



Improving Construction Safety with AI

SMARTVID.IO

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CONSTRUCTION: HIGH-HAZARD INDUSTRY

OSHA FATAL FOUR



36%

FALLS

Number one cause of construction-related fatalities were falls



10%

STRUCK BY OBJECTS

Includes objects falling as well as being struck by equipment or machines



ELECTROCUTIONS

Electrocutions come in third at almost 9% of the construction-related deaths



9%

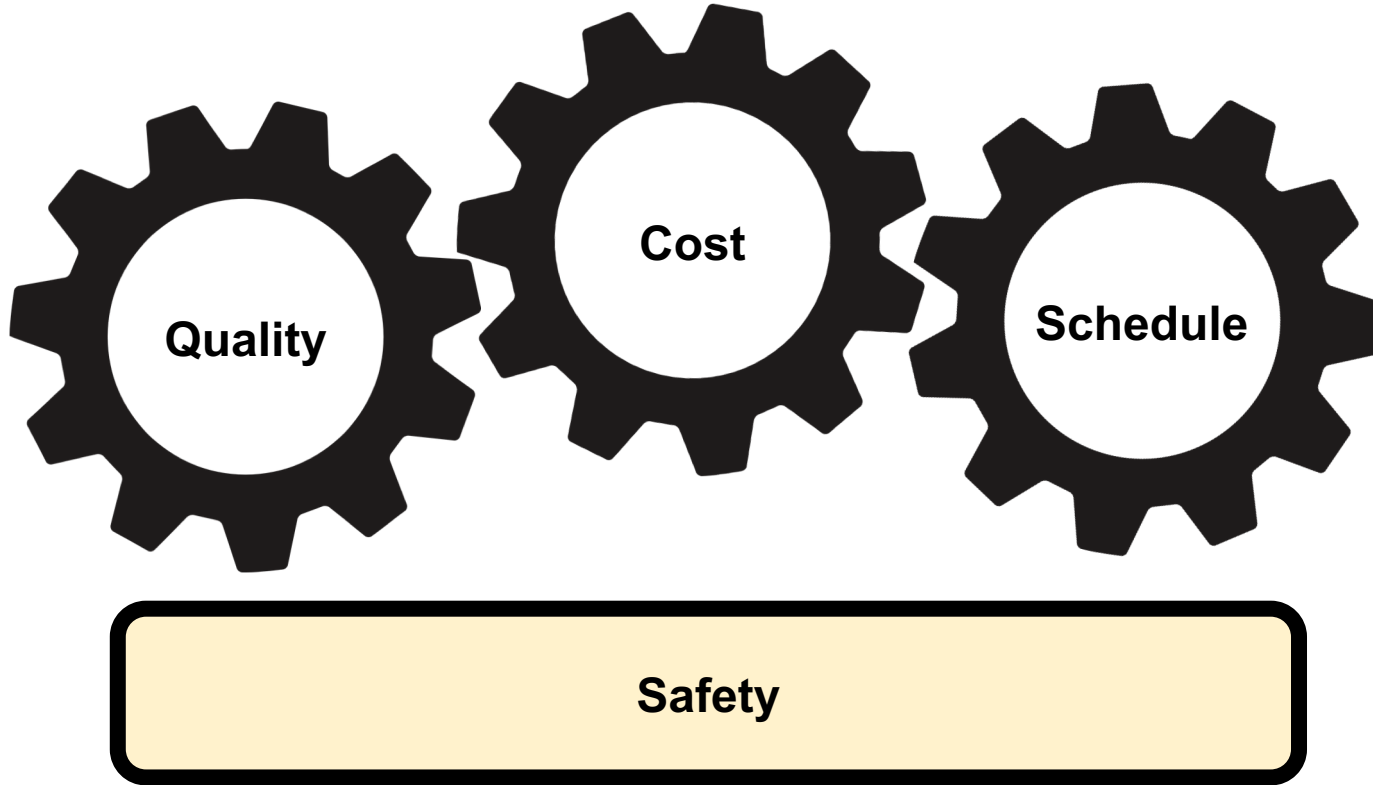
CAUGHT IN/BETWEEN

Workers killed when caught-in or compressed by equipment or objects



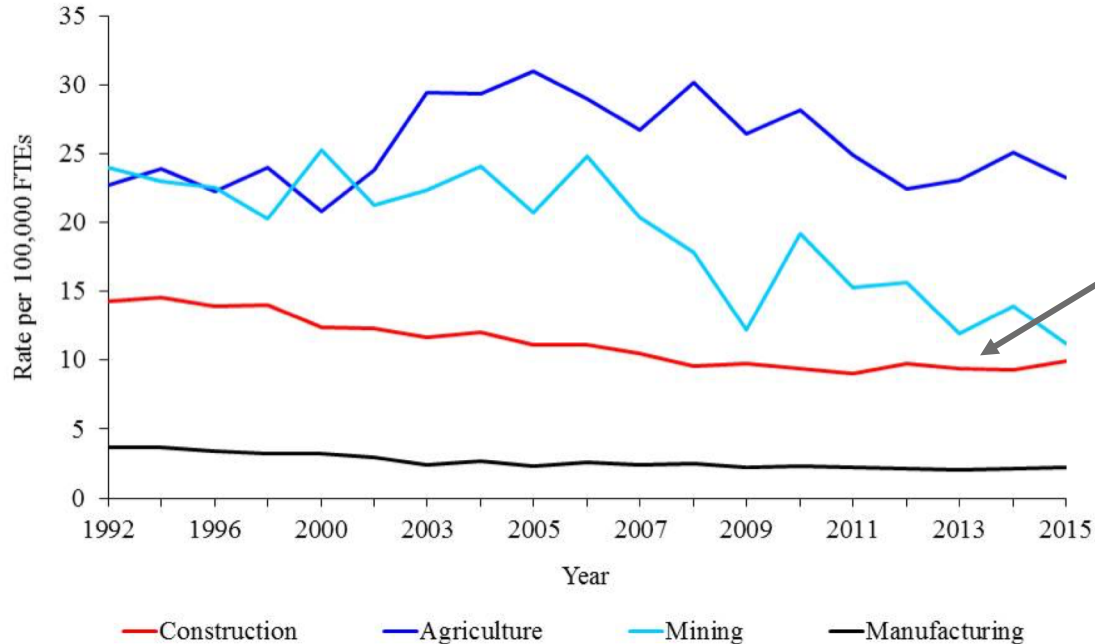
2%

DRIVERS OF RISK IN CONSTRUCTION



FATALITIES HAVEN'T CHANGED IN 10+ YEARS

38c. Rate of fatalities, selected industries, selected years between 1992 and 2015
(All employment)



Rate per
100,000 FTEs
unchanged
since 2006

Source: CPWR Chart
book, 6th Edition



Shawmut's Safety Culture: Core Value

I am committed to providing my co-workers, subcontractors, clients and the general public with a workplace and environment which is free from hazard and risk. My number one priority each day is to make sure each person working with or for Shawmut goes home safely without accident or incident.

OUR MISSION

To reduce risk in the AEC industry by using AI to improve safety, quality and productivity.



WORKSITES GENERATE MORE DATA THAN EVER BEFORE

PHOTO AND VIDEO CONTENT ON A PROJECT CAN EASILY GROW TO 50GB

50GB

5GB

- ext_image_2433.jpg
- 2342_5567.jpg
- 90_333.jpg
- Progress_1.jpg
- Progress.jpg
- capturevideo1.mp4
- some file form smart.mp4
- capturevideo33.mp4
- ext_image_2433.jpg
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- capturevideo33.mp4

WE'VE GOT VINNIE



Meet “Vinnie” the AI engine.

He’s been trained on construction data and is here to help find risk.

VINNIE DETECTS SAFETY RISKS

...even on “visually noisy” job sites



VINNIE “SEES” EVERY WORKER AND SITE CONDITIONS LIKE HOUSEKEEPING AND STANDING WATER.



HERE, VINNIE OBSERVES ONE WORKER MISSING A REFLECTIVE VEST. ANOTHER IS MISSING GLOVES.

WORK AT HEIGHT: LADDER

< 101 Main Street - IMG_F8744FID-399B-4IDD-BBF5-... Derek Johnson DJ

Tags

SmartFilter

5 7 9
MORE CONFIDENT LESS CONFIDENT

Enter existing tag

Folding Ladder

Window

Person (3)

Folding L...

WORKING AT HEIGHT: LIFT

< v_s_-2.1 demo - Screen Shot 2018-08-20 at 9.13.... Dmitry Athena DA

Tags

SmartFilter

2 4 5
MORE CONFIDENT LESS CONFIDENT

Enter existing tag

Boom Lift

Truck

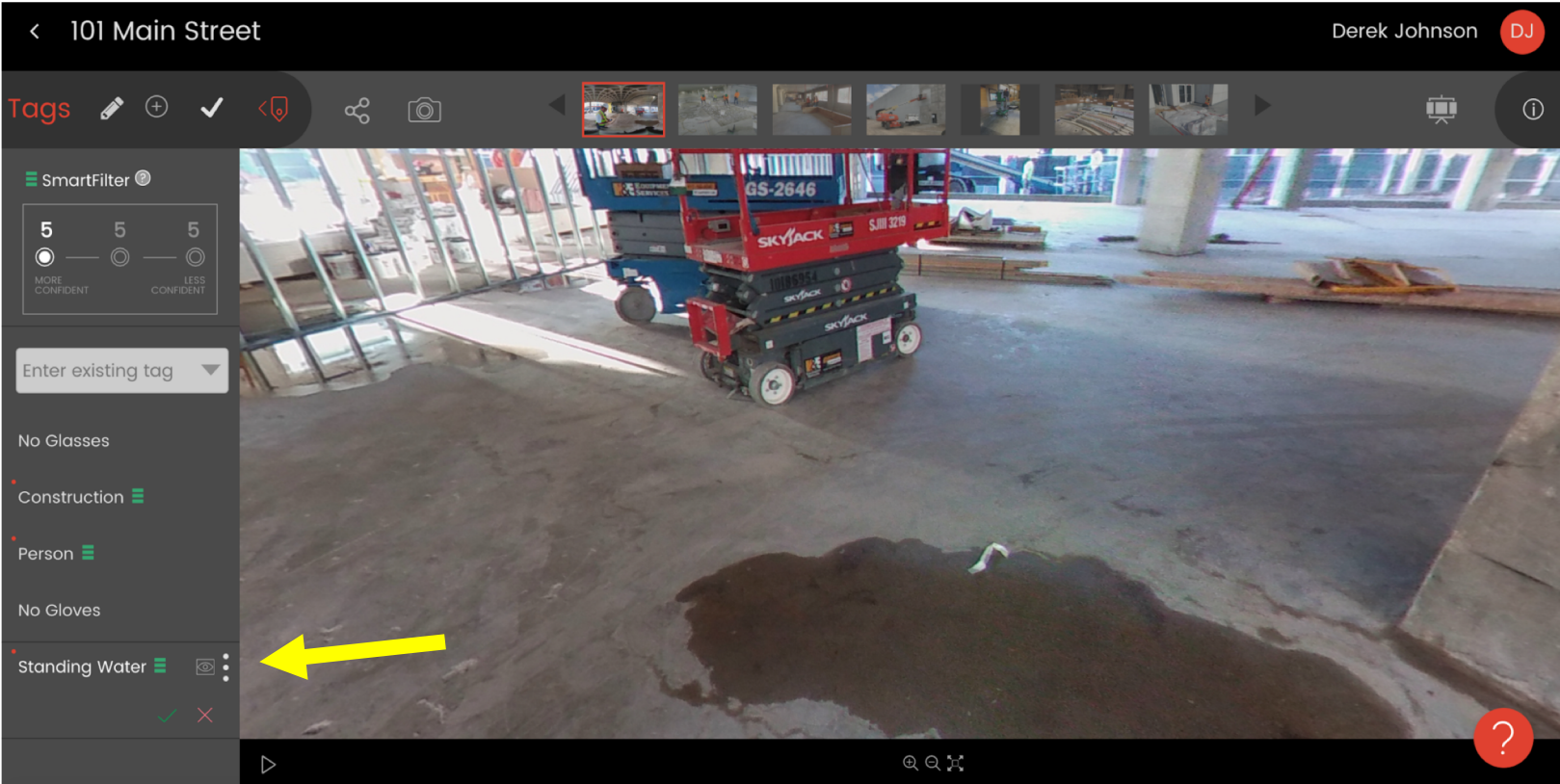
Boom Lift

?

HOUSEKEEPING



STANDING WATER



SEARCH FOR RISK

The screenshot shows a photo gallery interface for a project named "101 Main Street" by "Dmitry Grenader's Org". The interface includes a search bar at the top with filters for "Ladder", "Boom Lift", and "Scissor Lift". The gallery displays 16 photos in a grid, each with a red circular count of items and a small thumbnail in the top right corner. The photos show various construction and maintenance activities, including workers on ladders, a crane, and interior views of a building under renovation. A sidebar on the left contains navigation options like "Files", "Tags", "Profile", "Members", "Integrations", and "Deleted". At the bottom, there is a status bar with the text "VINNIE Advanced tags free trial plan, 195 images of 500 images for 'Dmitry Grenader's Org' organization processed" and a red question mark icon.

101 Main Street
Dmitry Grenader's Org

Files
Tags
Profile
Members
Integrations
Deleted

! Sample Project !
Derek Johnson's Org

Admin

VINNIE Advanced tags free trial plan, 195 images of 500 images for 'Dmitry Grenader's Org' organization processed

MEASURE RISK

Compliance: PPE

PROJECT	HARD HAT	HI VIS	GLOVES	GLASSES	AVERAGE
5418 Raynor Green	98%	93%	79%	100%	93%
114 Champlin Inlet	97%	61%	71%	19%	62%
69 Kuhn Tunnel	97%	98%	95%	99%	97%
AVERAGE BY TAG	97%	91%	91%	97%	84%

MANAGE RISK

PROJECT	SAFETY	MAY SCORE	TREND	PHOTOS PER MONTH	WORK AT HEIGHT PER 100 PHOTOS	LADDERS LAST	HOUSEKEEPING OBSERVATIONS PER 100 PHOTOS	AVERAGE PPE COMPLIANCE
				MAY	MAY	MAY	MAY	MAY
123 Main Street	John	25	↓	254	88.2	22.4	7.9	93.3%
University Drive	Mike	27	↑	221	67.9	143.0	2.3	87.8%
77 Elm Street	Bob	28	↓	891	92.3	716.0	6.5	97.9%
325 2nd Avenue	Jan	31	↑	453	99.6	6.5	0.9	93.4%
Curley Field	Mike	41	↑	335	46.5	18.5	0.0	82.6%
Perry Park	Bob	45	↓	216	74.9	2.7	0.0	93.1%
16 Greenville Street	John	46	-	792	36.6	226.0	0.0	87.5%
Everglades - STEM	Mike	48	↑	296	81.8	237.0	0.0	98.4%
Dental School	Mike	49	↓	299	34.2	40.0	0.0	91.2%
Bayside High Renovation	Bob	50	↑	135	49.1	5.8	0.6	96.9%
Crossing Parcel West	Jan	51	↑	117	30.5	2.4	1.0	94.4%
Smithfield Remodel	Chris	54	↓	171	31.2	43.0	0.0	94.7%
818 Fieldlevel View	Jan	58	↑	262	53.2	6.2	0.5	100.0%
Rosinka Park	Jan	59	↓	438	43.3	128.0	0.4	98.1%
Carl Johan Avenue	Jan	60	↓	726	45.0	9.0	0.0	99.4%
300 Charles Steet	Jan	61	↑	503	41.5	98.0	0.0	99.5%
400 Hawthorn	Bob	64	↑	501	29.1	41.5	0.6	98.6%
Viking Stadium	Jan	65	↓	267	18.4	44.0	0.4	96.5%
Manchester Square Park	Bob	70	↑	258	17.1	29.8	0.8	99.8%
Organization Average		53	↑	387	51.3	63.0	1.2	95.2%
Smartvid Peer Group				480	22.4	21.3	5.5	96.5%

SMARTVID.IO SAFETY SUITE

MODULES



SAFETY
MONITORING



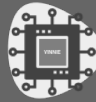
SAFETY
OBSERVATIONS



PREDICTIVE
ANALYTICS



ENTERPRISE PHOTO & VIDEO MANAGEMENT



VINNIE THE AI ENGINE

FOUNDATION



REPORTING & DATA ANALYSIS



PREBUILT INTEGRATIONS & APIs

COMBINING HUMAN AND AI OBSERVATIONS

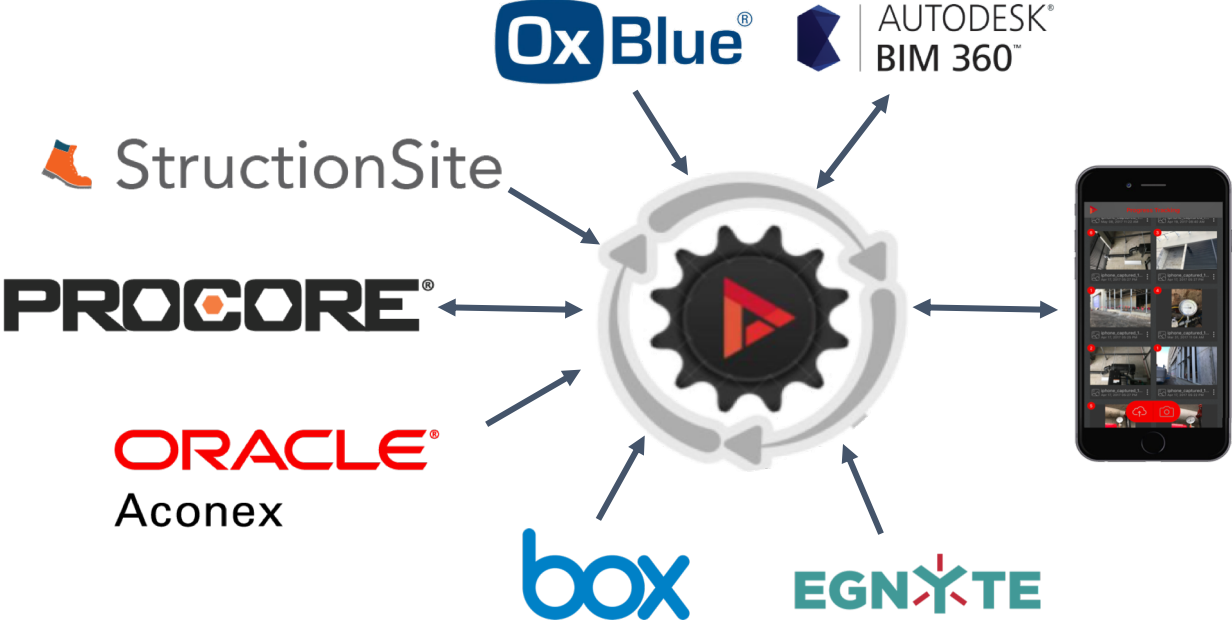
SKILL

SCALE

Human operators "keep eyes on" detecting potential complex observations and safety risks using visual jobsite data

ANALYZE ALL IMAGERY

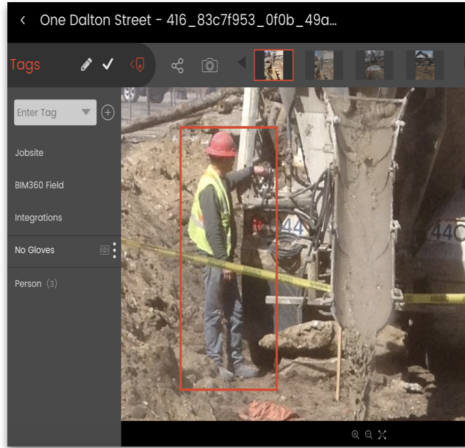
We have done data integrations with major industry players.



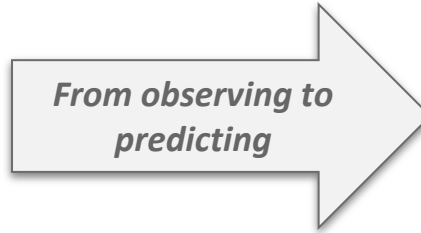
MOVING FROM OBSERVING TO PREDICTING

- Launched as a joint effort with Suffolk Construction
- Analyzed 10 years of data to build predictive AI models

Observing



“This worker is missing gloves”



Predicting



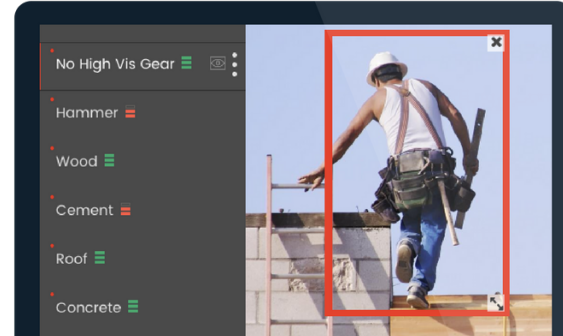
“This project is going to have an incident”

WHY THIS WORKS

Data



Process



Culture



Explainability

PROJECT	SAP	MAY SCORE	TREND	PHOTOS PER MONTH		WORK AT HEIGHT PER 100 PHOTOS		LADDERS LAST		HOUSEKEEPING OBSERVATIONS PER 100 PHOTOS		AVERAGE PPE COMPLIANCE
				MAY	MAY	MAY	MAY	MAY	MAY			
123 Main Street	JOB	25	↓	254	88.2	22.4	7.9				93.3%	
University Drive	MOB	27	↓	261	87.8	143.0	2.3				87.8%	
12 Elm Street	MOB	29	↓	891	92.3	719.0	9.3				87.2%	
565 Red Avenue	JOB	31	↑	453	99.6	6.5	9.9				93.4%	
Cudley Field	MOB	41	↑	335	46.5	18.5	0.0				82.6%	
Emery Park	MOB	45	↑	218	74.8	2.7	0.0				83.1%	
18 Glenview Street	JOB	46	↑	792	86.8	229.0	0.0				87.2%	
Everglades - STEM	MOB	48	↑	296	81.8	237.0	0.0				86.4%	
Dental School	MOB	49	↓	299	34.2	40.0	0.0				81.2%	
Deutsche High - Renovation	MOB	50	↑	135	49.1	5.8	0.8				89.3%	
Concordia Parcel West	JOB	51	↑	117	30.5	2.4	1.0				84.4%	
Smithfield Renovation	MOB	54	↓	171	81.2	43.0	0.0				84.7%	
818 Fairfield View	JOB	58	↑	262	53.2	6.2	0.5				100.0%	
Coastline Park	JOB	59	↑	438	43.3	126.0	0.4				88.1%	
East-Ashley Avenue	JOB	60	↓	726	49.0	9.0	0.0				89.4%	
500 Charles Street	JOB	61	↑	503	41.6	88.0	0.0				89.6%	
400 Hawthorn	MOB	64	↑	501	29.1	41.5	0.8				88.8%	
Woking Stadium	JOB	65	↓	287	18.4	44.0	0.4				89.5%	
Marconette Square Park	MOB	70	↑	258	17.1	29.8	0.8				89.8%	
Organization Average		53	↑	387	51.3	63.0	1.2				89.2%	
SmartVid Peer Group				480	22.4	21.3	5.5				86.5%	

THANK YOU!

More questions? email me

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Smartvid.io

- Focused on reducing project risk using AI
- 100% focused on the Construction Industry
- HQ in Cambridge, offices around the world

