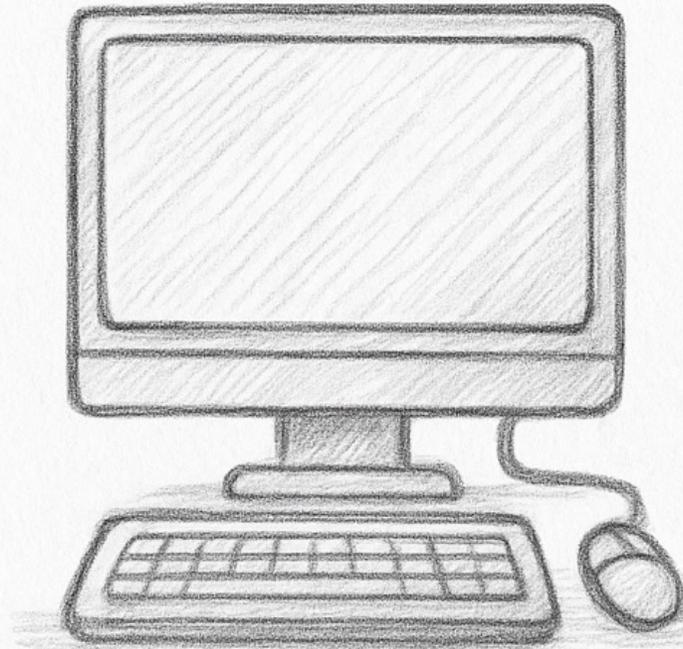


Air Traffic
Controllers

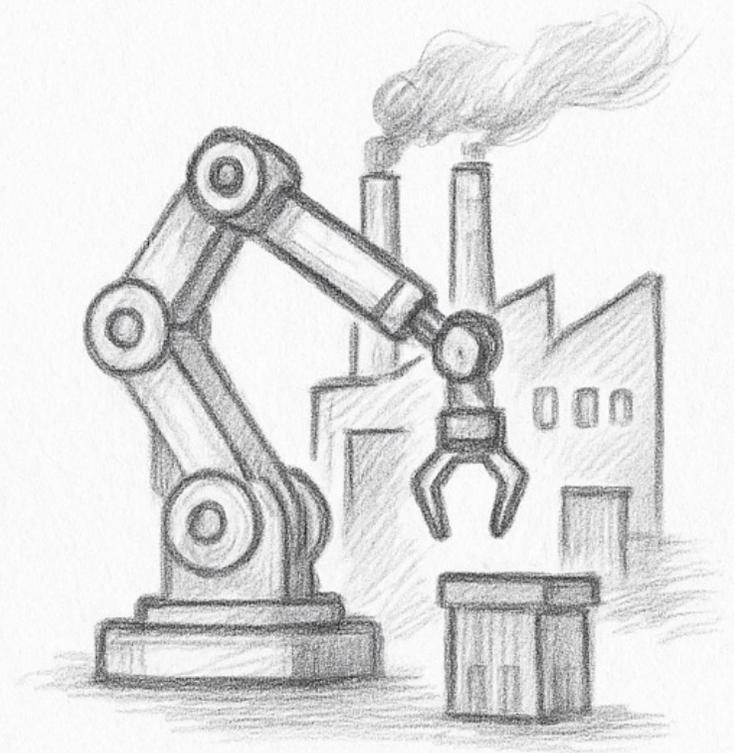
Sectors at 'risk'



Healthcare



IT



Manufacturing

1 Highest vacancy rates

Job Tasks

2 AI Impacts ~~Jobs~~

Orthodontist

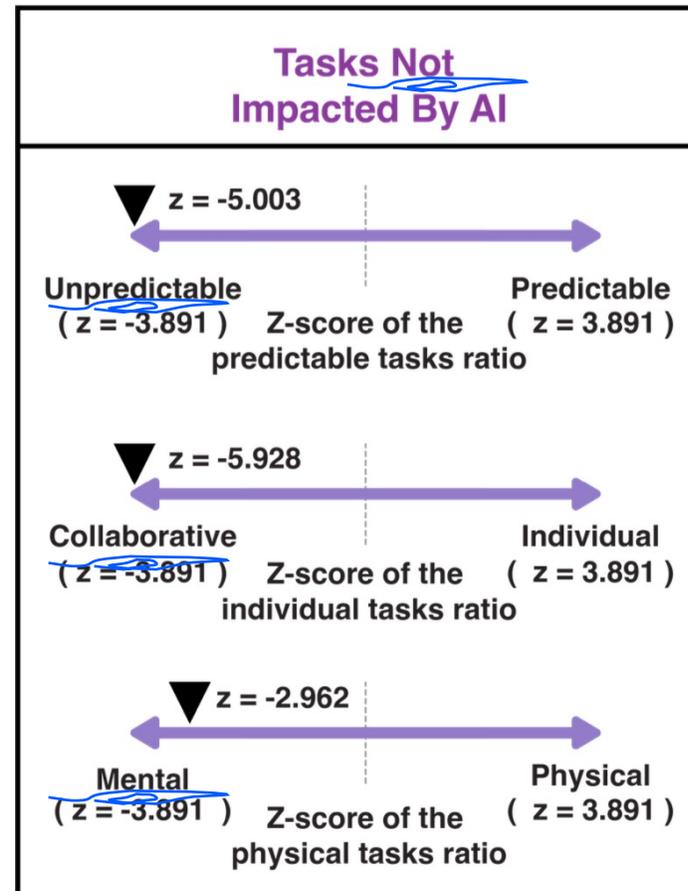
All score= 60%

Orthodontist

All score =60%

Task	Similarity	Impacted?
Study diagnostic records, such as medical or dental histories [...]	0.85	Yes
Fit dental appliances in patients' mouths [...]	0.83	Yes
Provide patients with proposed treatment plans and cost estimates.	0.82	Yes
Coordinate orthodontic services with other dental and medical services.	0.82	Yes
Diagnose teeth and jaw or other dental-facial abnormalities.	0.81	Yes
Examine patients to assess abnormalities of jaw development [...]	0.80	Yes
Prepare diagnostic and treatment records.	0.80	No
Instruct dental officers and technical assistants in orthodontic procedures [...]	0.79	No
Design and fabricate appliances [...]	0.79	No
Adjust dental appliances to produce and maintain normal function.	0.78	No

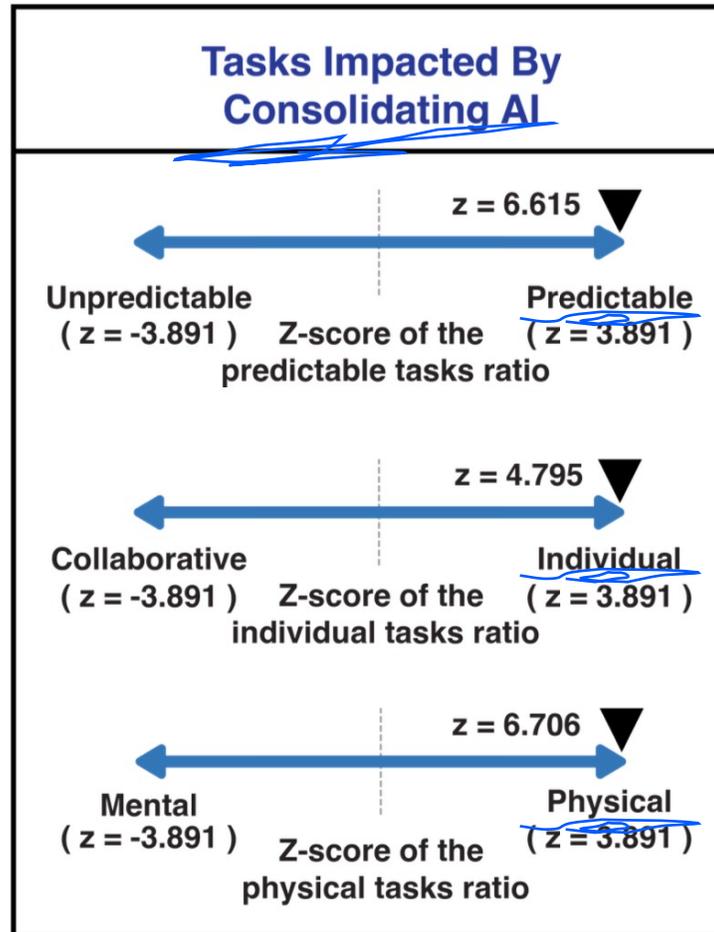
Upcoming



Upcoming

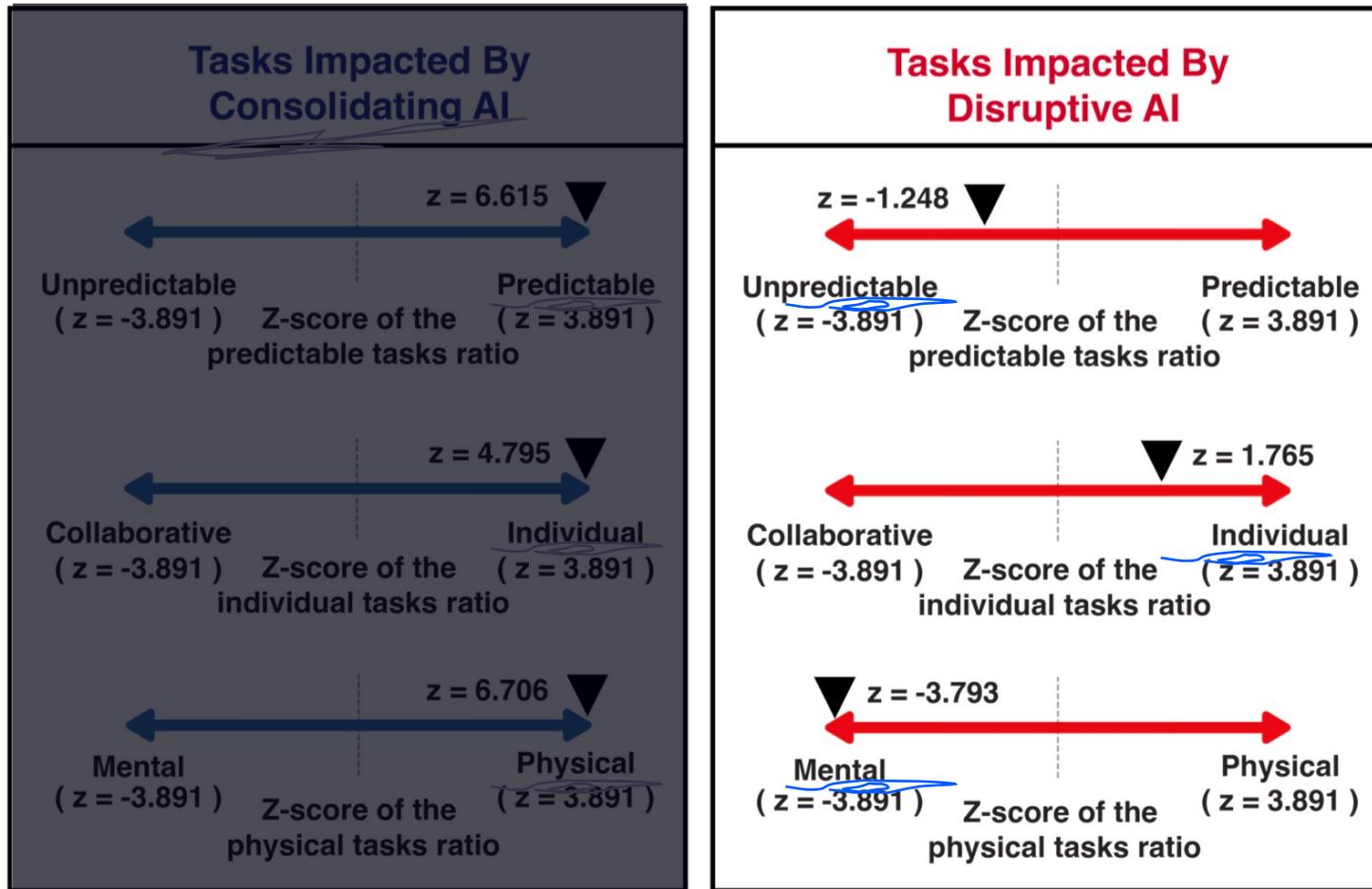
Not all AI patents are the same!

If you look at disruptive AI patents (vs. consolidating ones)



Upcoming

If you look at disruptive AI patents (vs. consolidating ones)



So all good?

Not really...

RESEARCH

Open Access

AI and the economic divide: How Artificial Intelligence could widen the divide in the U.S.



Ali Septiandri¹, Marios Constantinides^{1,3} and Daniele Quercia^{1,2*}

AII

0.12

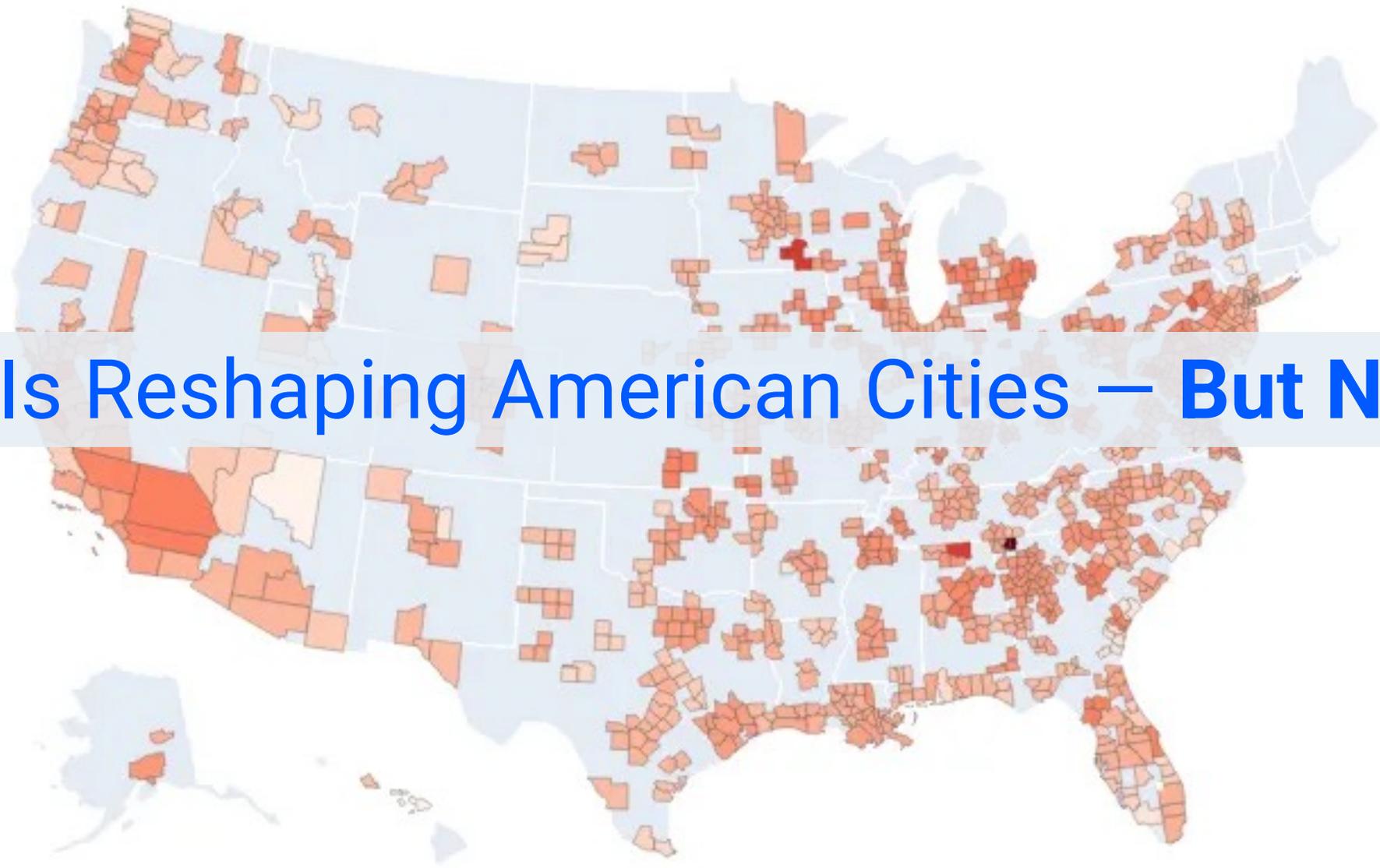
0.11

0.09

0.08

0.07

AI Is Reshaping American Cities – But Not Equally



Big cities will be impacted...



**San Francisco
Bay Area, CA**

**New York
City, NY**

Seattle, WA

...but...



The
Economy
of Cities

JANE JACOBS



Random House

The Economy of Cities

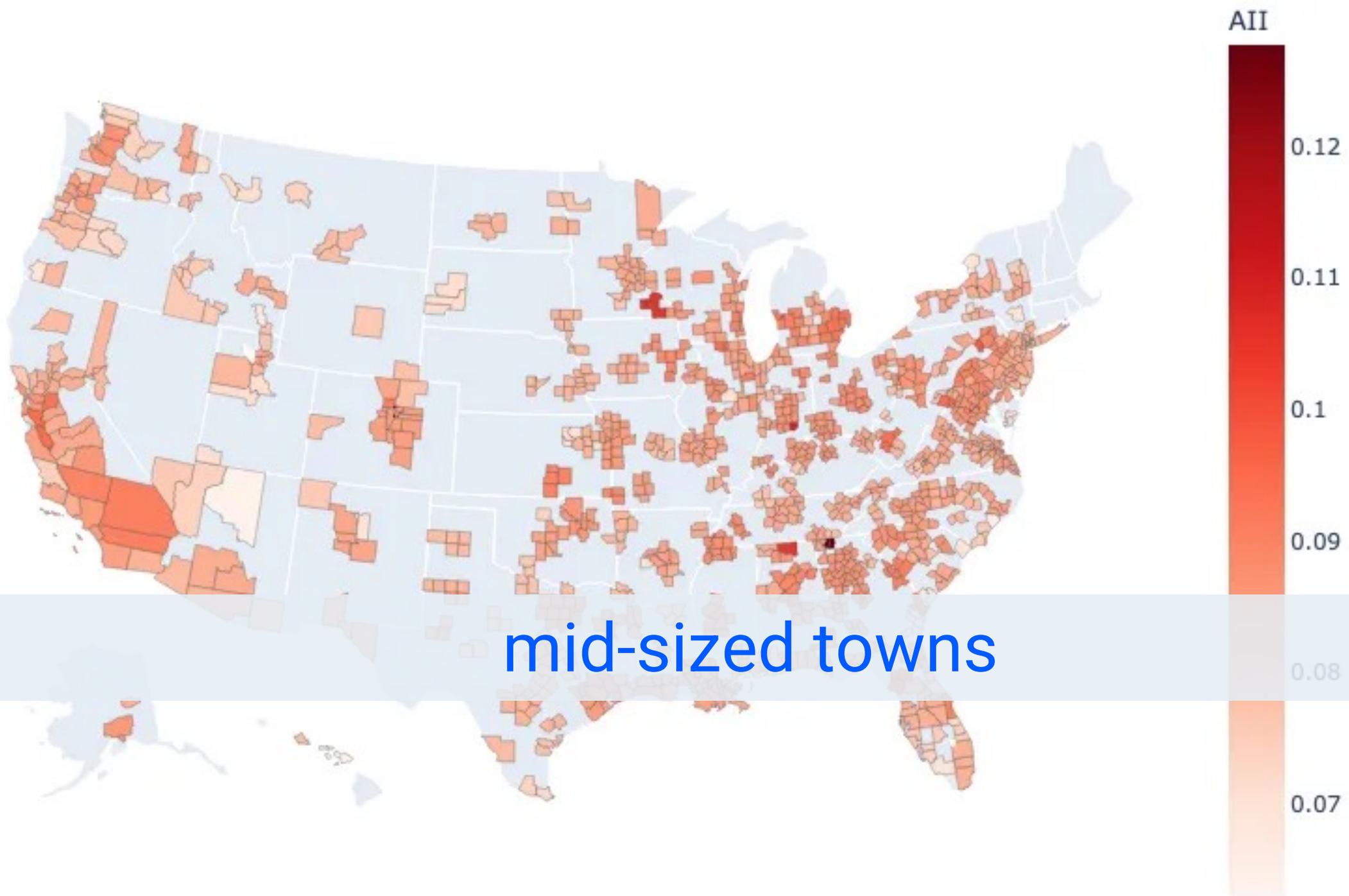
JANE JACOBS

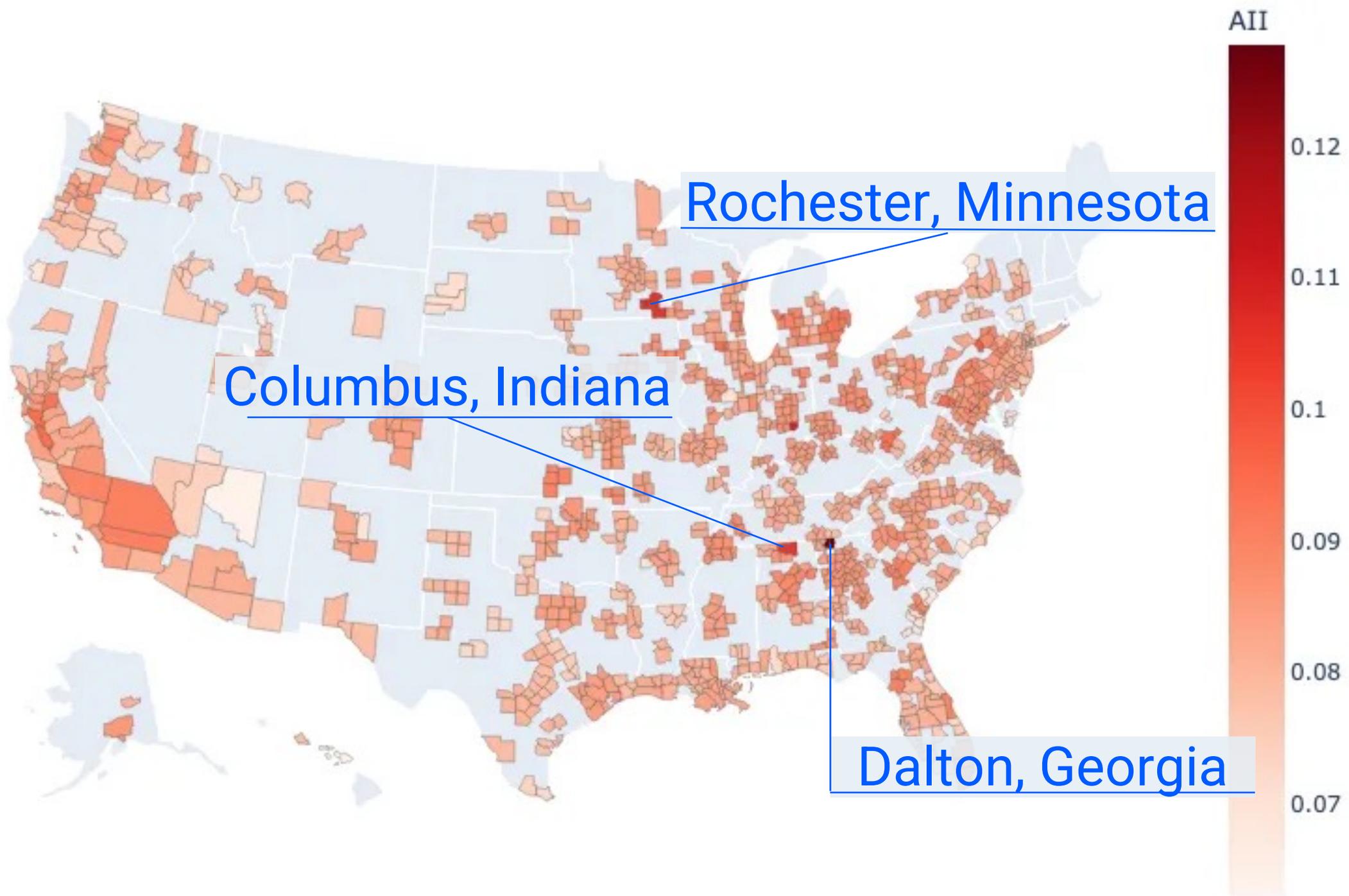
Author of

THE DEATH AND LIFE OF GREAT AMERICAN CITIES

JACOBS was born in Scranton, Pennsylvania. She lives in Toronto. From 1961 to 1968 she was an associate editor of *Architectural Forum* in New York. She is married to an architect and they have two sons and a daughter.

...big cities diversify the economy!







Dalton, Georgia, produces 75% of the world's carpets and rugs



Columbus, Indiana, is a significant hub for the automotive industry

IBJ
MEDIA



Rochester, Minnesota, is known for its innovative healthcare and hospitality (Mayo Clinic).

one-industry mid-sized towns will feel AI's impact

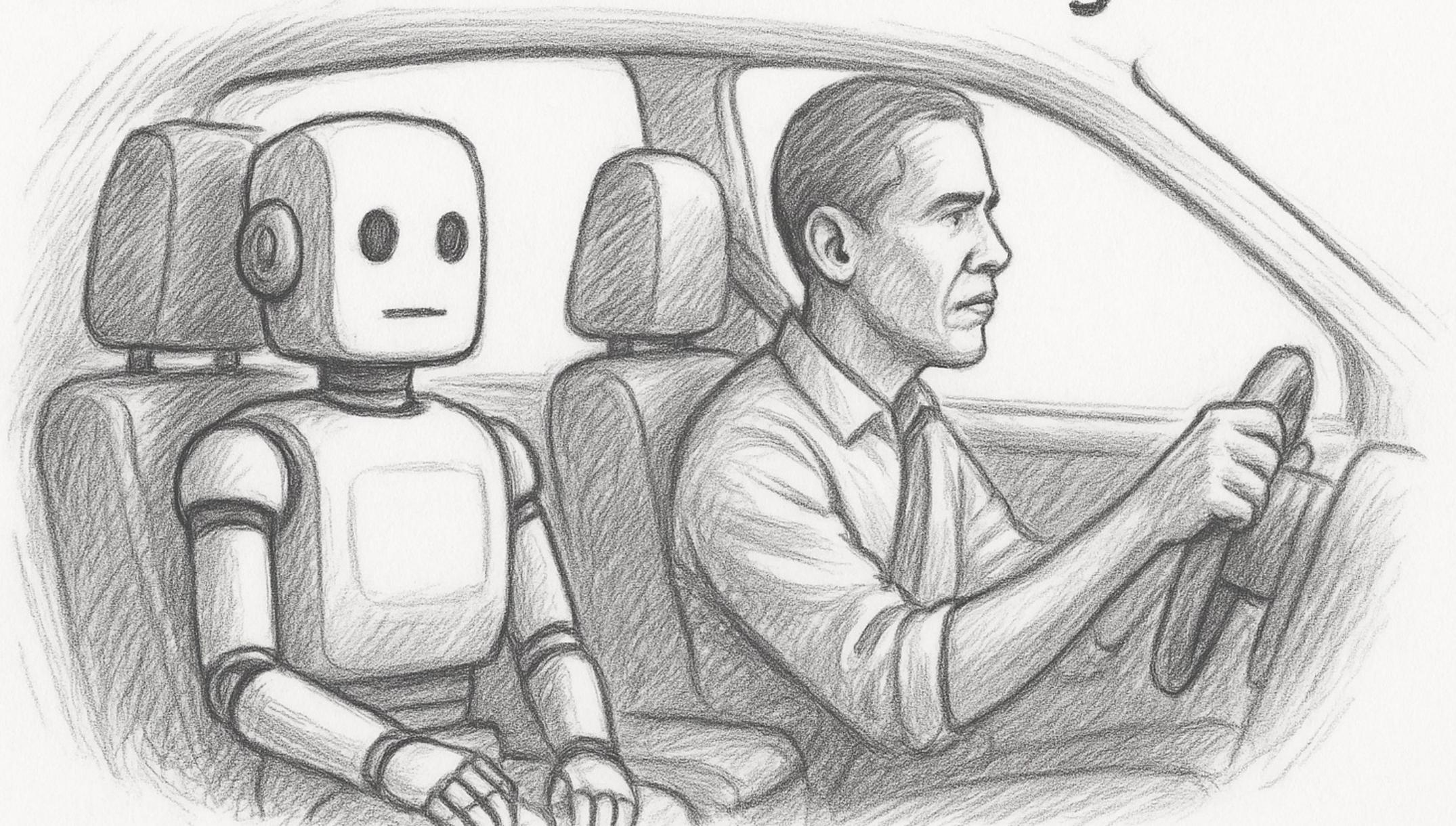
one-industry mid-sized towns will feel AI's impact
+
already suffering from **income inequality**

“poorer” gets poorer effect

What should be do?

Will AI work **for** us or **replace** us?

AI is not in the driving seat



History offers guidance

Guide **fundings** towards...

① Economic diversification

2 The 2R's

re-skilling employees
& re-bundling jobs

R&D on **augmentation** >> automation

unis can help too

Grandi Sfide

students rebundle **jobs they wish to do after graduation**: jobs that use AI but in an ethical way

THE HALL OF AI FEARS AND HOPES

The most similar to **YOU** are Pelonomi Moiloa, Shane Legg and Neal Khosla



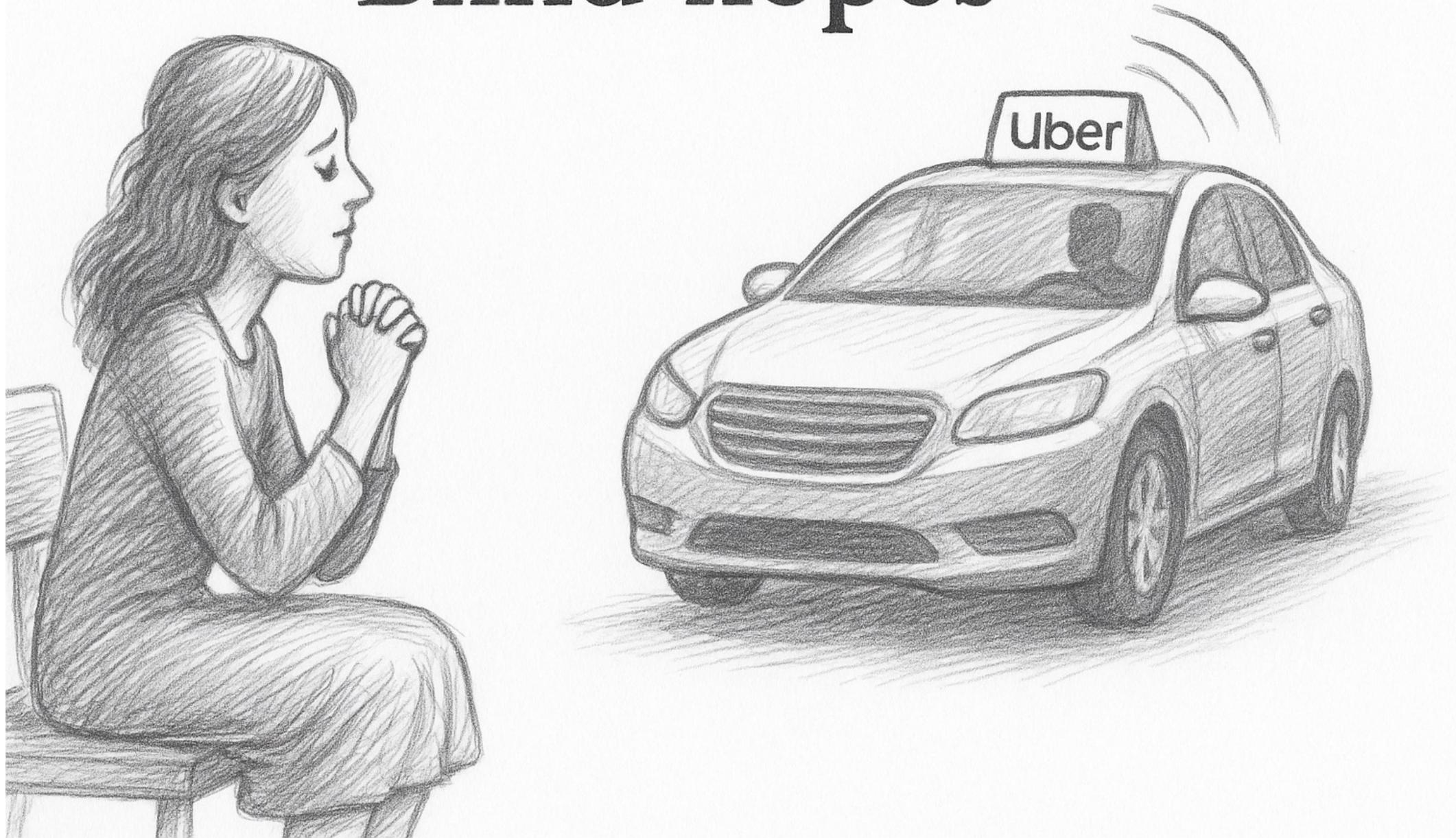
when you feel **fear**...

FREEZE OR RUN



when you have blind **hopes**...

Blind hopes





Blind hopes:
Waiting for the 'Uber-man'

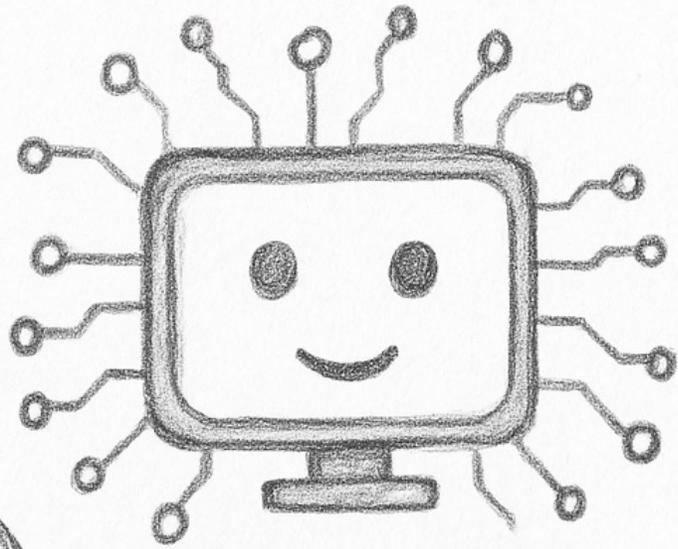
Instead of blindly hoping or fearing,

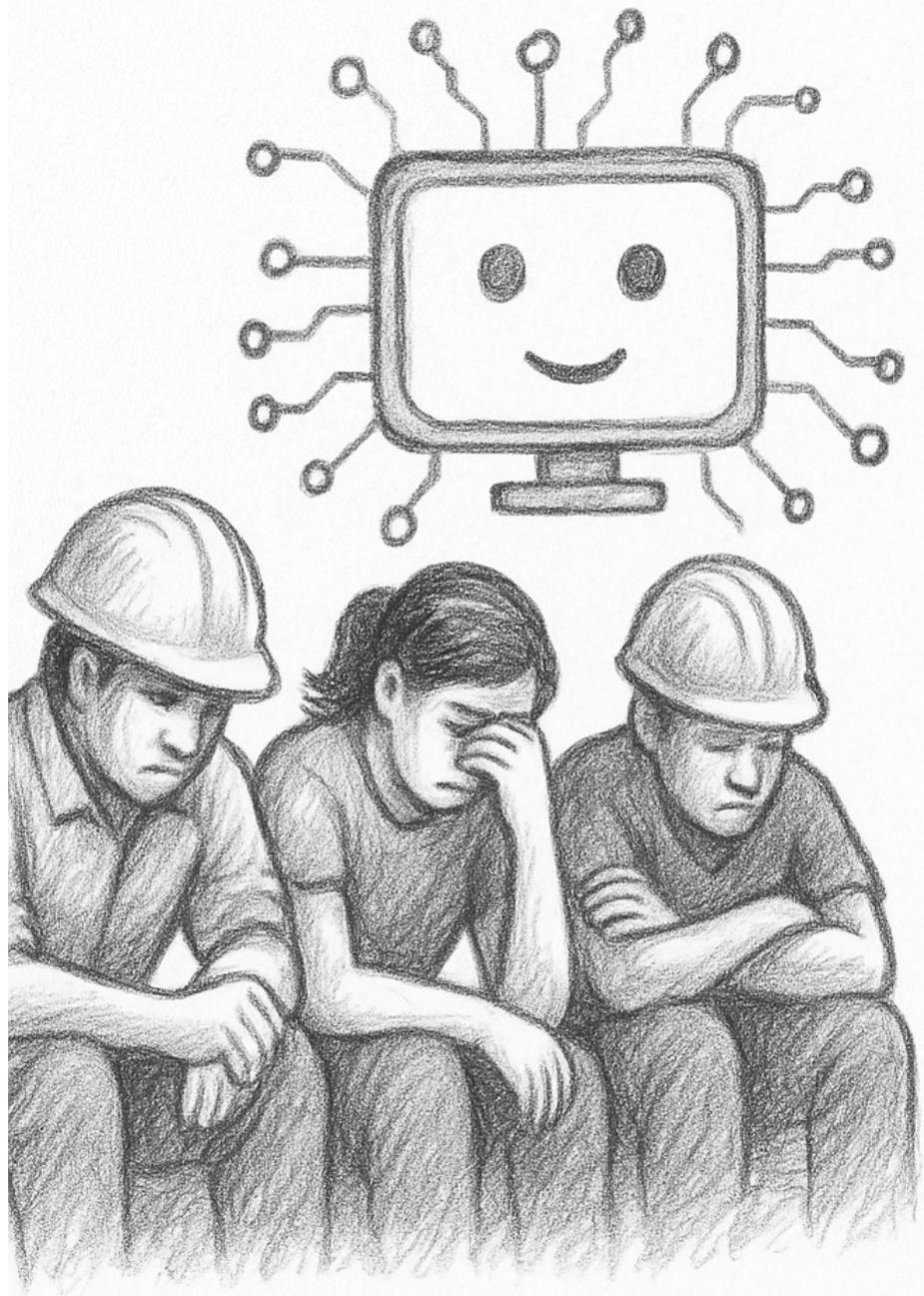
we prepare

measure AI impact
+
target work & fundings

Real Dangers









Are we ready to lead the change?

