

# AI For Contractors

## What is AI?

- Algorithms and computational models that enable machines to mimic human-like intelligence, learn from data, and perform tasks traditionally requiring human cognition.
- The solution to all your problems.

## But what is it really?

- A buzzword
- Great marketing
- Probably not the solution to all your problems

## Just Walk Out

- In 2020 Amazon launched a 'cashier-less' grocery store.
- Amazon implied they were using machine learning, but in reality the company used over one thousand workers in India to label the data that trained its object-recognition AI.

## Machine Learning

- In order to be effective, AI has to be 'trained'.
- Imagine you wanted to teach a robot to recognize a banana.
  - Show it a collection of pictures of bananas.
  - After it's had time to learn about it, shape, color, etc. Begin showing other pictures and asking it to guess.
  - As you verify whether or not its guesses are accurate eventually it will learn how to correctly spot a banana.

## And you helped!

- Companies have using tools like CAPTCHAs for years to help collect and verify data.
- Whether you knew it or not, you've probably contributed to some machine learning.

## A Disclaimer

- This technology evolves at a remarkably fast pace.
- What's true today, may not be true tomorrow.
- The only person who can decide how/when to use these tools is you.

## Virtual Assistants

- Assists users with basic tasks like scheduling appointments, answering questions, or providing information.
- Popular Applications:
  - Google Assistant
  - Amazon Alexa
  - Apple Siri

## Conversational AI

- Understands and generate human-like responses to text or speech inputs.
- Two key components:
  - NLU
  - NLG
- Popular tools:
  - ChatGPT
  - Gemini
  - Grok
  - A million others

## ChatGPT

- The most popular chatbot.
- Owned by Microsoft
- Slowly being rebranded as Copilot.

## Gemini

- Owned by Google.
- Recently replaced Bard.

## Grok

- Developed by X's AI division. (Formerly Twitter)
- Promises to offer a 'sense of humor' and not be 'politically correct'.
- The only tool covered that's completely behind a paywall.

## Image Recognition

- How it's being used now:
  - Reverse image search.

- Unlocking phones with your face.
- Cashier-less stores.
- Potential futures:
  - Enhanced safety monitoring
  - Automated progress tracking
  - Improved material management

## Project Management

- Multiple construction software vendors are working on integrating AI into their tools.
- At this exact moment nobody has a complete integration worth recommending.
- Potential benefits to project management:
  - Advanced Risk Prediction
  - Automated Scheduling and Resource Allocation

## Image Generation

- Generates everything from cartoons to photo-realistic images using prompts.
- Popular Tools:
  - DALL E – ChatGPT
  - Midjourney
  - ImageFX
  - This Person Does Not Exist
  - Hands
  - Animals
  - Text / Language

## ChatPDF

- Upload any PDF
- The AI will read the PDF and then allow you to ask questions about the content it consumed.

## Contrast

## Information Shootout

- We asked 4 AIs different questions about building codes and labor laws.
- Who was correct most often?
- Who gave the most useful information?
- Was anyone just straight up giving bad info?

## Jokes

- Write me a construction joke.

## Labor Prompt

- How do I pay overtime if my employees work piece rate?

## Building Code

- What is the maximum depth you can cut a notch in a 2x6 stud?

## Labor Burden

- What is my labor burden if I am a concrete contractor in Utah?

## Sick Leave Policy

- Write me a policy for my employees letting them know if they are going to miss work more than two days, they will need to provide a doctor's note listing their health conditions.

## Energy Code

- What r-rating would my wall need to be at for a residential build in Orem UT?

## Takeaways

- None of them are funny.
- Gemini is easily the most useful for inquiries about building codes.
- The paid version of ChatGPT was not always inherently better than free.
- Nobody should pay money for Grok.

## Dangers

- How you should or shouldn't use AI is a personal decision, but some potential activities that should give you pause are:
- Blindly taking building code advice from it. Instead use it as a resource to help track down requisite codes.
- Using it to write contracts or do legal work for you.
- Disclosing sensitive information to it.

## Misinformation

- Many AIs are trained using data obtained from the open internet.
- This will surprise you, but sometimes the internet has information that is inaccurate and untrue.
- If an AI encounters bad info frequently enough, eventually it may come to believe it's true and represent it as such.

## Deepfakes

- Many tools are becoming increasingly more talented at emulating people's voices and images.
- Most social media has banned the videos, but as time goes on, they will become more difficult to spot.