



2024 LIFE  
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# SOA Professionalism Session — Living in the Age of Artificial Intelligence





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# Presentation Disclaimer

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- Professionalism Agenda
  - ...AI, Gen AI, and New Regulations
  - ...Intersection of AI and Bias
  - ...Professionalism Case Study: Conflict of Interest



# Professionalism

- We live as actuaries in a business world
  - Financials; Governance; Risk Management
- Business worlds are driven by decisions
- Decisions may have influence
- What drives influence?
- A reason we have a professional Code of Conduct

# Reminder: Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the U.S.

## General Qualification Standard Basic Education Requirement

Designation from SOA or CAS, or achieved the EA designation;

or

For all others (primarily non-U.S. actuaries)... membership in AAA through approval process

## General Qualification Standard Continuing Education Requirement

- 30 hours of relevant Continuing Education
- At least 3 hours on Professionalism Topics
- **At least 1 hour on Bias Topics**
- At least 6 hours of Organized Activities

# AI, Gen AI, and New Regulations



# NAIC Model Bulletin on the Use of Artificial Intelligence Systems By Insurers

- Adopted December 2023 by NAIC “H” Committee and Executive Committee
- Alaska first to adopt in Feb 2024
- 8 (or more?) States have now adopted this
- Creation of an “AI Program” for Governance
- *“Governance should prioritize transparency, fairness, and accountability in the design and implementation of the AI Systems, recognizing that proprietary and trade secret information must be protected.”*

[https://content.naic.org/sites/default/files/inline-files/2023-12-4%20Model%20Bulletin\\_Adopted\\_0.pdf](https://content.naic.org/sites/default/files/inline-files/2023-12-4%20Model%20Bulletin_Adopted_0.pdf)



# Additional Regulations on Use of AI

- Colorado DOI External Consumer Data and Information Sources (ECDIS) regulation adopted Sep 2023; Effective Dec 2024
- Focus on Governance and Risk Management Framework
- *...establish and maintain a risk-based governance structure and risk management framework to (1) oversee whether the life insurers' use of ECDIS and algorithms and predictive models that use ECDIS potentially result in unfair discrimination with respect to race, and (2) remediate such unfair discrimination if detected.*

<https://www.mayerbrown.com/en/insights/publications/2023/09/colorado-adopts-artificial-intelligence-regulation-for-life-insurers>

# Additional Regulations on Use of AI

- New York Proposed Circular Letter: January 2024
- Use of Artificial Intelligence Systems and External Consumer Data and Information Sources in Insurance Underwriting and Pricing
- *All insurers authorized to write insurance in New York will be expected to establish a governance and risk management framework to manage their use of ECDIS and AIS, and will be expected to carry out a robust testing program to ensure that ECDIS and AIS are not used in an unfairly discriminatory manner.*

[https://www.dfs.ny.gov/industry\\_guidance/circular\\_letters/cl2024\\_nn\\_proposed](https://www.dfs.ny.gov/industry_guidance/circular_letters/cl2024_nn_proposed)

# Additional Regulations on Use of AI

- European Union AI Act; March 2024
- Separates AI systems into risk categories: Unacceptable risk, High-risk, Limited (or transparency) risk and Minimal risk.
- European Regulations vs. U.S. Regulations

<https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>

# Additional Regulations on Use of AI

- *Any AI system deemed to pose an unacceptable risk is prohibited from being used in the EU.*
- Unacceptable risk systems include AI platforms that use social scoring (evaluating individuals based on social behavior or personal traits causing unfavorable treatment), predictive policing (i.e., profiling), real-time biometric identification system in most circumstances, and manipulative or deceptive practices.

<https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>

# Additional Regulations on Use of AI

- October 2023: Executive Order (E.O.) 14110 on Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence
- Establishes a government-wide effort to guide responsible artificial intelligence (AI) development and deployment

<https://www.whitehouse.gov/briefing-room/statements-releases/2023/10/30/fact-sheet-president-biden-issues-executive-order-on-safe-secure-and-trustworthy-artificial-intelligence/>

# SOA Research Institute selected to participate in AI Safety Institute Consortium (AISIC)

- Stemming from EO 14110
- U.S. Department of Commerce's National Institute of Standards and Technology (NIST)
- Creation of U.S. AI Safety Institute Consortium
- SOA Research Institute one of approximately 200 entities part of the group; Tech firms, research groups, universities

# SOA Research Institute selected to participate in AI Safety Institute Consortium (AISIC)

- Workstreams:
  - Working Group #1: Risk Management for Generative AI
  - Working Group #2: Synthetic Content
  - Working Group #3: Capability Evaluations
  - Working Group #4: Red-Teaming
  - Working Group #5: Safety & Security

# Primer on Generative AI

- <https://www.soa.org/resources/research-reports/2024/generative-ai-for-actuaries/>



## A Primer on Generative AI for Actuaries





# Primer on Generative AI

- General Productivity:
  - Meetings, Summarizing Information, Learning, Draft content
- Coding and Software Development
- Model Documentation and Governance
- Enriching, Manipulating, Analyzing Data
- Scenario Analysis
- Claims
- Underwriting

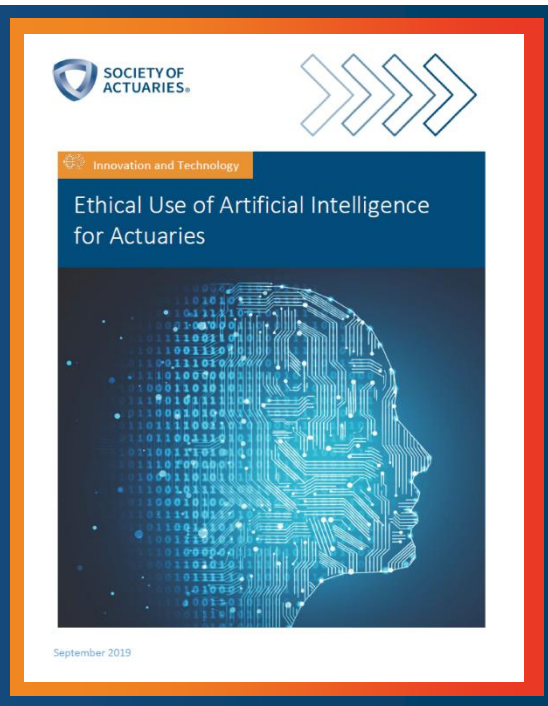
# Intersection of AI and Bias



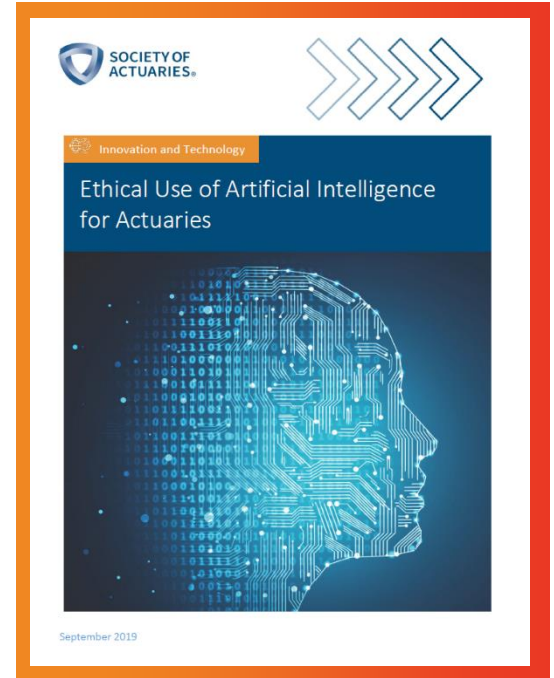
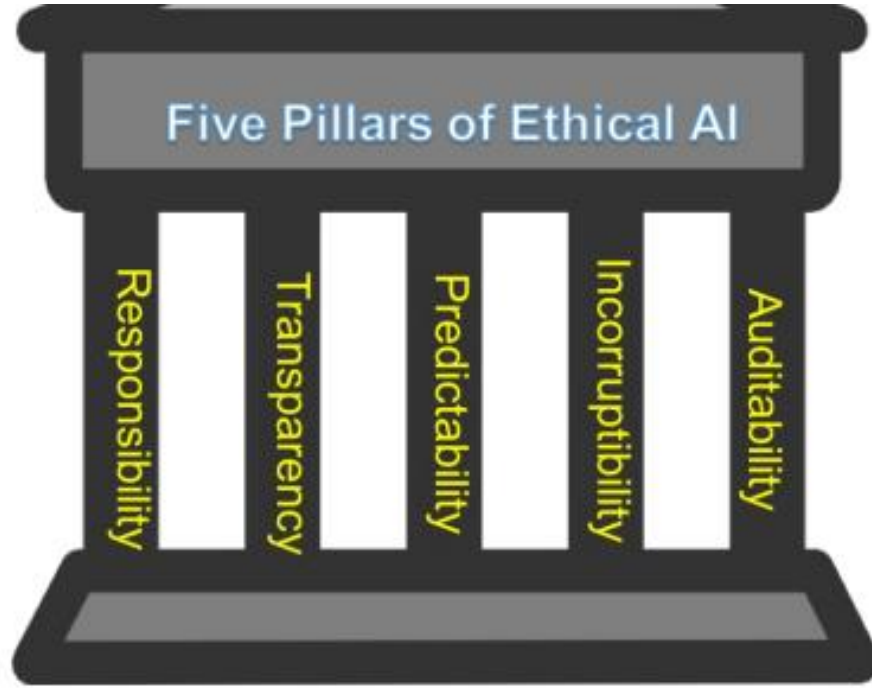
# Ethical Use of Artificial Intelligence for Actuaries

Highlights ethical risks arising from AI applications in actuarial practice and tools to identify and manage it. Includes a technical overview of AI tools and disciplines.

<https://www.soa.org/resources/research-reports/2019/ethical-artificial-intelligence/>



# Ethical Use of Artificial Intelligence for Actuaries



# SOA Code of Conduct

- SOA Current Code of Conduct was adopted effective January 1, 2001
- Same Code of Conduct for five U.S.-based actuarial organizations
- <https://www.soa.org/about/governance/about-code-of-professional-conduct/>
- Consider AI in the context of Professionalism

# Societal Responsibilities as Actuaries

## Precept 1: Professional Integrity

An Actuary shall act honestly, with integrity and competence, and in a manner to fulfill the profession's responsibility to the public and to *uphold the reputation of the actuarial profession.*

# Societal Responsibilities as Actuaries

## Precept 3: Qualification Standards

An Actuary shall perform Actuarial Services only when... qualified... on the basis of basic and continuing education and expertise...

# Societal Responsibilities as Actuaries

## Precept 10: Courtesy and Cooperation

An Actuary shall perform Actuarial Services with courtesy and professional respect and shall cooperate with others in the Principal's interest.



# U.S. Actuarial Board for Counseling and Discipline (“ABCD”)

- Respond to requests from members of the five participating U.S.-based organizations for guidance regarding professionalism.
- Counsel actuaries when appropriate.
- Recommend discipline, when appropriate, to membership organizations.

<https://www.abcdboard.org/>

# Bias Continuing Education *USQS 2.2.6 (b)*

- *Are you assuring that every person in the full population has an equal chance of being part of the sample?* **Statistical Sampling Bias**
- *When comparing two groups, are you avoiding pre-existing differences between the groups?* **Bias in Assignment**
- *Are you trying to account for all potential variables when drawing conclusions?* **Omitted Variable Bias**

# Bias Continuing Education *USQS 2.2.6 (b)*

- *Are you confident the study subjects are motivated to respond accurately?* **Self-Serving Bias**
- *Are you influencing results of the study through unconscious cues?* **Experimenter Expectations Bias**

# Bias Continuing Education *USQS 2.2.6 (b)*

- *Are you making a judgment about certain individuals or groups due to preconceived notions about the group?* **Social Bias**
- *Are our social biases collectively becoming the norm?* **Societal Bias**

# Risk Classification / Bias / Discrimination

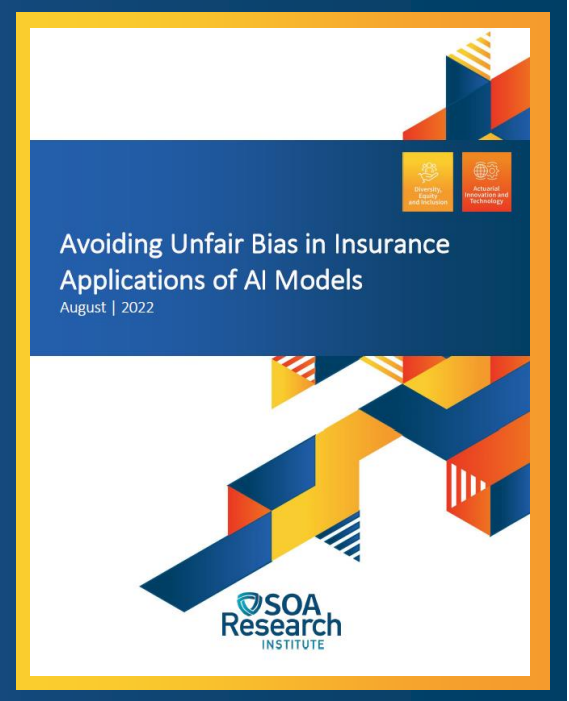
- Risk Classification
  - Grouping people together according to the risks they present
  - Data-driven similarities in costs for potential losses or damages
- Be aware of biases
- Avoid unintentional discrimination or causing disparate impact
  - Unjust or prejudicial treatment of different categories of people

# Avoiding Unfair Bias in Insurance Applications of Artificial Intelligence

Outlines a framework for avoiding or mitigating risks of unfair bias when developing insurance industry AI models.

Developed from interviews with industry leaders on this topic.

<https://www.soa.org/resources/research-reports/2022/avoid-unfair-bias-ai/>



# Avoiding Unfair Bias in Insurance Applications of Artificial Intelligence

- Value Scoping: Evaluate business value, success metrics and risks of the model.
- Value Discovery: Determine the data required, establish measures to test for fairness, and monitor data elements that may correlate to protected attributes and could be introducing unfair bias.
- Value Delivery: Deploy into production environment and transition into business-as-usual production, provide appropriate training
- Value Stewardship: Monitor and reporting to ensure that model performance is not degenerating

# Top Items Found in the San Antonio River

- Chairs
- Silverware
- Salt & Pepper Shakers
- Bottles
- Cans
- Cell Phones
- Skateboards
- Snakes
- Scooters





# River Security Issues Case Study: BasicWater Life; Seltzer Life; and Margarita Life

Volunteers?



# For Your Case Study

- What are the applicable Code of Conduct issues if this happened within the actuarial profession?
- What are remedies? What training helps prevent the issue or make the individuals more aware?

# BasicWater Life

- Small company specializing in marketing new flavor of a hybrid LTC products called “River Security” through online distribution
- Using Seltzer Life as a reinsurer for these products

# Seltzer Life

- Reinsurance Company
- Profitable relationship with BasicWater Life in recent years due to success of River Security product
- Acquired expertise these products through working with BasicWater Life on pricing, reinsurance arrangements, and distribution

# Margarita Life

- Large, well-capitalized company
- In the process of investigating products similar to River Security
- Asks Seltzer Life to lend expertise in pricing of new products
- Strongly hints that if this venture proves successful, significant amounts of other business across many lines of business will follow.
- Possibilities have been passed along to Seltzer Life who is anxious to execute this agreement.

# River Security Issues

- Seltzer Life's pricing actuary:
  - Suspects that Margarita is targeting BasicWater's distribution partners
  - Suspects Margarita is expecting to gain a competitive advantage by using Seltzer's knowledge of BasicWater's River Security Product
  - Comments on tentative pricing assumptions are expected within the next week.
  - Seltzer's Senior Executive has just called to check on the progress of the negotiations.

# River Security Issues

- What do we see as the issues across the players involved with this scenario?
- What Precepts in the SOA Code of Conduct should we consider?
- <https://www.soa.org/about/governance/about-code-of-professional-conduct/>

# River Security Issues

- What alternatives are available to the various players?
  - Cinderella Life
  - MidMajor Life
  - Favorite Life
- What do you recommend?



# River Security Issues

- Based on a true story...

# Questions and Feedback

@soactuaries

<https://www.soa.org/research/research-institute/>

<https://www.soa.org/newresearch>

@rdalehall

[research@soa.org](mailto:research@soa.org)



<https://www.linkedin.com/in/rdalehall/>

**SOA Research Institute**

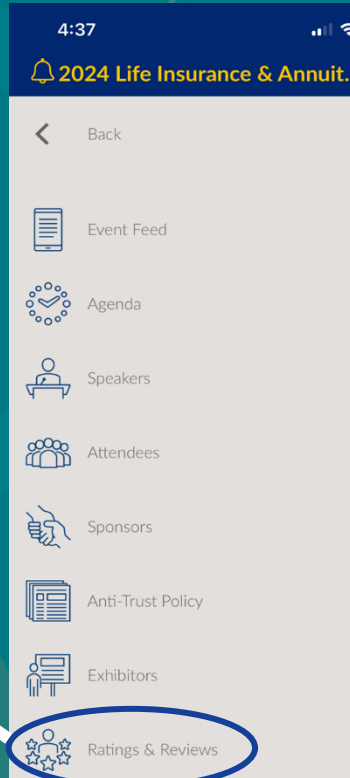
Delivering Trusted and Innovative Risk Research



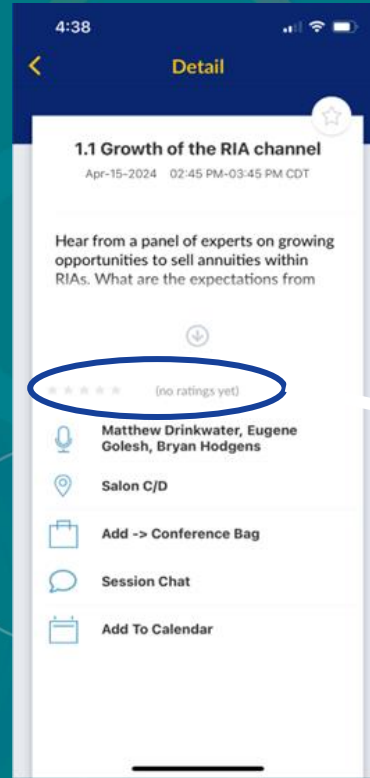
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# Please Provide Your Feedback on the Conference App

## OPTION 1



## OPTION 2



# Thank You

