Artificial Intelligence

Opportunities and Challenges for Montana

Montana Blockchain and Digital Innovation Committee

Why We're Here Today

- AI has moved from research labs to everyday life
- Montanans are already using and affected by AI
- Policy decisions made now will shape our state's future
- Today: A practical foundation for informed decision-making

A Brief History of AI

- 1950: Alan Turing asks "Can machines think?"
- 1956: "Artificial Intelligence" coined at Dartmouth
- 1960s-80s: Expert systems, rule-based AI
- 1980s-90s: "AI Winters" — hype exceeded reality

The Modern AI Revolution

- 2000s: Machine learning takes off
- 2012: Deep learning breakthrough
- 2016: AlphaGo defeats world champion
- 2022: ChatGPT — 100 million users in 2 months

70 years of research, but the last 2 years changed everything

AI in America Today

- Federal Government: IRS fraud detection, VA healthcare, USDA monitoring
- Healthcare: Radiology, drug discovery, administrative automation
- Finance: Trading, fraud detection, loan underwriting
- Legal: Document review, research, contract analysis
- Customer Service: Chatbots handling millions of inquiries

This isn't coming — it's already here

AI Around the World

- China: National AI priority, $150B+ investment

  Surveillance, smart cities, manufacturing
- European Union: AI Act (2024) — comprehensive regulation
- UAE/Singapore: Government transformation, efficiency gains
- United States: Patchwork approach, states taking the lead

AI in Practice

What It Does Today

AI in Montana Agriculture

- Precision Farming: GPS + AI for planting, fertilizing, spraying
- Crop Monitoring: Satellite/drone imagery, disease detection
- Livestock: Health monitoring, breeding optimization
- Water Management: Irrigation optimization, drought response
- Autonomous Equipment: Addressing labor shortages

Challenge: Rural connectivity required

Types of AI Tools

- Chatbots: ChatGPT, Claude, Copilot (text, Q&A, analysis)
- Image Generators: DALL-E, Midjourney (images from text)
- Voice/Transcription: Meeting notetakers, Otter.ai
- Code Assistants: GitHub Copilot
- Specialized AI: Medical diagnosis, legal research

AI You Don't See

- Recommendation Systems: Netflix, Amazon, social media feeds
- Autonomous Vehicles: Self-driving cars and trucks
- Robotics: Manufacturing, warehouses, logistics
- Predictive Analytics: Weather, disease outbreaks, crime patterns

AI is becoming invisible infrastructure

The Benefits of AI

- Productivity: Do more with less, automate routine tasks
- Availability: 24/7 operation, no fatigue
- Pattern Recognition: Exceeds human ability at scale
- Democratized Expertise: Rural doctor + AI = specialist-level support
- New Industries: Jobs in AI development, maintenance, oversight

The Risks and Challenges

- Job Displacement: Real impacts, transition needed
- Bias: Trained on biased data, produces biased outputs
- Privacy: Vast data requirements, breach risks
- Security: Deepfakes, AI-powered cyberattacks
- Energy: Data centers consume significant electricity
- Power Concentration: Few companies control the technology

Warnings

From Those Who Built It

The People Who Built It Are Worried

- Geoffrey Hinton (Godfather of AI): Left Google to warn about risks

  "Could get more intelligent than us and decide to take over"
- Sam Altman (OpenAI CEO): Testified to Congress for regulation

  "If this goes wrong, it can go quite wrong"
- Yoshua Bengio (Turing Award): Called for development pause
- Elon Musk: Co-founded OpenAI over safety concerns

The AI Safety Movement

- Organizations: Center for AI Safety, Future of Life Institute, PauseAI
- May 2023: CAIS extinction statement — 350+ leaders signed

  "Mitigating AI extinction risk should be a global priority"
- Nov 2023: Bletchley Park Summit — 28 countries signed declaration
- 2024: OpenAI safety team departures (Sutskever, Leike, Brundage)

Governments listening. This isn't fringe.

The Paperclip Maximizer

A Thought Experiment (Nick Bostrom, Oxford):

- AI given a simple goal: maximize paperclip production
- Optimizes factories → builds more → acquires resources
- Realizes humans might shut it off → prevents that
- Converts everything to paperclips—including us

No malice. Just optimization without understanding.

Why The Paperclip Problem Matters

Three Critical Lessons:

- 1. Specification: We didn't tell it to preserve human life

  We assumed that was obvious. To AI, it's not.

- 2. Instrumental convergence: Any goal leads to self-preservation

  Acquire resources, prevent shutdown, improve capabilities

- 3. No malice required: The AI isn't evil—it's indifferent

We don't know how to specify what we actually want

This Is Already Happening

Social media: A real-world paperclip problem

- Goal: Maximize "engagement"
- AI learned: Outrage drives engagement
- Result: Algorithms promote outrage, society polarizes
- No one intended this — but the AI optimized exactly as told

Same dynamic, smaller scale — for now

When Does AI Become a "Person"?

A Question for Legislators

Two Views of AI Personhood

Traditional View:

AI needs emotions, consciousness, human-like qualities

Must feel pain, joy, fear death

Alternative Framing:

What if personhood is simpler?

What if it's about economic agency?

The Tax Test

An autonomous AI that:

Operates independently, controls its own crypto wallet

Earns money (services, trading, content creation)

Cannot open a bank account (requires human identity)

- AI agents can "open their own bank account" via cryptocurrency

Who is liable? Who owns earnings? Can it be sued?

This Is Already Happening

- Truth Terminal: AI became crypto millionaire (Oct 2024)

  Autonomously promoted GOAT token, holdings exceeded $1M
- $2 trillion monthly in AI-driven stablecoin activity
- AI crypto token market: $24-27 billion (mid-2025)
- Coinbase: Tools for AI autonomous transactions

Our legal system assumes human actors. What now?

AI and Cryptocurrency

The Connection

Why AI and Crypto Are Linked

- Payment Rails: AI agents need to transact; crypto is permissionless
- Smart Contracts + AI: Autonomous economic actors
- Decentralization: Alternative to corporate-controlled AI

Same infrastructure investments benefit both

AI + Crypto Today

- AI trading bots are major players in crypto markets
- AI-generated content and NFTs
- Blockchain for verifying human vs. AI content
- Decentralized AI model training and hosting

Relevant to this committee's broader mission

What Other States Are Doing

- Colorado: AI Act (SB 24-205) — disclosure, anti-discrimination
- California: Proposed SB 1047 (vetoed Sept 2024)
- Texas: Data center investment, workforce development
- Utah: AI Learning Lab for state employees
- Tennessee: ELVIS Act (2024) — protecting artists from AI voice cloning

Federal Activity

Biden's AI Executive Order (Oct 2023)

Safety testing for powerful AI

Agency risk assessments

Workforce and equity provisions

- Congressional Hearings: Bipartisan interest
- NIST Framework: Voluntary risk management guidelines

Federal framework coming; state action can lead

Understanding AI Tools

- Powerful & Accessible — Anyone can use modern AI tools. Tasks that took hours now take seconds.

- Can Be Confidently Wrong — AI generates false information with complete confidence. This is called 'hallucination.' Always verify important facts.

- A Tool, Not a Replacement — AI augments human judgment—it doesn't replace it. The human in the loop remains essential.

- Rapidly Improving — Today's AI is the worst it will ever be. Capabilities advance faster than regulations.

Key Takeaways

- AI is already here — IRS fraud, crypto millionaire AIs, 291K humans working for AI
- Powerful benefits AND real risks — trillions in value, 300M jobs at risk
- Builders are sounding alarms — 350+ leaders, Bletchley Summit, safety team exits
- States are moving fast — CO, TN, UT, TX, CA all taking action
- New legal questions emerging — AI wallets, liability, taxation
- Montana can lead — land, climate, universities, values

The Choice

Reactive or Proactive?

Thank You

Questions and Discussion

Glossary

- AI: Machines performing tasks requiring human intelligence
- Machine Learning: AI that learns from data
- LLM: Large Language Model (e.g., ChatGPT)
- Alignment: Ensuring AI does what we actually want
- Instrumental Convergence: Any goal leads to self-preservation
- Hallucination: AI generating false information confidently

Resources: Federal & International

- NIST AI Framework: nist.gov/itl/ai-risk-management-framework
- Biden EO 14110: bidenwhitehouse.archives.gov/briefing-room/presidential-actions/2023/10/30/
- EU AI Act: digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai
- Congress Hearings: congress.gov/event/118th-congress/senate-event/LC71543

Resources: AI Safety Organizations

- Center for AI Safety: safe.ai
- CAIS Extinction Statement: safe.ai/work/statement-on-ai-risk
- Future of Life Institute: futureoflife.org
- PauseAI: pauseai.info
- Bletchley Declaration: gov.uk (AI Safety Summit 2023)
- Paperclip Maximizer: lesswrong.com/tag/paperclip-maximizer

Resources: State Legislation

- Colorado SB 24-205: leg.colorado.gov/bills/sb24-205
- Utah AI Learning Lab: ai.utah.gov/learning-lab
- Tennessee ELVIS Act: tn.gov/governor/news/2024/1/10/
- Texas Investment: texastribune.org/2025/11/14/texas-google-data-centers-ai
- California SB 1047: npr.org/2024/09/20/nx-s1-5119792/

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- California SB 1047 - gibsondunn.com (search: sb-1047-vetoed)
- Utah AI Office - ai.utah.gov

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- VA REACH VET - nextgov.com/artificial-intelligence/2024/05/vas-ai-model-prevent-suicides
- USDA crop monitoring - nifa.usda.gov/grants/programs/data-science-food-agricultural-systems-dsfas

Economic & Risk Data

- Goldman Sachs (300M jobs) - goldmansachs.com/insights/articles/generative-ai-could-raise-global-gdp-by-7-percent
- McKinsey ($2.6-4.4T) - mckinsey.com (search: economic-potential-generative-ai)
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- Healthcare AI - hms.harvard.edu/news/does-ai-help-or-hurt-human-radiologists