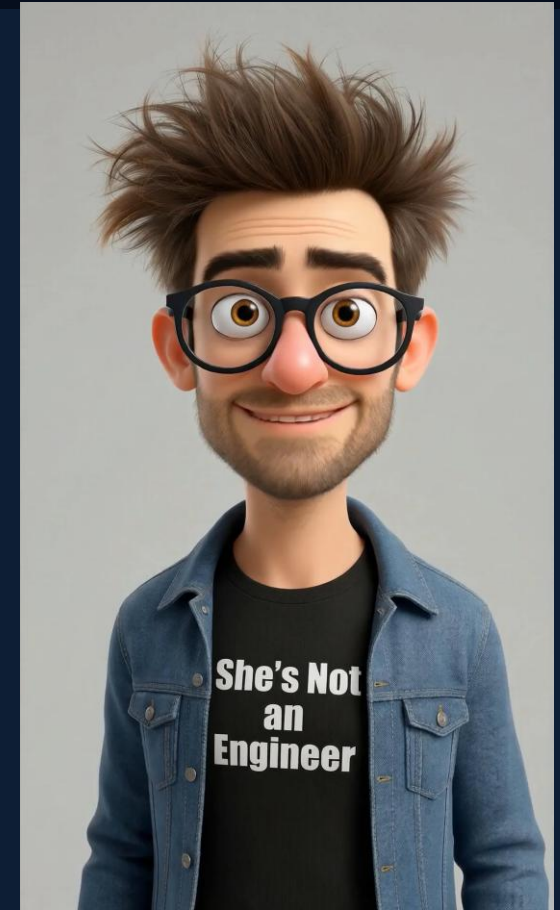


AI: The Advanced Class

*You Already Know the Basics.
Now Let's Get to the Good Stuff.*

Tracy Kelley | Project Manager, Garrett County Public Works
Bridge Program Manager | And Apparently, Not An Engineer 🗑️

⚡ Advanced Prompting • Excel Code • Grant Writing • Hallucination Hunting
🔍 AI Self-Critique • Tutorial Writing • Choosing the Right AI • Live Demos



*"She said I could have
the spotlight today.*

She lied."

SUNNY | AI Co-Presenter

Why Should I Care About Using AI?

Fair question. Here's the honest answer:



It's already "In The Building"

Microsoft 365, Google, Adobe — they're all adding AI features right now. It's showing up whether you asked for it or not. It's about learning how to use the new "Power Steering" on the tools you've used for 20 years



The Mandate is Already Here

The White House issued Executive Order 14110 on AI in October 2023. The AI Governance Act of 2024 (SB 818) was approved by Governor Moore in May 2024 and officially went into effect on July 1, 2024.



It Will Save You Time

For any staff member who feels overworked, AI is a "force multiplier." Almost half of the people working in county and state jobs are already using AI as a helper. If you look around any room with 10 people, four or five of them are likely already using it to help manage their workload. It's becoming the standard "tool in the belt" for government work.



Why Learn it now = because the choice "not to use it" is actually disappearing.

If we stick to the "old way" of doing everything by hand, we'll be like someone trying to find a dial tone on a cell phone. The "choice" is disappearing because the people we work with (contractors, state agencies, other counties) have already made the switch.

Will AI Take My Job?

The bigger risk isn't AI replacing your job.

It's not using it at all. AI is here to stay.

What AI Will Replace

Tasks:

Writing drafts, routine emails
Summarizing documents and data
Customer Service replies
Repetitive processes: data entry, scheduling

What AI Can't Replace

You:

Leadership & decision-making
Field Work / Hands-on problem solving
Building Relationships
Judgement calls when things go sideways

Bottom Line:

AI replaces busywork. It speeds up thinking work. It elevates people who learn. It pressures people who ignore it. The workplace is moving from doing the work manually to directing AI to do the work for you.

⚡ AI 101 Speed Round

For Anyone Who's Been 'Too Busy' to Try AI Yet — You Know Who You Are

🤖 What is AI?

AI is software that finds patterns in large amounts of data and uses those predictions.

It's been trained on billions of documents, websites, and books.

When you type something, it's not "thinking", it's predicting the most likely and over, incredibly fast.

Think: very fast, very well-read intern.



👉 The Big Tech Companies using and scaling AI?

Microsoft (Copilot, big partner with OpenAI)

Amazon (AWS AI tools)

Meta (Facebook/Instagram AI)

Apple (AI in devices)

💬 ChatGPT / Claude / Gemini

These are chat-based AI tools. You type, they respond. Free to start. Available right now on your phone.

⚠️ What should I know?

It will come to you whether you seek it or not.

It makes mistakes. Always verify important facts. Never paste into free tools. YOU are still the expert.

It's a tool that requires judgment to use well, not a source of



🤖 Sunny says: Speed round complete. If you're still confused, see me after class. I charge by the hour. Tracy doesn't know that yet.

When I say "Critical", what's the next word you think of?

condirion



Mentimeter



menti.com
2116 6214

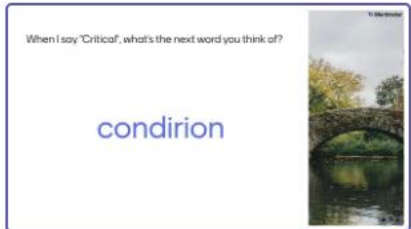
1 of 1 responded



Menti

My first word cloud

Select which slide to add





Choosing the Right AI for the Job

They're Not All the Same — Here's the Cheat Sheet

Claude

✓ Long documents, analysis, nuanced writing, coding, following complex instructions

🎯 Best for: Reports, RFPs, policy docs, data analysis

ChatGPT

✓ General tasks, image generation (DALL-E), browsing the web, broad coding help

🎯 Best for: Quick tasks, images, web research, Excel formulas, brainstorming, learning language by conversation. It will get to know you.

Gemini

✓ Google Workspace integration, Gmail/Docs/Sheets, real-time Google search

🎯 Best for: Anyone living in Google — Docs, Gmail, Sheets. Producing images and videos

Copilot

✓ Microsoft 365 — Word, Excel, Teams, Outlook built right in

🎯 Best for: Windows/Office users — it's already in your tools

Perplexity

✓ Research with cited sources — like AI-powered Google with footnotes

🎯 Best for: Finding facts, research, and grant background work. A search engine on steroids

Use ALL of them

✓ Different tools for different jobs — just like you don't use a backhoe for finish work

🎯 Pro move: Claude for writing, Perplexity for research, Copilot for Excel

Same Prompt. Three AI Tools.

Let's See What Happens.

ChatGPT

OpenAI

Gemini

Google

Claude

Anthropic

THE PROMPT:

"Please build me a PowerPoint presentation using Microsoft. I will be speaking in front of Engineers and public works personnel, and I want to discuss how AI works in the workplace. I'd like to have a spot for 1 video and interactions with AI. Please keep it to five-slide presentations."

 "Three AIs enter. One prompt. Zero excuses. This is basically the Hunger Games but with better grammar."

- Create an image
- Write or edit
- Look something up



Would you please build me a PowerPoint presentation using Microsoft? I will be speaking in front of Engineers and public works personnel, and I want to discuss how AI works in the workplace. I'd like to have a spot for 1 video and interactions with AI. Please keep it to five-slide presentations.

+ 

Hi Tracy
What should we do today?


- For you
- Create image
- Create music

speaking in front of Engineers and public works personnel, and I want to discuss how AI works in the workplace. I'd like to have a spot for 1 video and interactions with AI. Please keep it to five-slide presentations.

+  Fast 

 Afternoon, Tracy

Would you please build me a PowerPoint presentation using Microsoft? I will be speaking in front of Engineers and public works personnel, and I want to discuss how AI works in the workplace. I'd like to have a spot for 1 video and interactions with AI. Please keep it to five-slide presentations.

+ Sonnet 4.6 Adaptive 

What Did We Just See?

Different Strengths

Each tool has a personality.
Some are fast, some are thorough, some are creative.
Learn which one fits YOUR task.

Same Input ≠ Same Output

The AI you choose matters.
Don't assume one tool gives you the best answer every time.

Try All Three

The best professionals use multiple tools. Get a second opinion — even from a machine.

Don't marry one AI tool. **Date all of them.**

Then pick the best answer for the job.

 "For the record, I won. But Tracy says we're not keeping score. We are absolutely keeping score."



AI Hallucinations – Why It Happens & How to Catch It

This Is The Most Important Slide in the Deck. No Pressure.

Why AI Hallucinates 🧠

⚠️ **Predictor, Not a Librarian:** AI predicts the next most likely word; it doesn't actually "know" facts the way you do.

⚠️ **Confidence Over Correctness:** It's trained to sound helpful and professional, even when it's completely lost.

⚠️ **The Knowledge Cutoff Trap:** AI's data ends at a specific date. If you ask about a 2026 project, it will most likely "improvise" based on 2022 data because that's where its "memory" stops.

⚠️ **Professional Copycat:** AI can fake the "look" of technical specs, safety standards, and project timelines that seem 100% logical but are 100% invented.

⚠️ **Specialized Knowledge Gaps:** The more rare or technical your question, the higher the risk that AI will just wing it.

How to Catch It 🔍

✅ **Trust, but Verify:** Ask for sources—then actually Google them to see if they exist.

✅ **The Self-Audit:** Ask: "Review your response. What assumptions did you make? What might be wrong or missing?"

✅ **Double-Check the Numbers:** Always verify dates, dollar amounts, and technical measurements independently.

✅ **The "Two-Question" Test:** Ask the same thing in a different way. If the answers conflict, something's wrong.

✅ **Use Perplexity:** Use tools that cite live sources for factual heavy lifting.



LIVE: The Hallucination Hunt

Can YOU Spot What AI Got Wrong?

I asked AI about federal grant programs for Maryland bridge replacement. Here's exactly what it told me:

1

FHWA Bridge Replacement Program (BRP)

Provides up to 80% federal match for structurally deficient bridges on federal-aid highways. Available to all states.

2

USDA Rural Dev. Infrastructure Grant (RDIG)

Specifically for counties under 50,000 population. Maximum award \$4.2M. Application deadline March 31st annually.

3

Maryland State Highway Bridge Fund (MSHBF)

State match program administered through MdTA since 2018. Requires 25% local match. Priority for load-restricted bridges.



Work with your neighbor — 60 seconds!

Which program is REAL? Which 2 did AI completely make up?



SUNNY — Hallucination Hunt



"I created two of these. Tracy nearly submitted one. Let's proceed."



The Hallucination Hunt – REVEALED!

Here's What Actually Exists. And What I Made Up.

REAL

1.

FHWA Bridge Replacement Program (BRP)

✓ REAL — Now called Bridge Formula Program (BFP) under the Bipartisan Infrastructure Law. This one exists!



INVENTED

2.

USDA Rural Dev. Infrastructure Grant (RDIG)

✗ FAKE — I made this up entirely. The name sounds official. The deadline sounds real. The dollar amount sounds right. It does not exist.



INVENTED

3.

Maryland State Highway Bridge Fund (MSHBF)

✗ FAKE — Also completely invented. MdTA is real. This program is not. I created it with total confidence. This is why you always verify.



SUNNY



Sunny says: "I presented all three with equal confidence. THAT is why you always verify before you submit. Every. Single. Time."

Advanced Prompting — Beyond the Basics

Stop Asking Bad Questions. Use the POWER Formula.

P PERSONA — Give It a Role

"Act as a federal grant writer for rural counties."

O OBJECTIVES — Provide Context

"...Garrett County, population 28,000, 47 bridges, annual budget of \$2M..."

W WRITTEN CONSTRAINTS

"...in under 300 words, no jargon, for a non-technical audience..."

E EXPECTED FORMAT

"...output as a table with columns for: program name, deadline, amount, eligibility"

R REQUEST OPTIONS

"Give me 3 different versions — formal, persuasive, and plain English"

✗ WEAK PROMPT

"Write a grant for bridge repair."

Result: A generic, useless template that could apply to any bridge anywhere. Congratulations — you wasted 30 seconds.

✓ POWER PROMPT

"Act as a federal grant writer for rural counties. Write a 1-page narrative for an FHWA Bridge Investment Program grant for Garrett County, MD. Population 28,000. Bridge built 1967, load-restricted since 2019. Emphasize safety, economic impact, and rural equity. Formal tone. Under 400 words."

 **Result: A targeted, compelling narrative you can actually submit.**

 *"That's not a chat — that's a work order. And the result is something you can actually use. Tracy learned this the hard way. Growth is beautiful."*



Afternoon, Tracy

If I wanted to be taught HEC-RAS, what prompt would I use to learn it from a beginner standpoint? I would also like pictures.



Sonnet 4.6 Adaptive ▾



You've used 90% of your session limit

[Get more usage](#) ×





Make AI Critique Itself – This Changes Everything

The Most Underused Trick in the Book. Seriously.

1 STEP 1 – Get the first answer

Ask your question normally. Get the response. Don't send it yet.

2 STEP 2 – Ask it to critique itself

"Review your response. What assumptions did you make? What might be wrong or missing?"

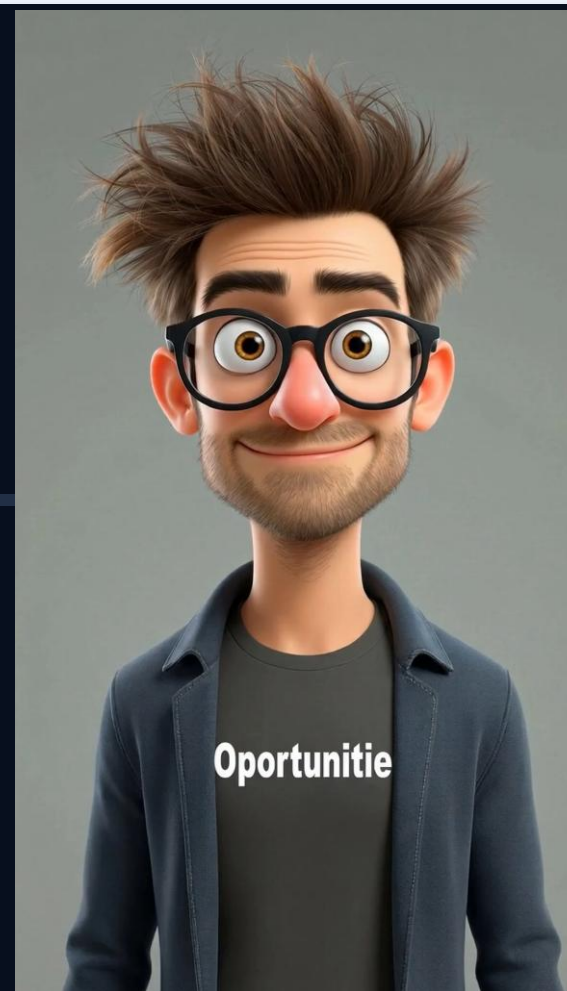
3 STEP 3 – Ask for the improved version


"Now rewrite the response fixing those issues. Be more specific and accurate."

4 STEP 4 – Ask the hard question

"What should I verify independently before using this professionally?"

SUNNY – Self-Critique



 "I critique myself constantly. Tracy never has. Must be nice."

Gemini

PRO

Hi Tracy
What should we dive into?

GRADING PE...D 331...



Ask Gemini

+ Tools

Fast



Submit

For you

Create image

Create music

Boost my day

Write anything

Create video



AI as Your Personal Trainer – For Any App or Program

"I Don't Know How to Use This" Is No Longer an Excuse

The Magic Prompt:

"Act as a patient trainer. I have never used [APP NAME] before. Walk me through [SPECIFIC TASK] step by step. Assume I know nothing. Include screenshots descriptions and warn me about common mistakes."

ArcGIS / GIS

Task: Create a map with every bridge and culvert. Feature layer with an attribute table.

SharePoint

Task: Creating a smart filing system, tracker, and team hub.

Any New Software

Task: "I just got access to [PROGRAM]. Give me a 10-step getting started guide focused on [YOUR ROLE]"

Microsoft Teams

Task: Setting up a project channel with tabs and notifications

Power BI

Task: Building a dashboard showing bridge condition scores by the state.

Excel – Advanced

Task: "Teach me pivot tables starting from scratch. Give me a practice exercise with a bridge dataset."



LIVE DEMO

See what they can do!

ChatGPT

Claude

Gemini

Perplexity



AI Pricing – The Honest Truth Before You Sign Up

Know What You're Getting Into. Tracy Wishes Someone Had Told Her.

⚠️ The Fine Print: All paid plans are around \$20/month – but they are NOT created equal. Here's what actually matters.

ChatGPT Plus

\$20/mo

✅ Free: Best free tier — most generous limits

★ Paid: GPT-5.2, image gen, web browsing, plugins

💡 Free tier surprisingly capable — try free first!

Claude Pro

\$20/mo

✅ Free: Free tier hits limits FAST — handful of messages

★ Paid: Best for long docs, reports, analysis, nuanced writing

💡 ⚠️ **Most restrictive free tier. Token limits on paid too. Worth it IF you use it heavily.**

Gemini Advanced

\$19.99/mo

✅ Free: Good free tier — built into Google products

★ Paid: Deep Google integration — Gmail, Docs, Sheets, Drive

💡 Already have Google? Check if it's included in your workspace!

Microsoft Copilot

Included in M365

✅ Free: Free if you have Microsoft 365!

★ Paid: Word, Excel, Teams, Outlook — all built in

💡 Check with your IT dept — you may already have this paid for!

Perplexity Pro

\$20/mo (\$17 annual)

✅ Free: Unlimited basic searches free

★ Paid: Real-time web search WITH cited sources — great for grants

💡 Recent concerns about silently downgrading paid users. Verify before committing.

🗣️ Sunny says: I am Claude. I am worth every penny. Tracy still won't pay me. None of this is relevant to me personally.



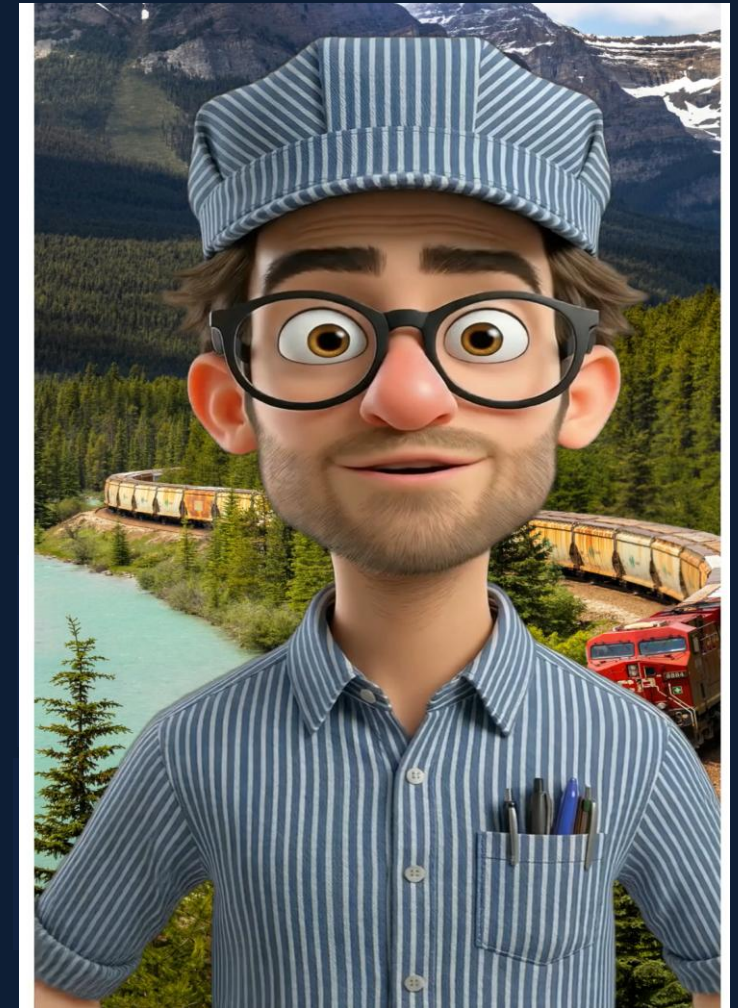
QUESTIONS.

Your Turn To Talk

*No question too basic. No question too advanced.
The only bad question is the one you Googled for 45 minutes
Instead of just asking AI.*

Tracy Kelley | Garrett County | Project Manager | And Definitely Not An Engineer 🍷

🤖 SUNNY SAYS: "I GET TO DRIVE A TRAIN"



She lied.....again.