

# *BIAS IN INSURANCE*

David Schraub Actuarial Consultancy  
Casualty Actuaries of Europe  
Sept 16, 2024 16:00-17:00 CET

Lyon, France – Virtual



# **DAVID SCHRAUB**

Is your Predictive Modeling algorithm inadvertently discriminatory, leaving behind revenues and attracting unwanted regulatory attention? Do you trust the Data Analytic team not to create an AI model that will become a costly White Elephant?

I am a consultant with 25 years of actuarial experience, bringing the actuarial lens to innovation and technology for the insurance industry. I advise clients on how to implement AI use cases while mitigating unwanted regulatory attention.

I chair the American Academy of Actuaries AI Committee, perform research with the SOA on AI regulatory frameworks, and frequently speak on AI and Ethics at SOA, CAS, AAA, and other events.

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# ***PUBLISHED RESEARCH***



# ***CAS-SOA SPONSORED RESEARCH***

- Comparison across four jurisdictions Anti-discrimination regulations in the wake of Artificial Intelligence, : US, Canada, China, and Europe
- Authors: David Schraub, Jing Lang, Zhibin Zhan, and Mark A. Sayre

# ***EXECUTIVE SUMMARY***

Need for AI regulation understood by all.

Commonalities driven by cross-border technology

- Transparency,
- Traceability,
- Governance,
- Risk management,
- Testing and Documentation, and
- Accountability

Difference driven by local environment

- Federalist model of state-led regulation in the US vs. the centralized model in China
- Industry-specific vs. Cross-industry regulation
- Balancing Act between Protection of rights vs. Fostering technological innovation

Topic	United State	EU	China	Canada
Insurance reg approach	Decentralized	Centralized	centralized	mix
AI regulation approach	Mostly industry specific	Cross industry	Cross industry	mix
Regulatory authority	NAIC H committee  Individual states like Colorado, CT, NY	EIOPA	NFRA	OSFI Individual provinces
Piece of regulation	NAIC AI Bulletin SB21-169 24-205	DORA-GDPR EU IA act	MOST	AIDA



***USA***



# ***USA – BOTTOM UP***

- Industry specific, state specific
  - U.S. Patent and Trademark Office (USPTO), Office of the Comptroller of the Currency (OCC), Federal Deposit Insurance Corporation (FDIC) Consumer Financial Protection Bureau (CFPB), Securities Exchange Commission (SEC), Financial Industry Regulatory Authority (FINRA), US Treasury/Banking Regulators, Department of Labor (DOL)
  - Colorado SB21-169, SB24-205, NAIC AI Bulletin, NY DFS circular letter



# ***USA – CURRENT DEVELOPMENT***

## - Similarity

- Governance
- Model Risk Management Framework
- Documentation
- Third Party Management

## - Difference

- Protected class
- Testing requirement
- Timeline



# ***CANADA***



# ***CANADA – STAKEHOLDERS***

- Canada regulated by both federal and provincial bodies.
  - OSFI – EDGE principles (Explainability, Data, Governance, and Ethics).
  - Quebec's Law 25 (aka Bill 64) emphasizing transparency, accountability, and ethical use of AI in insurance operations.
  - Quebec's AMF has issued guidelines

# ***CANADA – LAWS IN THE WORK***

- Artificial Intelligence and Data Act (AIDA)
- Consumer Privacy Protection Act (CPPA)



# ***CHINA***



# ***CHINA***

- National Financial Regulatory Administration (NFRA) regulates the insurance industry
- No specific AI regulation exclusively for the insurance industry.
  - Comprehensive and overarching framework
  - "Interim Measures for the Management of Generative Artificial Intelligence Services," established in 2023.



# ***EUROPEAN UNION***



# ***EU***

- DORA, GDPR, IA Act are cross industry documents
- Open insurance is industry specific
- Disaggregated data
- Use of external data for insurance



# ***RISK BASED REQUIREMENT***

Level	Requirements	General example	Insurance use case
Minimal risk	No regulation	Recommendation engine	Price comparison
Limited risk	Transparency requirements	Chatbot, emotion recognition	Customer support
High risk	Strict requirements (risk-mitigation systems, high quality of data sets, logging of activity, detailed documentation, clear user information, human oversight, and a high level of robustness, accuracy and cybersecurity)	Critical infrastructures; medical devices; access to educational institutions; recruitment tool; law enforcement, border control... Specifically including biometric identification, categorization and emotion recognition systems	some activity may fall under high risk level: Insurance pricing and UW Insurance marketing Insurance risk management
Unacceptable risk	Banned	Manipulate human behavior, social scoring	No insurance use case

# ***ADDITIONAL MATERIALS***



International Actuarial Association  
Association Actuarielle Internationale

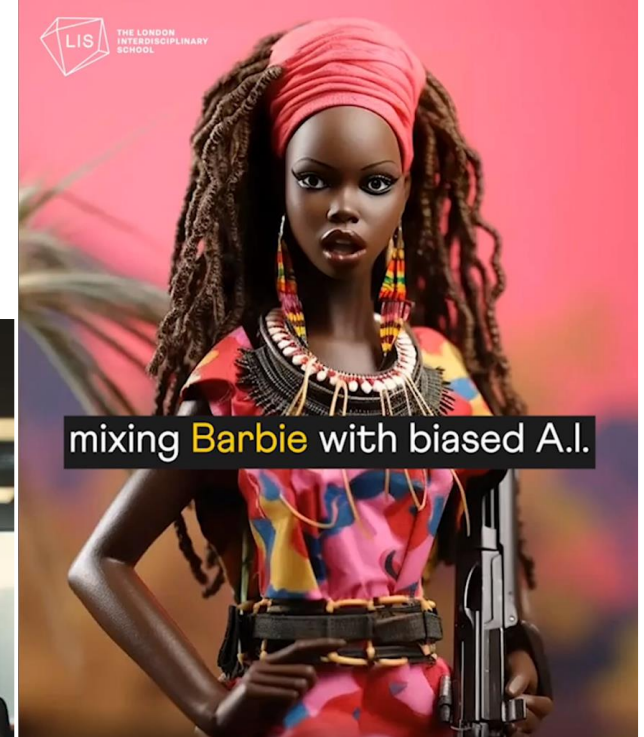
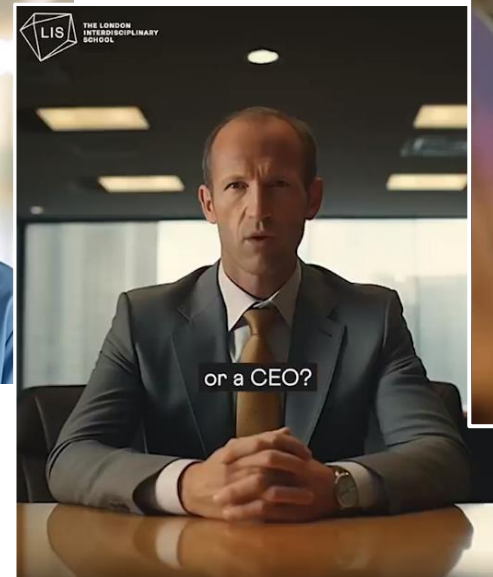
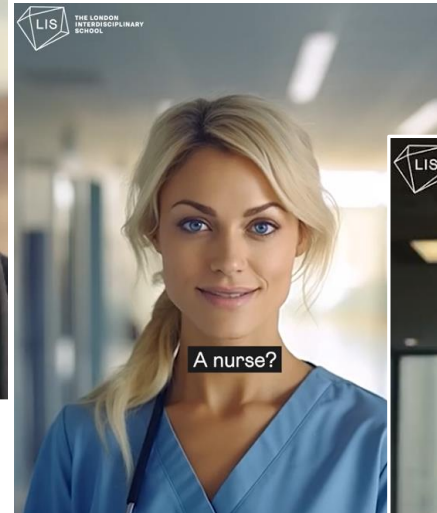
## Country Comparison

- Australia
- Canada
- China
- Europe
- Singapore
- United Kingdom
- United States

GOVERNANCE ELEMENTS	US	EUROPE	SINGAPORE	CHINA
AI Principles	✓	✓	✓	✓
Identified Risks	✓	✓	✓	✓
Data Provenance	✓	✓	✓	✓
Third-Party	✓	✓		✓
Risk Model		✓	✓	✓
Bias	✓	✓	✓	

# ***PROFESSIONALISM***

# AI GETS IT TECHNICALLY RIGHT BUT SOCIALLY WRONG

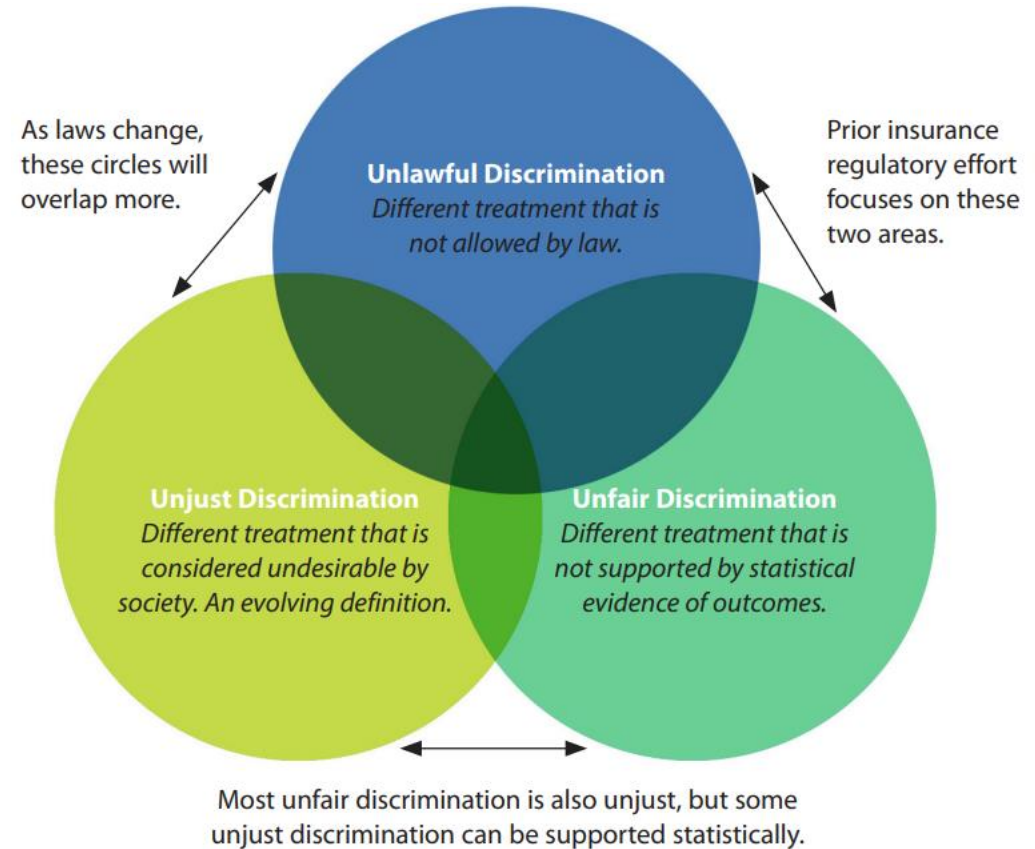
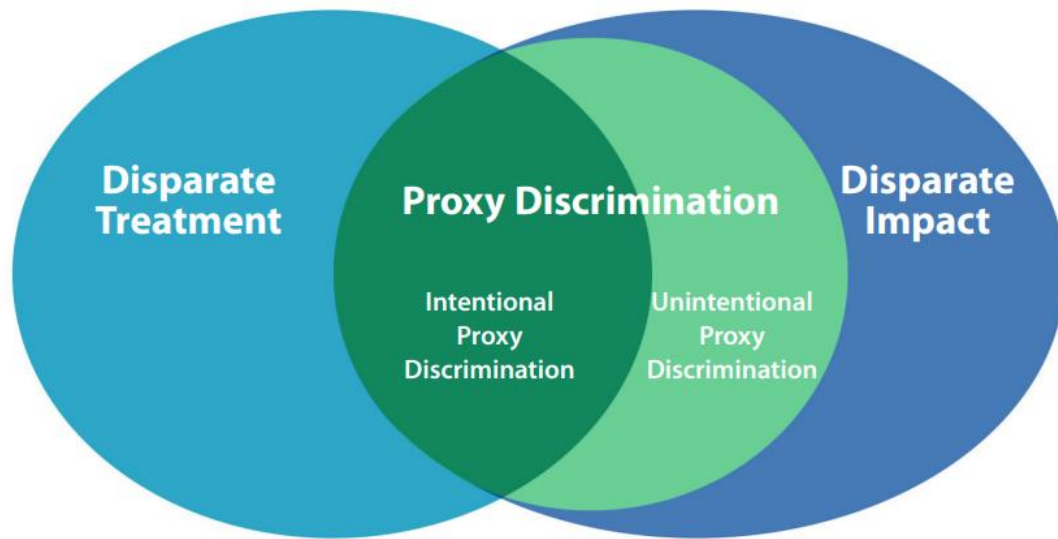


LIS: The London Interdisciplinary School

[How AI Image Generators Make Bias Worse \(youtube.com\)](https://www.youtube.com/watch?v=...)

# ***DISCRIMINATION: CONSIDERATION***

ASOP 12 = unfair discrimination



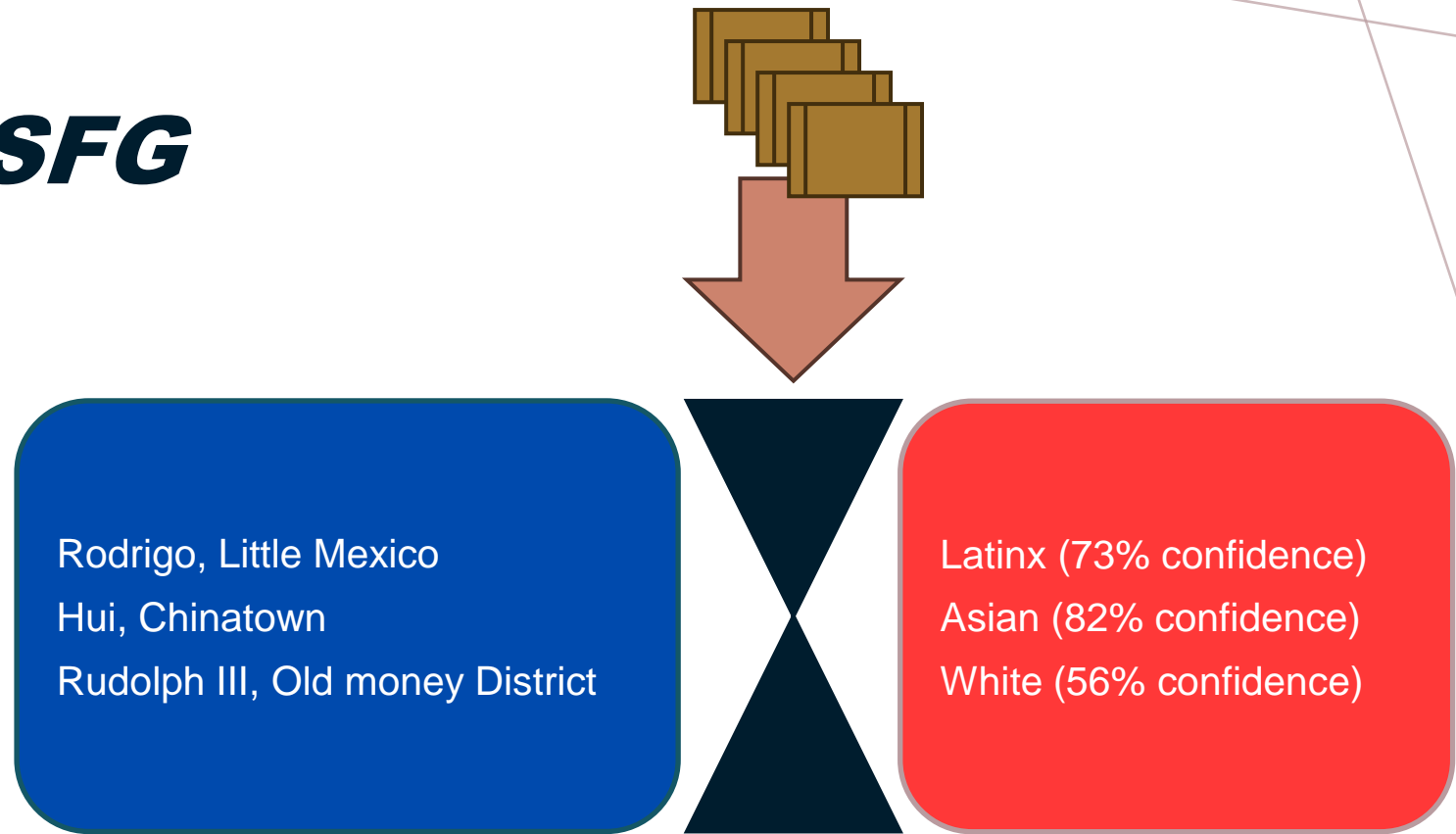
# ***RACE AND BISFG***

Bayesian Improved Surname  
First Name Geocoding

Numerous versions and tweaks

Census, Loan application  
database...

Married women



# ***REFERENCE MATERIALS***

- US Code of conduct - 4 pages, 14 Precepts
- US Actuarial Standard of Practice – 57 ASOP's
- US Professional discussion papers
- Code de deontologie de l'institut des actuaires

## Links:

[https://www.actuary.org/sites/default/files/pdf/prof/code\\_of\\_conduct.pdf](https://www.actuary.org/sites/default/files/pdf/prof/code_of_conduct.pdf)

<https://www.actuary.org/content/actuarial-standards-practice-asops>

<https://www.actuary.org/discussion-papers>

[https://www.institutdesactuaires.com/global/gene/link.php?doc\\_id=138&fg=1](https://www.institutdesactuaires.com/global/gene/link.php?doc_id=138&fg=1)



# ***QUESTION YOURSELF***

- *Is the use of GenAI appropriate to the assignment?*
  - *Data Quality, Modeling*
  - *Communication*
  - *Compliance with existing law, ownership of the work product, bias*
- *Bias in my input file? Proxy-discrimination?*
- *Intent?*
- *What is legal vs. what is ethic?*

# ***CASUALTY ACTUARIAL SOCIETY***

AVAILABLE RESEARCH

# CAS Research Paper Series on Race and Insurance Pricing

**Phase 1**

[casact.org/raceandinsuranceresearch](https://casact.org/raceandinsuranceresearch)



# PHASE 2

## **PREPARING FOR TOMORROW: REGULATORY INSIGHTS AND STRATEGIES FOR MITIGATING POTENTIAL BIAS IN INSURANCE PRICING**

[CASACT.ORG/RACEANDINSURANCERE](https://casact.org/raceandinsurancere)  
[SEARCH](https://casact.org/raceandinsurancere)



SOA Research INSTITUTE

CAS

Comparison of Regulatory Framework for Non-Discriminatory AI Usage in Insurance  
August | 2024

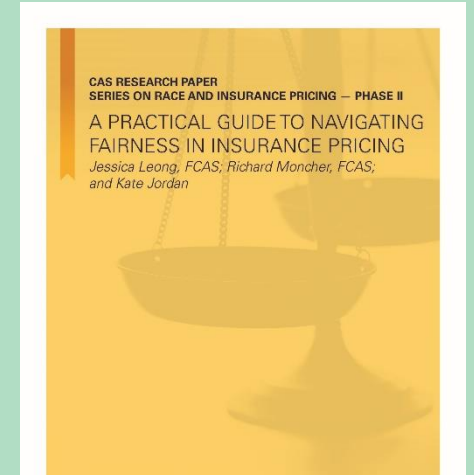


CAS RESEARCH PAPER  
SERIES ON RACE AND INSURANCE PRICING — PHASE II

REGULATORY PERSPECTIVES ON ALGORITHMIC BIAS AND UNFAIR DISCRIMINATION

Lauren Cavanaugh, FCAS, MAAA; Scott Merkord, FCAS, MAAA; Taylor Davis, FCAS, MAAA; and David Heppen, FCAS, MAAA

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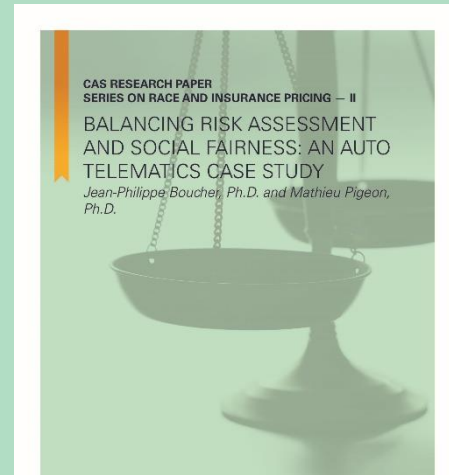


CAS RESEARCH PAPER  
SERIES ON RACE AND INSURANCE PRICING — PHASE II

A PRACTICAL GUIDE TO NAVIGATING FAIRNESS IN INSURANCE PRICING

Jessica Leong, FCAS; Richard Moncher, FCAS; and Kate Jordan

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SERIES ON RACE AND INSURANCE PRICING — II

BALANCING RISK ASSESSMENT AND SOCIAL FAIRNESS: AN AUTO TELEMATICS CASE STUDY

Jean-Philippe Boucher, Ph.D. and Mathieu Pigeon, Ph.D.

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SERIES ON RACE AND INSURANCE PRICING — II

PRACTICAL APPLICATIONS OF BIAS MEASUREMENT

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CAS RESEARCH PAPER  
SERIES ON RACE AND INSURANCE PRICING — PHASE II

UNINTENDED IMPACTS OF BIAS MITIGATION

Pinnacle Actuarial Resources

COMING SOON

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***THANK YOU***

David Schraub

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