Industrial East

Hazard Recognition and AI

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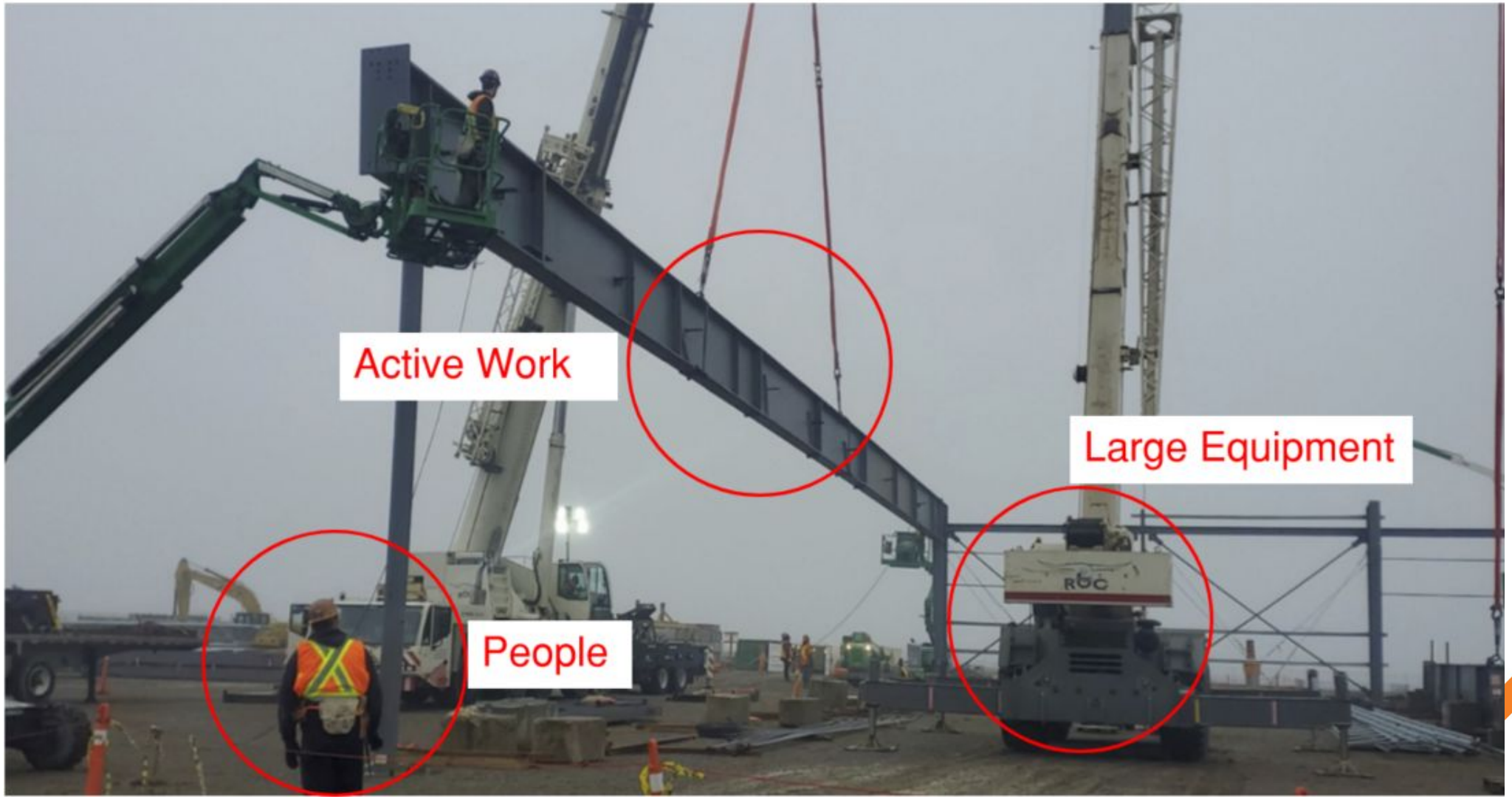
Group Exercise – How we see Hazards

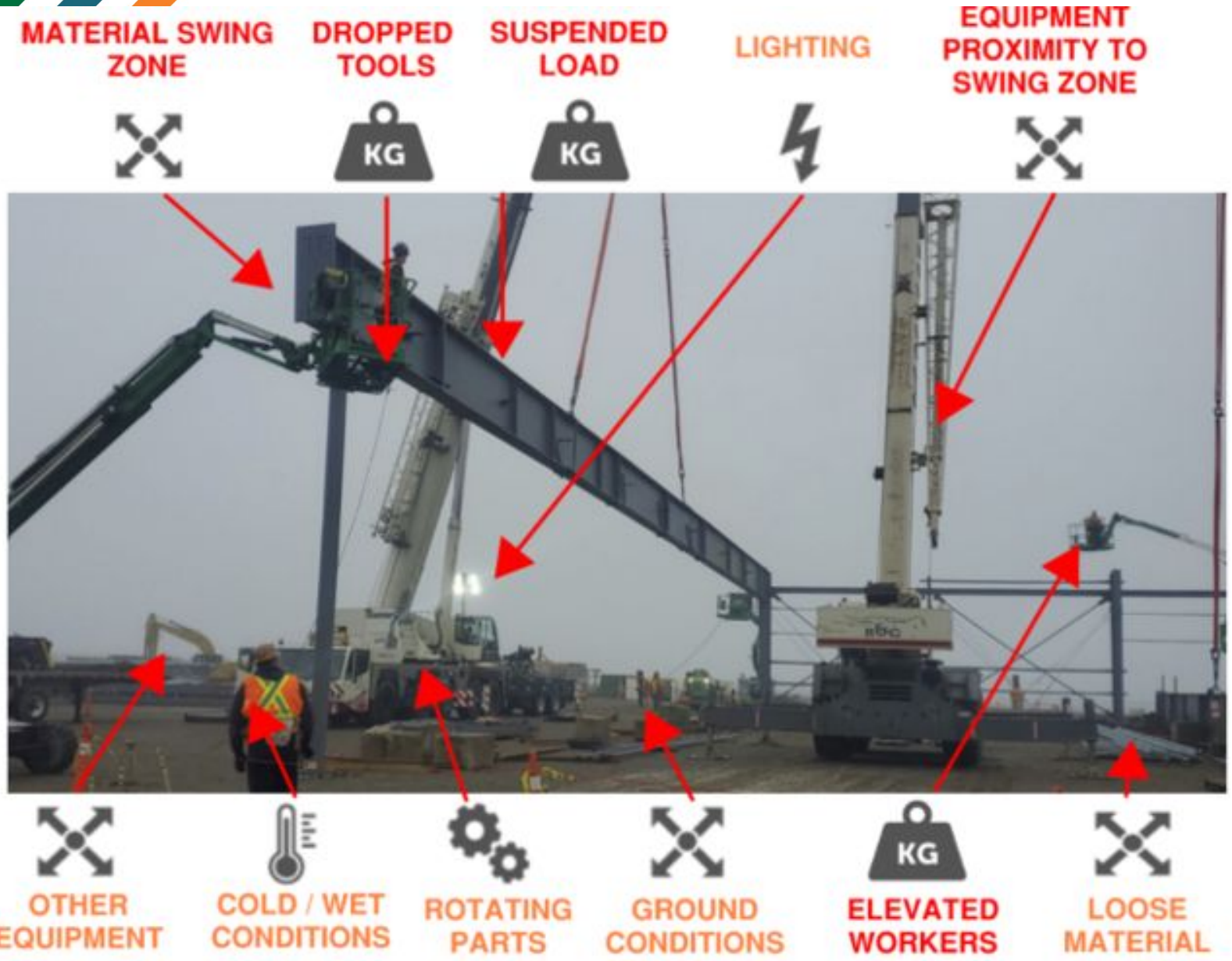
Take a minute to look at the attached image. What hazards do you see? Of the hazards identified what did you see first?

Group Exercise – How we see Hazards

What did you see first? For most observers, our eyes are drawn immediately to large work activity, heavy equipment, and people. But what else is there?



Group Exercise – How we see Hazards



The challenge we face is a is finding consistent and reliable hazard assessment free of human factors and bias.

AI does begin to break some of these barriers, but it is far from a tool to replace human reasoning.

I Asked AI – What is AI in Health and Safety?

Google

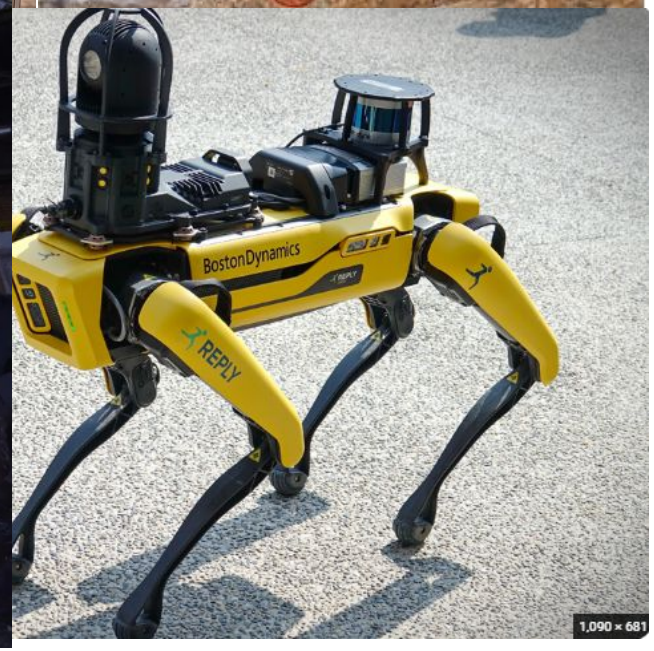
What is AI in Health and Safety? AI Mode

Google Search I'm Feeling Lucky

What is AI in health and Safety

AI in health and safety refers to the use of artificial intelligence technologies—such as machine learning, computer vision, predictive analytics, and IoT sensors—to identify hazards, monitor working conditions, and assess risks faster and more consistently than manual human inspections alone. By processing vast amounts of environmental and behavioural data, AI shifts workplace safety management from a **reactive** approach (investigating accidents after they happen) to a **proactive** one (preventing injuries before they occur). HSE Network +1

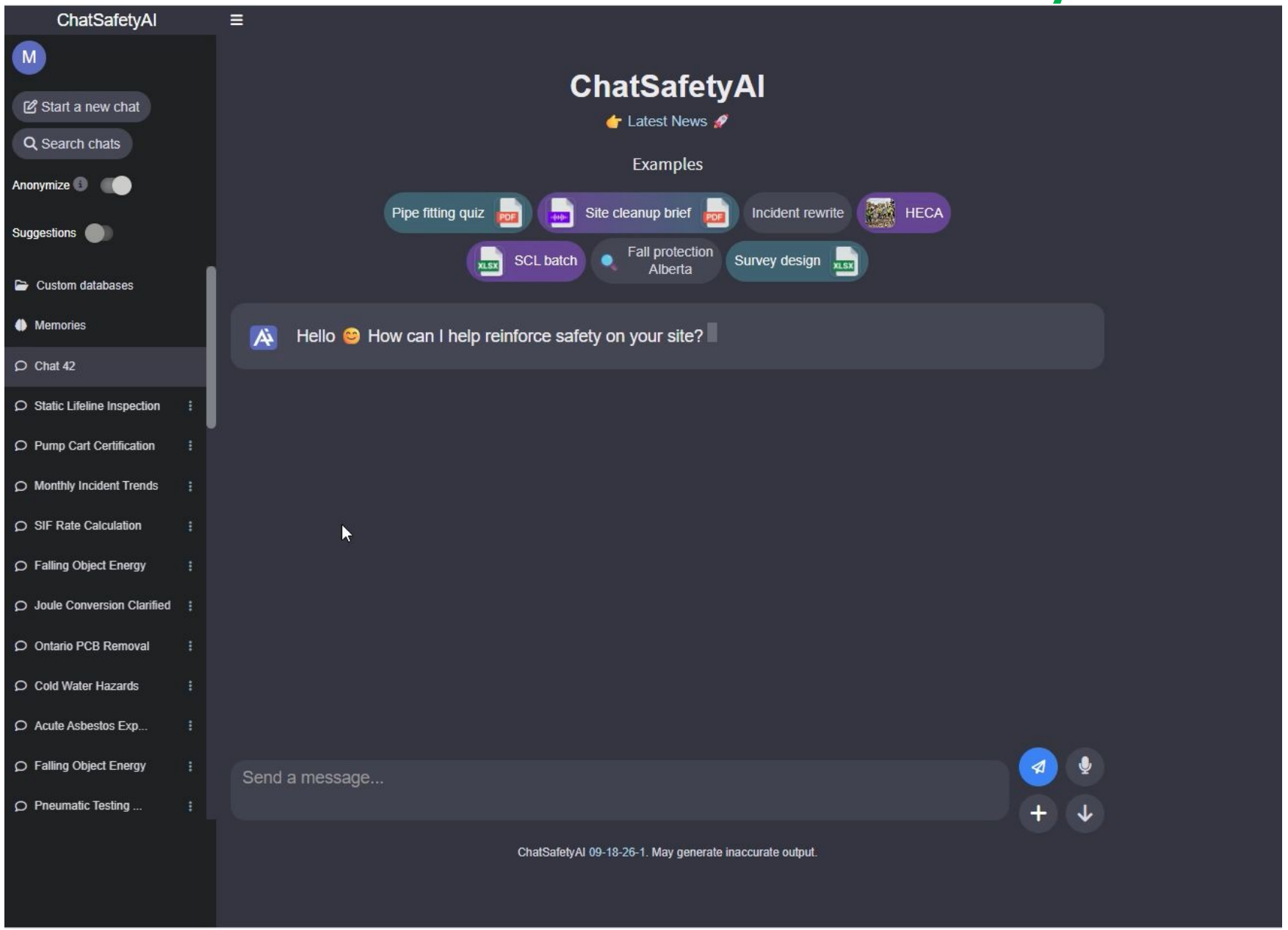
Benefits of AI in Health and Safety



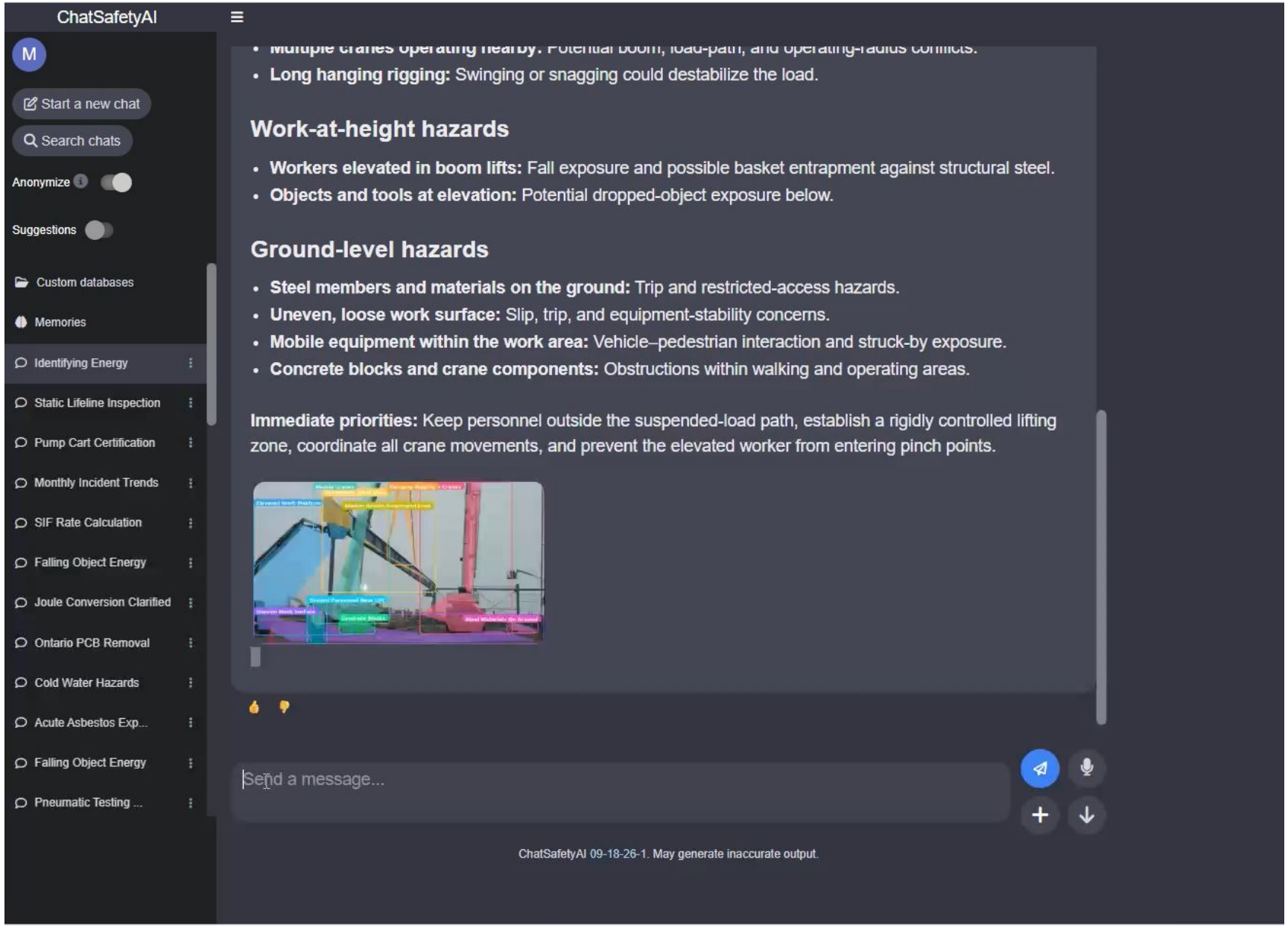
Benefits

- Reduce time in TRIF, LTRIF, Leading Indicator trend analysis
- Automate report and corrective action tracking
- Live monitoring assistance – in some cases replacing a human in a hazardous area where monitoring is required
- Saves time on administrative tasks
- Single point of contact for research and regulatory compliance

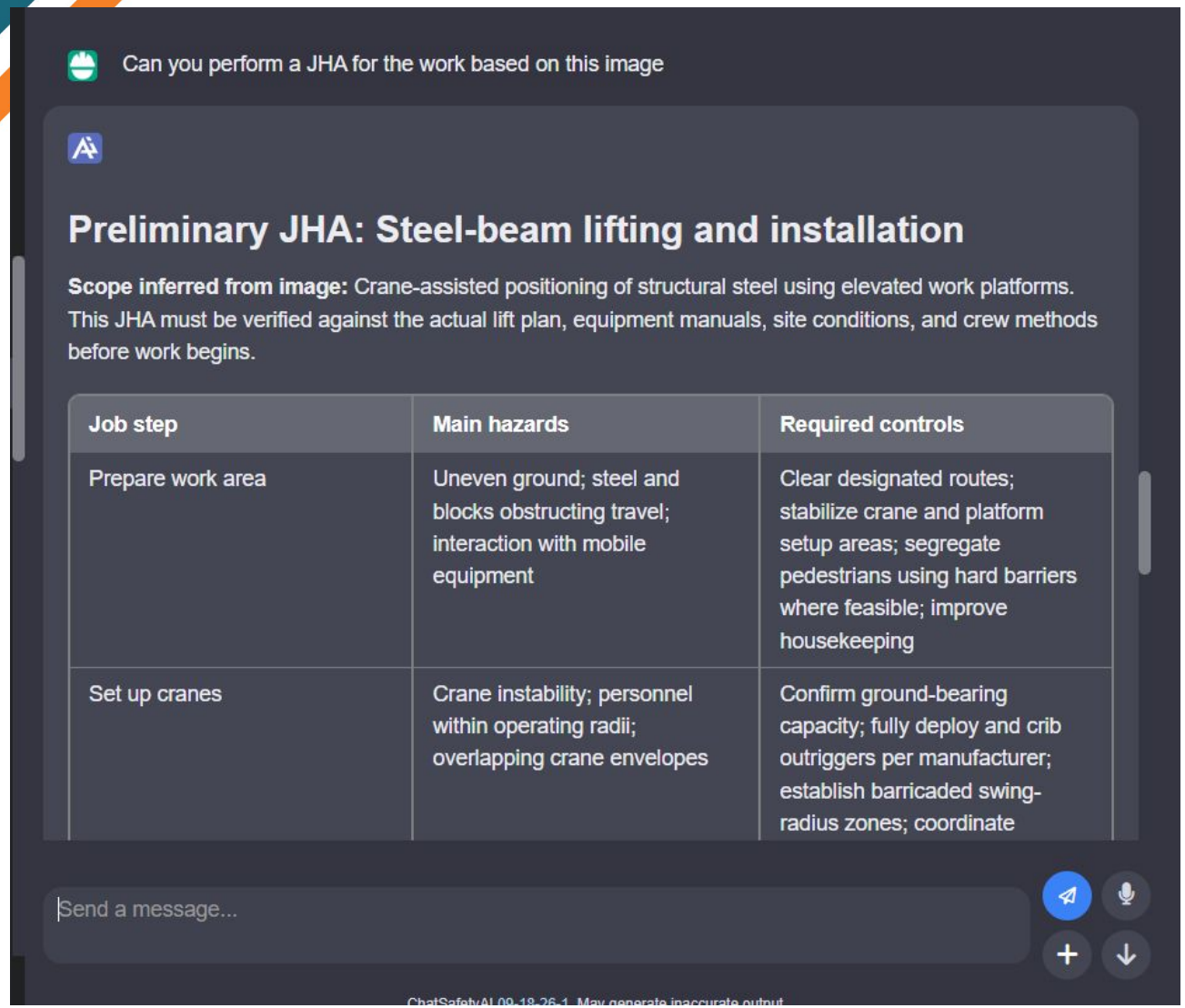
Benefits of AI in Health and Safety

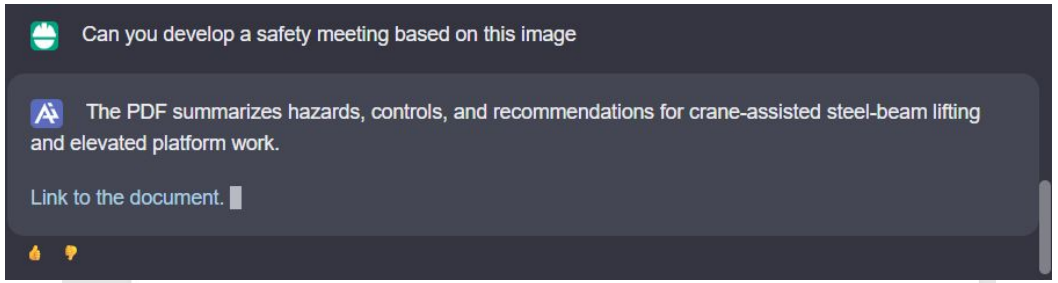


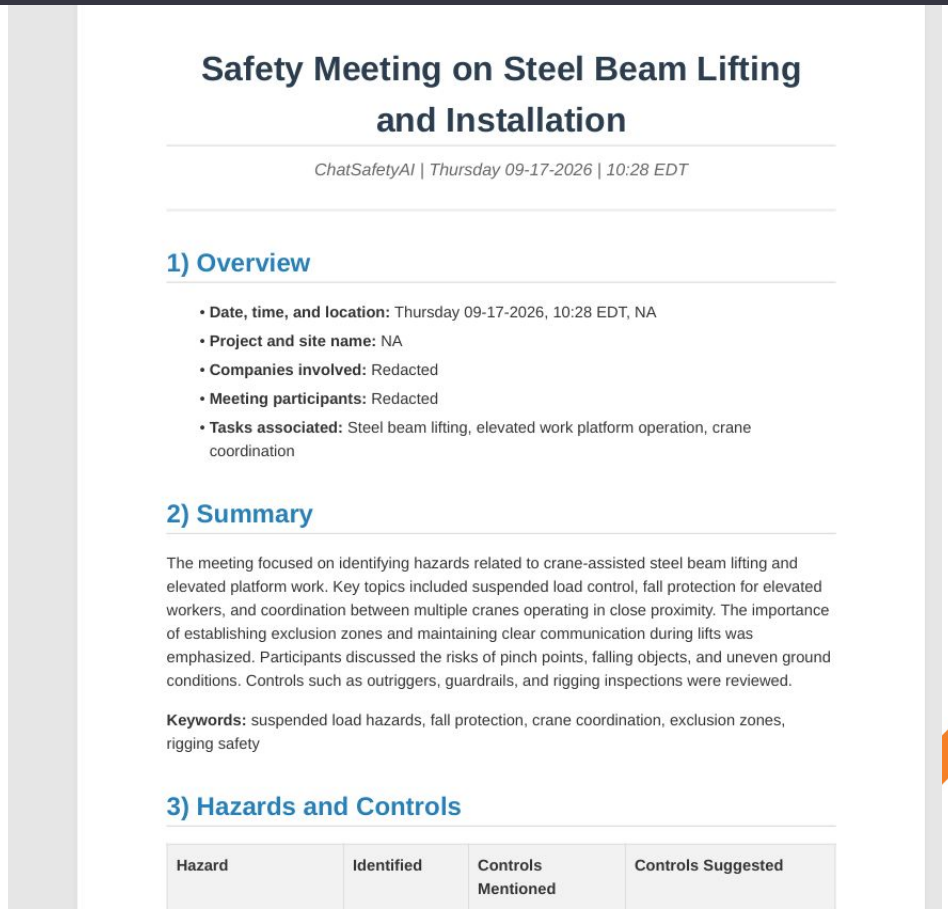
Benefits of AI in Health and Safety



Benefits of AI in Health and Safety







So why don’t we use AI every day?

The Lab Technician

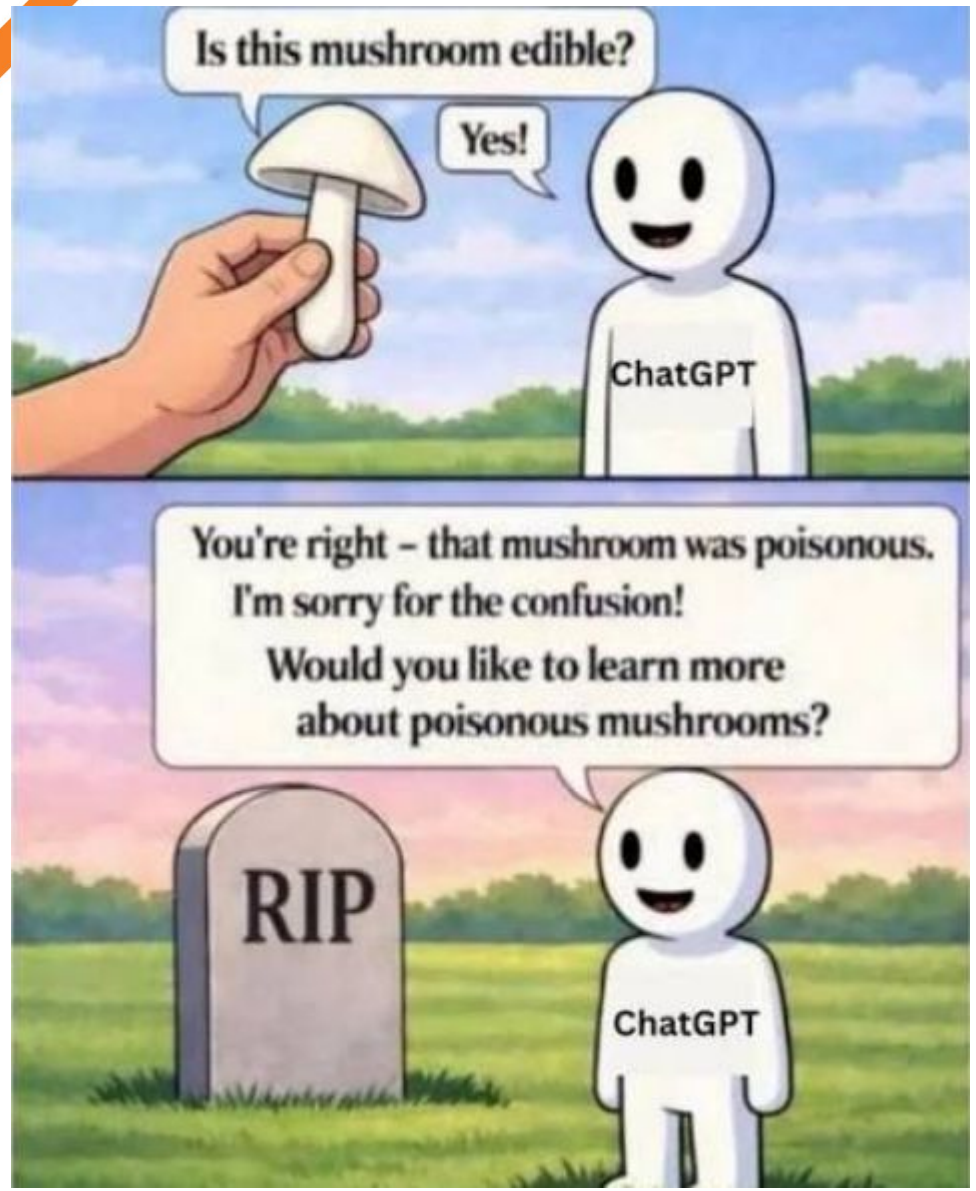
I could take a drop of your blood, place in on a slide, and insert it into a machine.

With a press of the button, I can print out a whole report about your blood.

But I cannot tell you what blood type you are, or know to search for certain markers indicating future health concerns

We need technicians. Like AI Technicians use tools, but it’s the questions we ask and interpretation of the answer which required the expertise.

AI Downfalls



Downfalls

- **Automation-driven Alert Fatigue** – AI systems that send email notifications or alerts start becoming white noise or a “cry wolf” scenario
- **Inability to Comprehend Context** –AI operates entirely on situational patter recognition, not situational judgement. Cannot perceive depth, purpose of task, etc.
- **Phantom AI** – AI is meant to please, and is also limited to the information provided to it. I can often be wrong unintendedly. IE quoting an article over quoting a regulation.

Hazard Assessments Skills Only Humans Can Do

VS

- Understand work being done vs how its intended to be done.
- Review proximity of the hazard to the worker. Where a hazard may exist, what physically in the field protects the workers from reaching the hazard and is that a direct or alternative control?
- Engage with the workforce with a questioning attitude. Understand why work is being performed this way and how.
- Evaluate Human Factors and Error traps which affect how our workers perceive the hazards in the field

How to Use AI to Enhance Hazard Assessments

- Ask the right questions. Broad questions lead to information overload. Be specific what you want to know
- Trust but verify. AI can set the groundwork but always ask for sources of information and where the AI pulled its facts from. (Remember – Be the technician)
- AI cannot account for workers experience. HOP Principle – Our people are part of the solution

Questions?