

# Can AI Help Humans Make Better Decisions?

Kosuke Imai

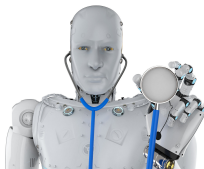
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The Future of DX and AI: Opportunities and Challenges for  
Japanese Firms and the World Economy

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# AI-Assisted Human Decision Making

- AI and algorithms are everywhere in our society
- But, humans still make many decisions
- We have not yet outsourced consequential decisions to AI



- Most prevalent system is **AI-assisted human decision making**
- Humans make decisions with the aid of AI recommendations
- Question: Can AI help humans make better decisions?

# AI Recommendation in the US Criminal Justice System



## DANE COUNTY CLERK OF COURTS Public Safety Assessment – Report

215 S Hamilton St #1000  
Madison, WI 53703  
Phone: (608) 266-4311

Name: [REDACTED]

Spillman Name Number: [REDACTED]

DOB: [REDACTED]

Gender: Male

Arrest Date: 03/25/2017

PSA Completion Date: 03/27/2017

### New Violent Criminal Activity Flag

No

### New Criminal Activity Scale

1	2	3	4	5	6
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### Failure to Appear Scale

1	2	3	4	5	6
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### Charge(s):

961.41(1)(D)(1) MFC DELIVER HEROIN <3 GMS F 3

### Risk Factors:

### Responses:

- |  |             |
|--|-------------|
| 1. Age at Current Arrest                               | 23 or Older |
| 2. Current Violent Offense                             | No          |
| a. Current Violent Offense & 20 Years Old or Younger   | No          |
| 3. Pending Charge at the Time of the Offense           | No          |
| 4. Prior Misdemeanor Conviction                        | Yes         |
| 5. Prior Felony Conviction                             | Yes         |
| a. Prior Conviction                                    | Yes         |
| 6. Prior Violent Conviction                            | 2           |
| 7. Prior Failure to Appear Pretrial in Past 2 Years    | 0           |
| 8. Prior Failure to Appear Pretrial Older than 2 Years | Yes         |
| 9. Prior Sentence to Incarceration                     | Yes         |

### Recommendations:

Release Recommendation - Signature bond

Conditions - Report to and comply with pretrial supervision

# Evaluation of Pretrial Public Safety Assessment (PSA)

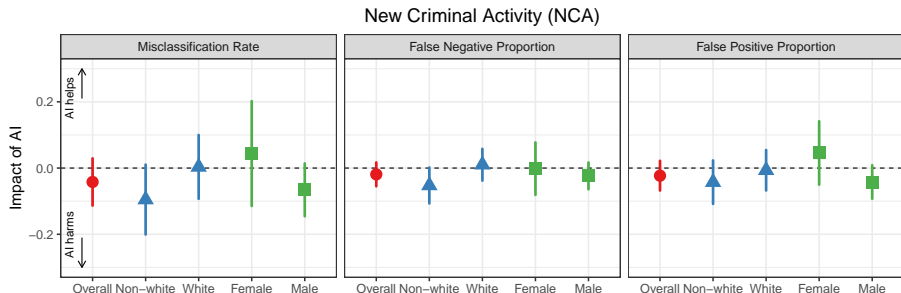
- How does the PSA affect a judge's decisions?
- Does the PSA help a judge make more accurate decision?
- Randomized controlled trial (RCT; also known as “AB test”)
  - **Human+AI group**: provision of the PSA scores to judges
  - **Human-alone group**: no provision of the PSA scores to judges

# Does the Judge Agree with AI?

		AI	
		Release	Cash bail
Human	Release	54.1%	20.7
	Cash bail	9.4	15.8

		AI	
		Release	Cash bail
Human+AI	Release	57.3%	17.1
	Cash bail	7.4	18.2

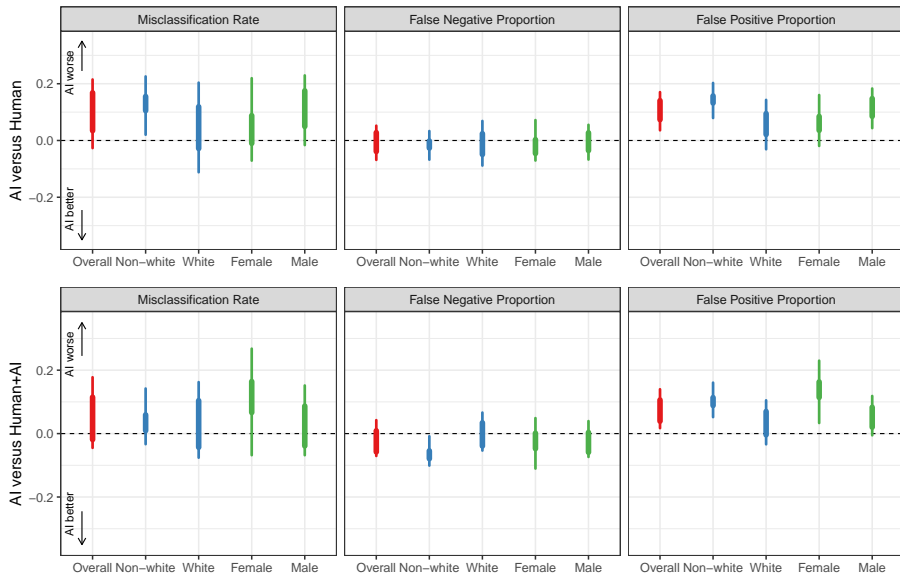
# AI Recommendations Do Not Improve Human Decisions



- False Negative (FN): release followed by new criminal activity
- False Positive (FP): unnecessary cash bail
- Misclassification = False Positive + False Negative

# AI-Along Decisions Perform Worse than Human Decisions

New Criminal Activity (NCA)

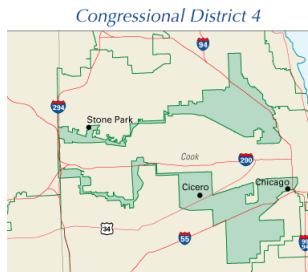


# AI Can Help Humans Make Better Decisions

- Gerrymander = (Elsbridge) Gerry + Salamander



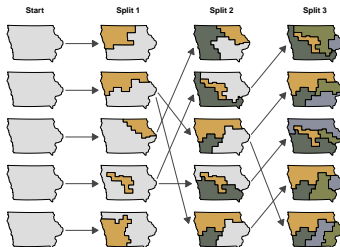
- Infamous example:



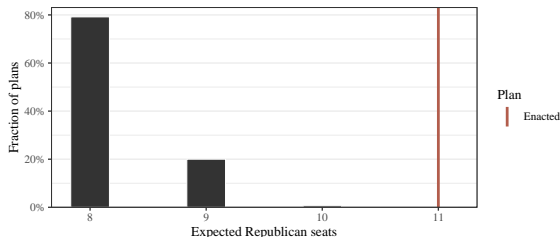


# Detecting Gerrymandering Using AI

- Compare the enacted plan against simulated nonpartisan maps



- Analysis of Ohio Congressional redistricting



{¶ 124} Dr. Imai's work also supports the conclusion that the adopted plan's partisan skew is not due to Ohio's political geography. Using Article XI's map-drawing criteria, Dr. Imai generated 5,000 possible district plans. Of those simulated plans, *none* was as favorable to Republicans as the adopted plan. The fact that the adopted plan is an outlier among 5,000 simulated plans is strong evidence that the plan's result was by design.

# Use of AI in Decision-Making

- AI is a powerful tool that can help humans make better decisions
  - AI's potential in business decision-making
  - But, like humans, not all AI tools are helpful
  - We must evaluate the performance of AI and continue to improve it
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- AI development is moving at an astonishing speed
  - How can Japan compete on the global stage?
  - Importance of AI training at all levels
    - university education
    - collaboration between academia, industry, non-profit, and government