

AI for Safety Professionals Quick Start Guide



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About David Dunham

David Dunham is a safety professional with 13 years of health and safety experience across the construction industry, working as a consultant, regulator, and safety manager on some of the most significant infrastructure projects in British Columbia.

He focuses on pragmatic, simple approaches that work in the field. Since 2022, David has also become a leading voice in how AI is reshaping safety, writing for the Construction Industry AI newsletter, speaking at conferences, and building innovative tools and workflows. His passion is helping safety professionals adapt, lead, and thrive in this technological shift.

By integrating AI into his workflow, David has been able to take on projects he once thought impossible—from designing iOS apps and e-learning courses to creating simulations, orientations, and keynote presentations. For him, AI removes the barriers between ideas and execution, allowing more time for the human side of safety.

Find My Work

LinkedIn: https://www.linkedin.com/public-profile/settings?trk=d_flagship3_profile_self_view_public_profile

Writing on Construction Industry AI: <https://constructionindustryai.com/categories/job-site-safety>

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The SPARK Framework

S - Situation	Set the scene and context
P - Persona	Define the AI's role
A - Ask	AI interviews you
R - Result	Desired outcome/task
K - Key details	Refine through iteration

Example SPARK Prompt

S: I'm preparing a toolbox talk for construction workers
P: You are an experienced safety trainer
A: Ask me about specific hazards and crew size
R: Create a 5-minute engaging toolbox talk
K: Include participation questions and key takeaways

Incident Report: Use SPARK to analyze near-misses

S: A worker tripped on uneven ground but wasn't injured.
P: You are a safety investigator.
A: Ask me clarifying questions about location, time, and conditions.
R: Create a concise near-miss report with root causes.
K: Include corrective actions and follow-up responsibilities.

Risk Assessment: Use SPARK for Job Safety Analysis

S: A crew will be working at heights on scaffolding.
P: You are a safety advisor preparing a JSA.
A: Ask me about tasks, equipment, and crew size.
R: Produce a Job Safety Analysis with hazards and controls.
K: Highlight regulatory requirements and best practices.

Training Materials: Use SPARK to create custom content

S: I need a short training session on confined space entry.
P: You are an experienced safety trainer.
A: Ask me about the audience, job roles, and available time.
R: Build a 10-minute training outline with activities.
K: Include real-world examples and key takeaways.

The RIPE Framework

R - Role	Define the AI's role or perspective
I - Instructions	Provide clear steps or goals for the AI
P - Parameters	Set boundaries, style, or format
E - Examples	Show sample outputs to guide the AI

Example RIPE Prompt

- R: You are an experienced construction safety trainer
- I: Build a 10-question quiz on confined space hazards
- P: Questions should be multiple-choice with 4 options each
- E: Example Q: 'What is the first step before entering a confined space?'

Toolbox Talk: Use RIPE to draft engaging safety talks

- R: You are a safety trainer preparing a morning toolbox talk.
- I: Create a short, 5-minute talk on heat stress awareness.
- P: Keep the tone conversational, use simple language, end with two discussion questions.
- E: Example: "What signs of heat stress have you noticed on past jobs?"

JSA Development: Use RIPE to structure hazard assessments

- R: You are a construction safety advisor.
- I: Build a Job Safety Analysis for trenching work.
- P: Present the hazards, risks, and controls in a 3-column table format.
- E: Example row: "Hazard – Cave-in | Risk – Worker injury | Control – Shoring and trench box."

Training Content: Use RIPE to create quizzes and guides

- R: You are an instructional designer for safety training.
- I: Develop a 10-question multiple-choice quiz on ladder safety.
- P: Each question must have 4 options with one correct answer highlighted.
- E: Example Q: "What is the maximum angle a ladder should be placed at?"

Essential AI Tools for Safety Pros

ChatGPT https://chat.openai.com	
Claude https://claude.ai	Best for writing assistance and detailed analysis.
Gemini https://gemini.google.com	Seamlessly integrates with Google Workspace and supports multimodal inputs.
Grok https://x.com/grok	Real-time search integration, creative Q&A, image generation.
SimTheory https://simtheory.ai	Multiple AI models in one platform; versatile for different tasks.
Gamma https://gamma.app	Creates sleek presentations in minutes.
Perplexity AI https://perplexity.ai	AI-powered research assistant—excellent for summarizing content, citations, and building reports.
DeepSeek https://chat.deepseek.com	High-performance chatbot, praised for efficiency and open-source infrastructure.
Mistral AI https://mistral.ai	Top-tier performance among open-source models; ideal for cost-effective reasoning.
Lumio AI https://lumioai.tech	Unified interface for multiple models—great for comparing outputs and creating agents.

Popular AI Apps for iPhone & Android

ChatGPT App	iPhone & Android
Claude App	iPhone & Android
Gemini App (Google AI)	iPhone & Android
Perplexity AI	iPhone & Android, great for research
DeepSeek	iPhone (popular in App Store)
Lumio AI	iPhone & Android, multi-model access

Featured Vibe-Coded Tools

Asbestos E-Learning - <https://simulationtheory.ai/6adbf033-4069-45b3-b9bd-8fe773226e8a>

Interactive asbestos awareness training module via SimulationTheory.

Fall Protection Simulator - <https://simulationtheory.ai/3324c641-29b0-4c6e-bab0-87e499ed942c>

Immersive fall protection practice environment.

Chemical Safety Manager - <https://simulationtheory.ai/ecbd21ea-44be-4850-8c18-cb4e13d291a2>

Virtual chemical safety oversight and training.

Speed Reader App - <https://simulationtheory.ai/536c734e-e1e8-4a1a-818f-59b2eda197b1>

AI-powered speed reading enhancement tool.

AI Image Generators

Ideogram - <https://ideogram.ai>

Text to image with strong typography and creative layout emphasis.

Flux (Flux AI) - <https://bfl.ai/>

Realistic rendering with multiple modes (Flux Dev, Flux Pro).

Imagen 3 (Google) - <https://deepmind.google/technologies/imagen>

High-detail, photorealistic AI image model.

Stable Diffusion - <https://stability.ai>

Open-source, locally run model with broad customization.

Adobe Firefly - <https://www.adobe.com/products/firefly.html>

Legally safe, Creative Cloud–integrated image creation.

NightCafe - <https://creator.nightcafe.studio>

Platform offering Flux, Ideogram, Imagen, DALL·E with extras like animation and upscaling.

AI Video Generators

Google Veo 3 - <https://deepmind.google/technologies/veo>

Cinematic text-to-video with audio and camera effects.

OpenAI Sora - <https://openai.com/sora>

Storyboard-based, ChatGPT-integrated video generation.

Runway Gen-3 Alpha - <https://runwayml.com>

Multimodal video from text/images with fine temporal control.

Kling AI - <https://klingai.com>

High-quality motion and realism with advanced controls.

Dream Machine (Luma Labs) - <https://lumalabs.ai/dream-machine>

Realistic motion from text in visually rich videos.

Synthesia - <https://www.synthesia.io>

AI avatars and multilingual video creation for training and marketing.

InVideo AI - <https://invideo.io>

Quick video generation tailored for social media.

Fliki - <https://fliki.ai>

Avatar-based video creation with voiceovers.

AI Music Generators

Suno AI - <https://suno.ai>

Generates full songs with lyrics and vocals; mobile support.

Boomy - <https://boomy.com>

Instant genre-based song generation with streaming/royalty support.

AIVA - <https://aiva.ai>

Classical-style composer recognized by SACEM, up to 3-minute compositions.

Udio - <https://www.udio.com>

AI music generator for pop, hip-hop, and more.

Soundraw - <https://soundraw.io>

Royalty-free AI-generated music for creators.

Loudly - <https://loudly.com>

AI-driven platform with customizable tracks for content creators.

Beatoven - <https://beatoven.ai>

Creates mood-based soundtracks for videos.

Mubert - <https://mubert.com>

Generates endless streaming music with AI.

Model Catalogue

Provider	Model	Description	Context	Output
Alibaba	Qwen3 30b A3B	Latest Qwen3 state of the art model, 30B-A3B version	32,768	8,000
Amazon	Amazon Nova Pro	Pro multi-modal model (text, images, videos)	32,000	2,048
Amazon	Amazon Nova Lite	Lite multi-modal model (text, images, videos)	32,000	2,048
Anthropic	Claude 4 Opus	Latest Opus 4 model	200,000	64,000
Anthropic	Claude 4.1 Opus	Latest Opus 4.1 model	200,000	64,000
Anthropic	Claude 4 Opus (thinking)	Opus 4 model with high thinking mode	200,000	64,000
Anthropic	Claude 3.7 Sonnet	Latest Sonnet 3.7 model	128,000	64,000
DeepSeek	DeepSeek V3 0324	Updated V3 model released 03/24/2025	131,072	30,000
DeepSeek	DeepSeek-R1 (05/28)	Deep reasoning model updated 05/28/2025	131,072	8,192
Google	Gemini 2.5 Pro	Reasoning model with multimodal capabilities	1,048,756	65,535
Google	Gemini 2.5 Flash	Fast multimodal model, 1M context	1,048,576	64,000
Meta	Llama 4 Scout	Small versatile model with 1M context	1,000,000	16,384
Mistral	Mistral Medium 3	Frontier-class model for professional use	128,000	16,384
Moonshot	Kimi K2	State-of-the-art MoE language model	128,000	16,384
OpenAI	GPT-5	Flagship model for coding, reasoning, agents	400,000	128,000
OpenAI	GPT-5 mini	Cost-efficient version of GPT-5	400,000	128,000
OpenAI	GPT-4.1	Enhanced text, vision, audio capabilities	104,757	32,768
OpenAI	GPT-4o	Omni model across audio, vision, text	128,000	4,096
xAI	Grok 4	Enterprise model excelling at data	256,000	8,000

		extraction		
xAI	Grok 3	Grok 3 model, excels at summarization	131,000	8,000