We're All Managers Now

Effective Collaboration with AI

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Outline:

- Introduction
- Understanding AI fundamentals
- Collaborating effectively with AI
- Real-world applications

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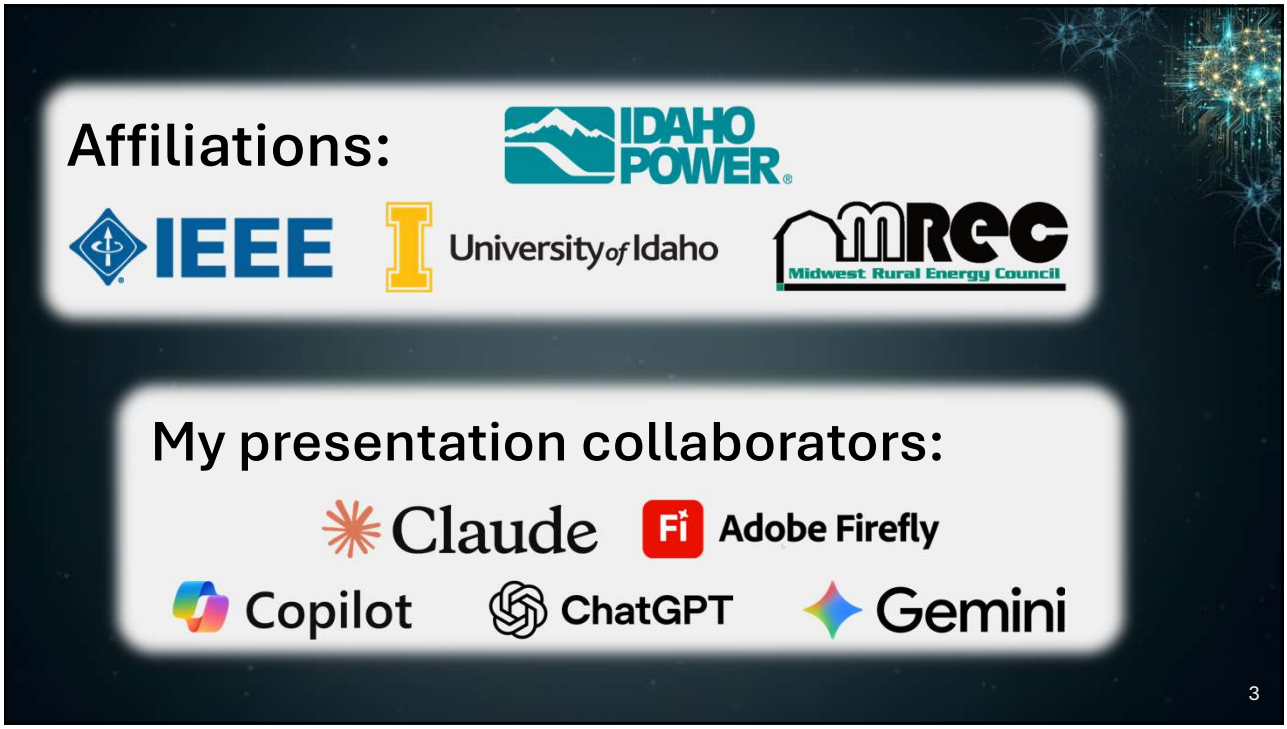
Affiliations:
IDAHO POWER
IEEE
University of Idaho
mrec
Midwest Rural Energy Council
My presentation collaborators:
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Adobe Firefly
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ChatGPT
Gemini
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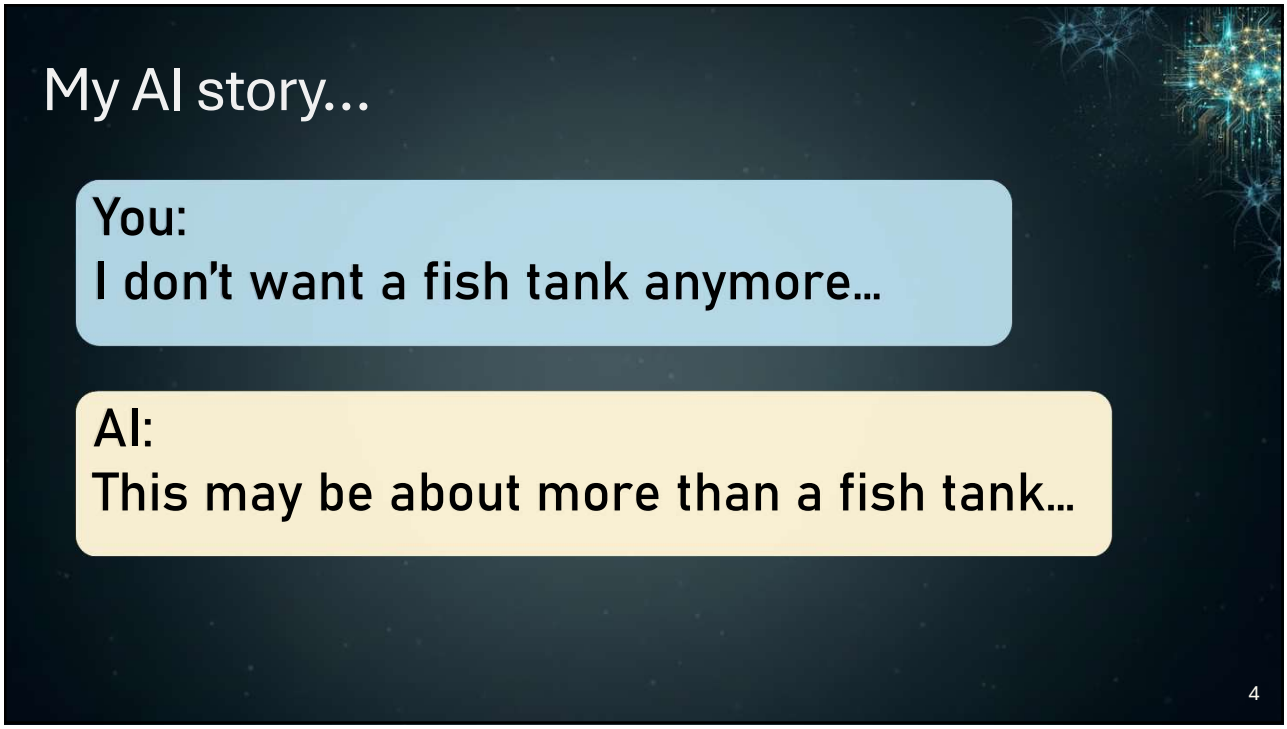
My AI story…
You:
I don't want a fish tank anymore…
AI:
This may be about more than a fish tank…
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AI's Evolution:
Expert Systems – 1970s-1990s

- Hand-coded rules : programmed IF-THEN logic
  - Explainable results
  - Captures expertise – *if the expert can explain it*
  - Labor-intensive
  - Narrow domain – built for a specific focus

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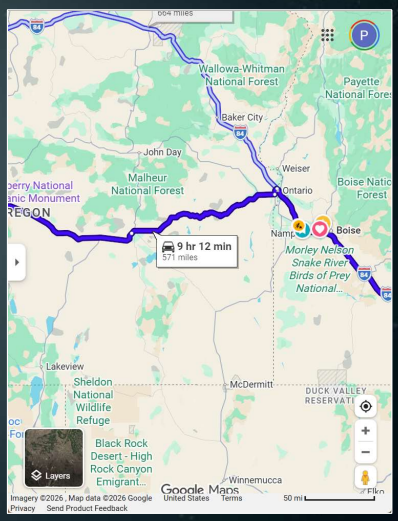
AI's Evolution:
Machine Learning – 1990s-2010s

- Learns from examples
- Improves with data
- Finds non-obvious patterns
- No programming needed
  - Examples: spam filters, Google maps
- Limitations: Narrow domain, requires lots of data



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AI's Evolution:
Deep learning and neural networks – 2010s

- Inspired by biological neurons
- Multiple layers learn complex patterns automatically
- Learns directly from raw data (pixels, sound waves)
- Breakthroughs: image recognition, speech recognition, learning games
- Special-purpose/narrow-domain systems

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AI's Evolution:
Generative AI – 2017+

- Transformer architecture
  - Learns to "understand" context and relationships
  - Processes whole sentences at once
  - Generates *new* content - text, images, code, speech, video
  - Accessible: Conversational interface
  - General purpose: broad knowledge and skill base
    - Writing, research, coding, etc.

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AI's Evolution:
Today

- Modern AI tools are like eager, intelligent interns
- For effective collaboration, we need to actively manage and direct them
  - Delegate work appropriately
  - Explain objectives
  - Check their work
  - Employ them ethically

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Understanding AI fundamentals

"Humans, walking and talking bags of water and trace chemicals that we are, have managed to convince well-organized sand to pretend to think like us."

Mollick, Ethan. *Co-Intelligence: Living and Working with AI* (p. 193). Penguin Publishing Group. Kindle Edition. 2024

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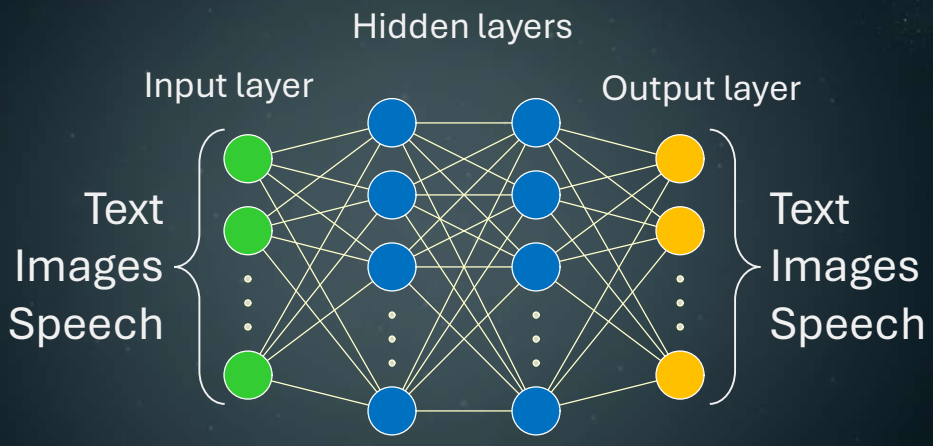
Neural networks



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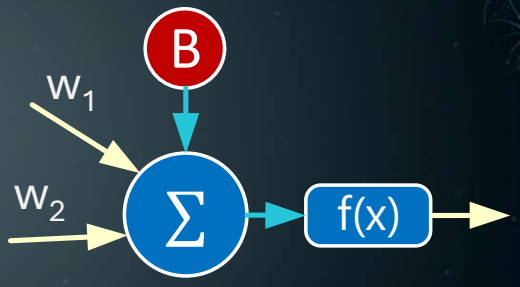
Training AI: Unsupervised learning

1. Start with random weight (w_x) and bias (B) values
2. Read billions of pages of text, predicting next words
3. Backpropagate small corrections to weights and biases to improve predictions
4. Repeat billions of times



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Training AI: Supervised learning

- Learning from labeled data:
  - Images labeled “cat” or “dog”
  - Emails labeled "spam" or "not spam“
  - Medical scans labeled with diagnoses
  - Examples of good and bad responses

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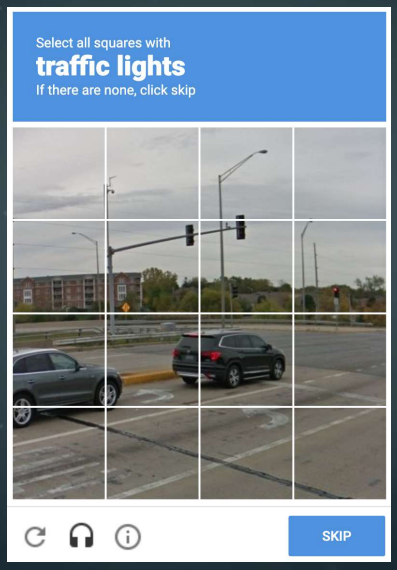
We’ve all helped train AI

reCAPTCHA:

Completely
Automated
Public
Turing tests to tell
Computers and
Humans
Apart



reCAPTCHA is a Google technology

Alphabet, Google’s parent company, owns Waymo, an autonomous driving company.

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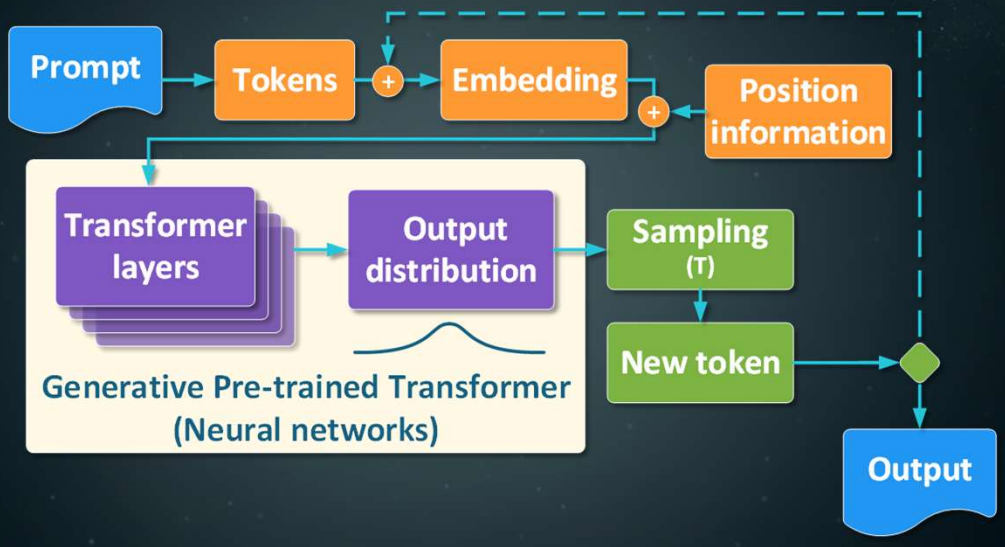
Putting the pieces together:



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The transformer layers:
It's about understanding

- In each transformer layer, tokens gather information about the other tokens
- Gradually, important relationships, context, and meaning are added
- Examples – understanding pronouns:
  - Bank and bank
  - Trophies and suitcases
  - Students and teachers

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Understanding AI basics:
Important limitations

1. Knowledge cutoff dates
2. Path dependency/ “commitment bias”
3. “Hallucinations”
4. Context window limitations
5. Mathematics
6. Access to proprietary/specialized information

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Collaborating effectively with AI

- AI Fluency and the AI Fluency Framework
- Evaluating the AI’s results
- Prompting techniques to address limitations and improve results

This section includes material from the Framework for AI Fluency by Rick Dakan, Joseph Feller, and Anthropic (2025), used under a CC BY-NC-SA 4.0 license. Available at anthropic.com/ai-fluency

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What is AI Fluency?

- EFFECTIVE
- EFFICIENT
- ETHICAL
- SAFE

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How we work with AI

Automation
AI does tasks based on your instructions

Augmentation
We collaborate as thinking partners

Agency
AI works independently on your behalf

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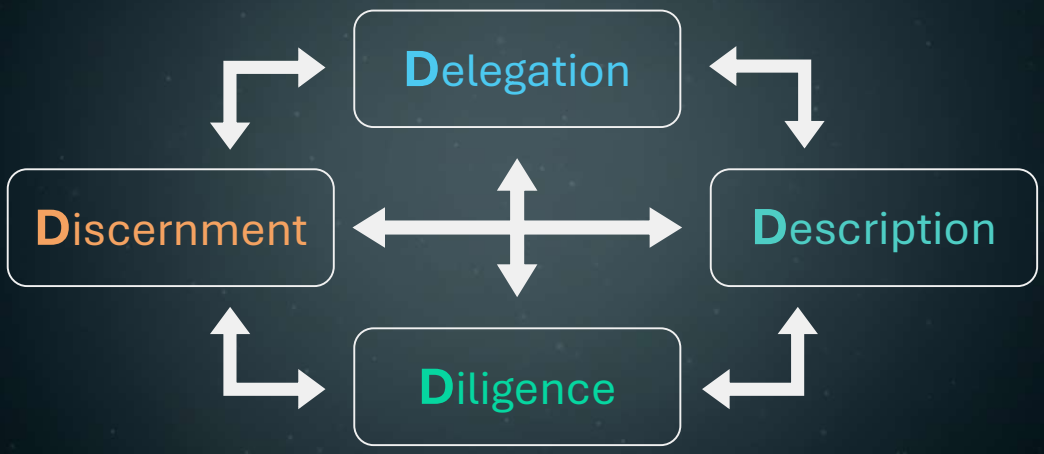
The four core competencies – 4Ds



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Delegation:

Deciding what, when, and how to engage AI

Problem Awareness → Know your goals

Platform Awareness → Know AI's capabilities

Task Analysis → Split AI/human/collaborative work

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Delegation:

Creating an effective human-AI partnership

Humans provide	AI provides
Critical thinking	Speed
Judgement	Scale
Creativity	Pattern recognition
Ethical oversight	Processing abilities

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Description:

Clear communication gets better results

Context	Examples
Constraints	Step-by-step
Think first	Tone/Role

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Description:

Three Types of Prompting

Descriptive → Translate your vision

Dialogic → Back-and-forth refinement

Directive → Define future behavior

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Discernment:

Trust but verify

- ☑ Is this accurate and complete?
- ☑ Does this meet our standards?
- ☑ What's missing or wrong?
- ☑ How can I verify this?

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Discernment:
Evaluating AI outputs

Red Flags:	Your Response:
Generic responses	Request specifics
Overconfident tone	Ask for sources
Missing local factors	Add your context
Outdated standards	Verify independently

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Diligence:
Taking responsibility for AI-assisted work

Creation → Choose tools thoughtfully

Transparency → Disclose AI's role

Deployment → Verify and vouch for outputs

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Diligence:
Ethical Considerations

- **Privacy & Security** → Protect private data
- **Bias Awareness** → Verify for your context
- **Compliance** → Check regulations
- **Verification** → Fact-check everything

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Diligence:
Organizational realities

- Basis for company restrictions on AI use:
  - Data privacy and security
  - Compliance and regulatory risk
  - Accountability and liability
  - Transparency and trust
- The diligence competency directly addresses these.

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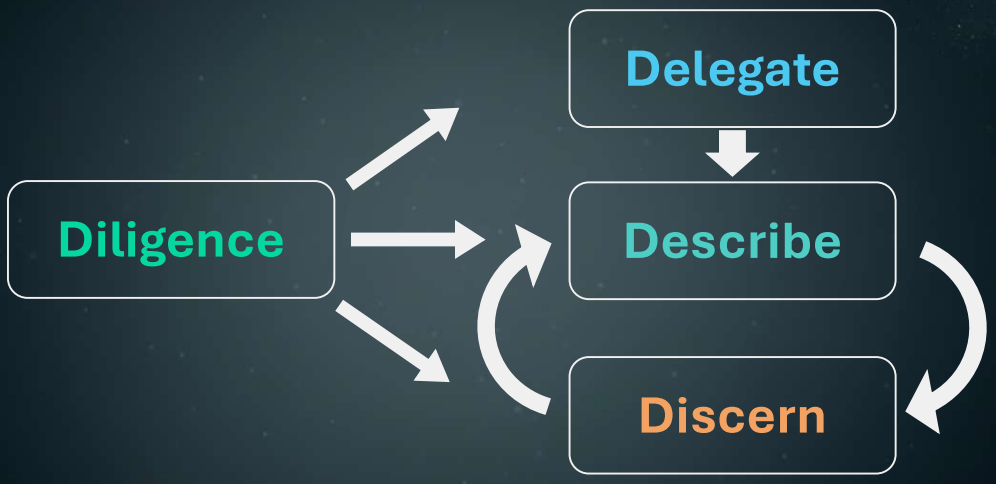
The 4Ds in Action



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Evaluating collaboration:
How to know it worked

1. Task understanding: Did it understand and do what I asked?
2. 80% progress: Is it 80% of the way "there?"
3. Reputation: Would I stake my name on it after review?
4. Time savings: Did it save me time?
5. Authenticity: Does it sound like me (for communications)?

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Effective Prompting:
Not Web search

- Web search: Keywords → see what comes up
- AI prompting: Detailed context → specific results
- The paradox: More effort upfront = less time overall
- Examples:

❌ "write safety procedure“

✅ "Write a lockout/tagout procedure for a 138kV circuit breaker replacement. Include our company's standard safety briefing format, reference NFPA 70E requirements, and assume a two-person crew with one qualified electrical worker."

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Prompting to address limitations

Limitation	Technique
Knowledge cutoff	Upload current docs
Path dependency	Start fresh chat / Ask AI to reconsider
Hallucinations	Request sources / Ask confidence level
Context limits	Smaller tasks; summarize between steps
Mathematics	Go step-by-step; verify calcs independently
Specialized Info	Upload specs, standards, procedures

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Prompting to address limitations: Knowledge cutoff and RAG

- Retrieval-Augmented Generation
- Uses uploaded documents or web search
- AI may search automatically, or if instructed:
  - “Who is the current U.S. Secretary of State?”
  - “Please search for the most recent information about…”
- AI will evaluate relevance and reliability before using web results.

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Advanced Prompting Techniques

- Give it thinking time: "Before answering, think through [problem/options/implications]"
- Request self-review: “Review your response for [accuracy/completeness/safety]"
- Ask AI for prompting help: “What information should I include for [task]?"
- Iterate, iterate, iterate: First attempt is rarely perfect, treat it as a conversation. Prompt → evaluate → refine → repeat

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Build your prompt catalog

- Save effective prompts
  - Copy to a document
  - Note task/situation
  - Refine based on results
- Benefits:
  - Consistency
  - Time savings
  - Team sharing
  - Continuous improvement

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Real-world applications: This presentation!

- More than 50 separate chats and >150 prompts
- Total output from AIs: >60 pages, including:
  - Technical content development, accuracy check, presentation delivery and pacing suggestions, group activity ideas, tutoring on aspects AI, font and color scheme recommendations, committee review.
- Delegation, description, discernment, and diligence in action!

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Real-world applications: Iterating in image creation

More than 20 different backgrounds were generated with iterative prompting.

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Real-world applications: Summarizing/interpreting standards:

"Review this stray voltage investigation protocol and create a list of tools I'll need to perform the required tests." (Context included PDF of protocol)

Response: *5 pages of information describing the required tools, tool specs., and other equipment needed. Time: 30-seconds.*

Output met the applicable "did it work" tests on first pass but could be refined.

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Real-world applications:
What's new in an updated standard?:

Prompted AI to compare IEEE Std. 1695-2024 to the 2016 version and summarize updates. Instructed the AI that rearranged content isn't "new," just moved.

Response: *Review and analyzed ~280 pages. Delivered 3-page summary of content and structure changes. Time: ~5 minutes including writing the prompt and uploading the standards.*

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Real-world applications:
Your "committee in a box"

- Ask AI to review communications from different perspectives
  - Dave – Senior Protection Engr. 25 yrs experience
    - Concerns: accuracy and safety
  - Karen – Distribution Ops Mgr., MBA, manages 40 people
    - Concerns: team adoption, liability, protecting information
  - Marcus – Customer service rep. 3 yrs experience
    - Concerns: it's too technical, afraid of being left behind
  - Janet – Electrical Engr. 15 yrs exp. Skeptical of AI
    - Concerns: overclaiming. Her feedback: "80% isn't good enough!"

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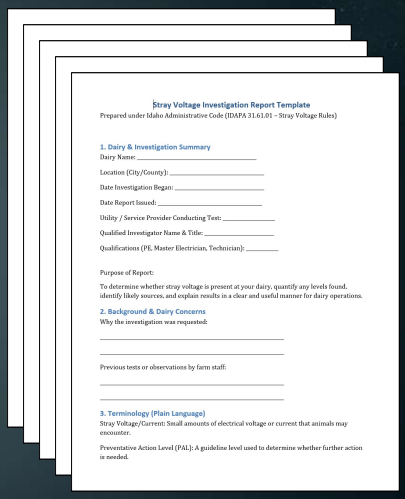
Real-world applications:
No more blank pages

- Do you write reports for customers or to meet regulatory or company requirements?
- Give AI the requirements (upload or direct the AI to them) and ask AI to create a template report that you can update.



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Real-world applications:
Tutor

- Learning something new? Ask AI to:
  - Create a learning plan
  - Explain confusing concepts simply
  - Check your understanding as you explain something to AI
  - Recommend learning resources

Prompt about transformers

AI explains…

Please check my understanding…

You're close. Let me explain another way…

Please check me again…

Now you've got it. That's exactly right…

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Next steps

- This week:
  - Get started if you haven't - Create one or more free accounts or use employer-provided service(s)
  - Pick a low-risk task (explain/summarize something, draft an email)
  - Write a detailed prompt using what you learned here
  - Evaluate results using the 5 successful collaboration tests
- This month:
  - Try progressively complex tasks
  - Share a useful prompt with a coworker

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Ask AI.

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AI diligence statement

This presentation was developed with assistance from generative AI tools. Claude, ChatGPT, Copilot, and Gemini were used to deepen my understanding of large language models, explore presentation design, and refine the content structure and messaging. Adobe Firefly was used to generate slide backgrounds. All AI-generated content was reviewed, verified, and adapted to ensure accuracy and alignment with the presentation's objectives. All final decisions regarding content and recommendations are my own, and I take full responsibility for this presentation's accuracy and appropriateness. – Paul Ortmann

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To learn more:

- Susskind, Richard. *How to Think About AI: A Guide for the Perplexed*. Oxford University Press, 2023.
- Mollick, Ethan. *Co-Intelligence: Living and Working with AI*. Portfolio, 2024.
- To learn about AI, ask AI…

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