Evolv Technology

2023 Analyst Day

May 25, 2023 | Boston, Massachusetts

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Building the Technical Moat

Dr. Alec Rose

Chief Scientist

Alec Rose

Over 10 years experience in the development of advanced and proprietary security screening solutions

Duke

Ph.D. Electrical and Computer Engineering

Chief Scientist

Chief Technology Officer

Director of Advance Development

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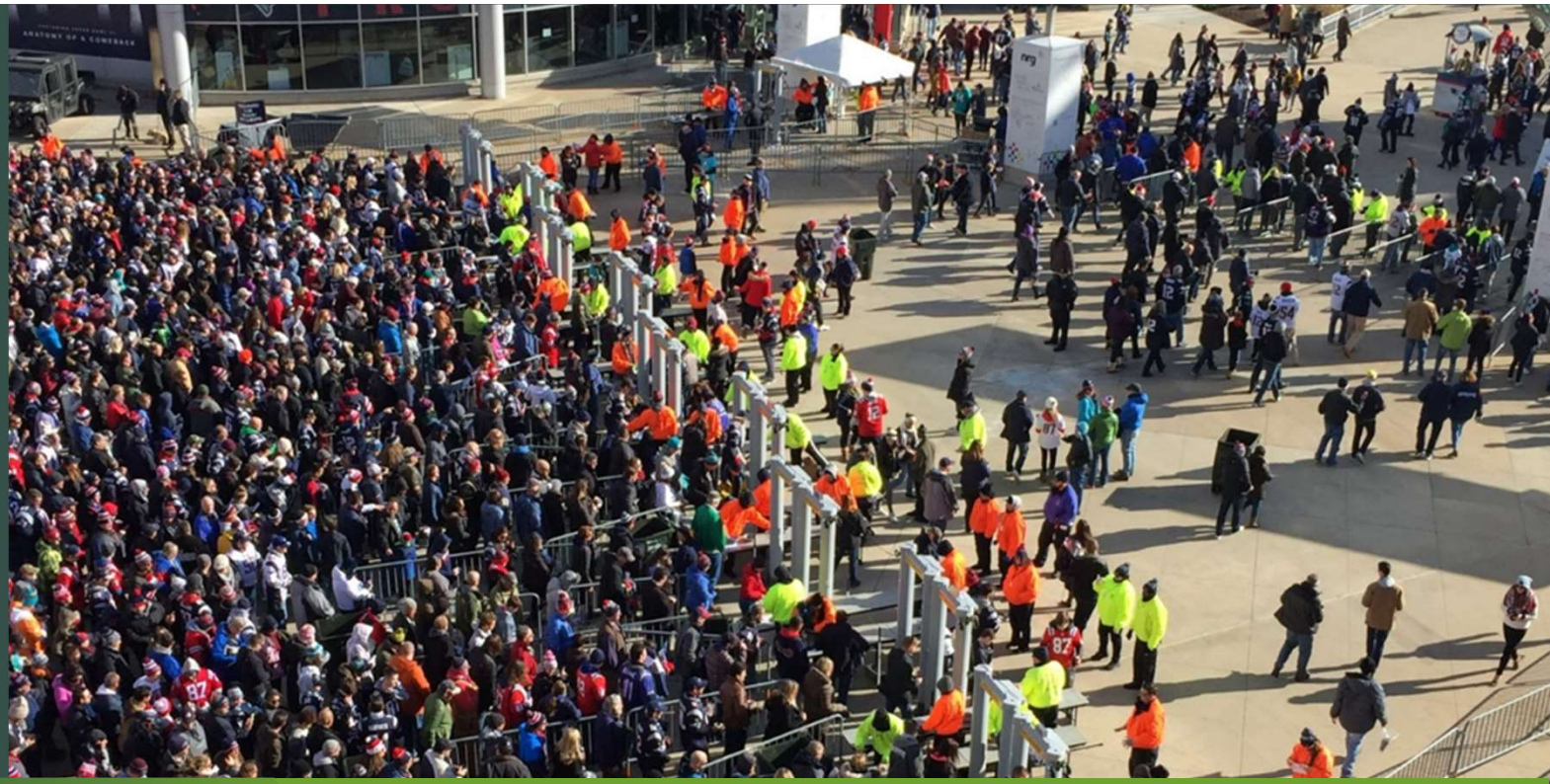
How our Technical Journey Started in 2013…



There was a disconnect between the problem and the available technology

Since metal detectors were invented:

- *The threat landscape had changed*
- *Consumer electronics had undergone a revolution*

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The Industry's Strongest IP Library

Accrued Portfolio of >100 Patents

Highlighted by contributions to:

- **Robust Operation and Interference Suppression**
- **Threat Discrimination**
- **Biometrics**
- **Autonomous and Human Assisted Decision Making**
- **Radar Imaging and Real-time Reconstruction**

(19) United States
(12) Patent Application Publication
Rose
(10) Pub. No.: US 2023/0071806 A1
(43) Pub. Date: Mar. 9, 2023
(54) SUPPRESSION OF INTERFERENCE IN THREAT DETECTION
(71) Applicant: Evolv Technologies, Inc., Waltham, MA (US)
(52) U.S. Cl.
CPC G01V 3/10 (2013.01)
(57) ABSTRACT
A method includes receiving data characterizing a signal

(12) United States Patent
Ellenbogen et al.
(10) Patent No.: US 11,568,734 B2
(45) Date of Patent: Jan. 31, 2023
(54) PERSONNEL INSPECTION WITH THREAT DETECTION AND DISCRIMINATION
(71) Applicant: Evolv Technologies, Inc., Waltham, MA (US)
(58) Field of Classification Search
CPC . G08B 23/00; G08B 5/22; G01V 3/08; G01V 3/10; G01V 3/17; G06F 7/72;
(Continued)

(19) United States
(12) Patent Application Publication
Ellenbogen et al.
(10) Pub. No.: US 2022/0262185 A1
(43) Pub. Date: Aug. 18, 2022
(54) IDENTITY DETERMINATION USING BIOMETRIC DATA
(71) Applicant: Evolv Technologies, Inc., Waltham, MA (US)
(52) U.S. Cl.
CPC G07C 9/253 (2020.01); G07C 9/27 (2020.01)

(19) United States
(12) Patent Application Publication
Ellenbogen et al.
(10) Pub. No.: US 2017/0098161 A1
(43) Pub. Date: Apr. 6, 2017
(54) AUGMENTED MACHINE DECISION MAKING
(71) Applicant: Evolv Technologies, Inc., Waltham, MA (US)
Publication Classification
(51) Int. Cl.
G06N 5/02 (2006.01)
(52) U.S. Cl.
CPC G06N 5/022 (2013.01)

(19) United States
(12) Patent Application Publication
Ellenbogen et al.
(10) Pub. No.: US 2016/0291148 A1
(43) Pub. Date: Oct. 6, 2016
(54) MODULAR IMAGING SYSTEM
(71) Applicant: Evolv Technologies, Inc., Waltham, MA (US)

(12) United States Patent
Rose
(10) Patent No.: US 10,541,472 B2
(45) Date of Patent: Jan. 21, 2020
(52)
(54) BEAM FORMING WITH A PASSIVE FREQUENCY DIVERSE APERTURE
(71) Applicant: Evolv Technologies, Inc., Waltham, MA (US)

(56) (12) United States Patent
Rose
(10) Patent No.: US 10,725,153 B2
(45) Date of Patent: Jul. 28, 2020
(54) PARTITIONING FOR RADAR SYSTEMS
(71) Applicant: Evolv Technologies, Inc., Waltham, MA (US)
13/89; G01S 15/89; G01S 7/04; G01S 13/888; G06T 5/04; G06T 15/08; G06T 15/10; H01Q 21/00; G06K 9/3241
USPC 342/424

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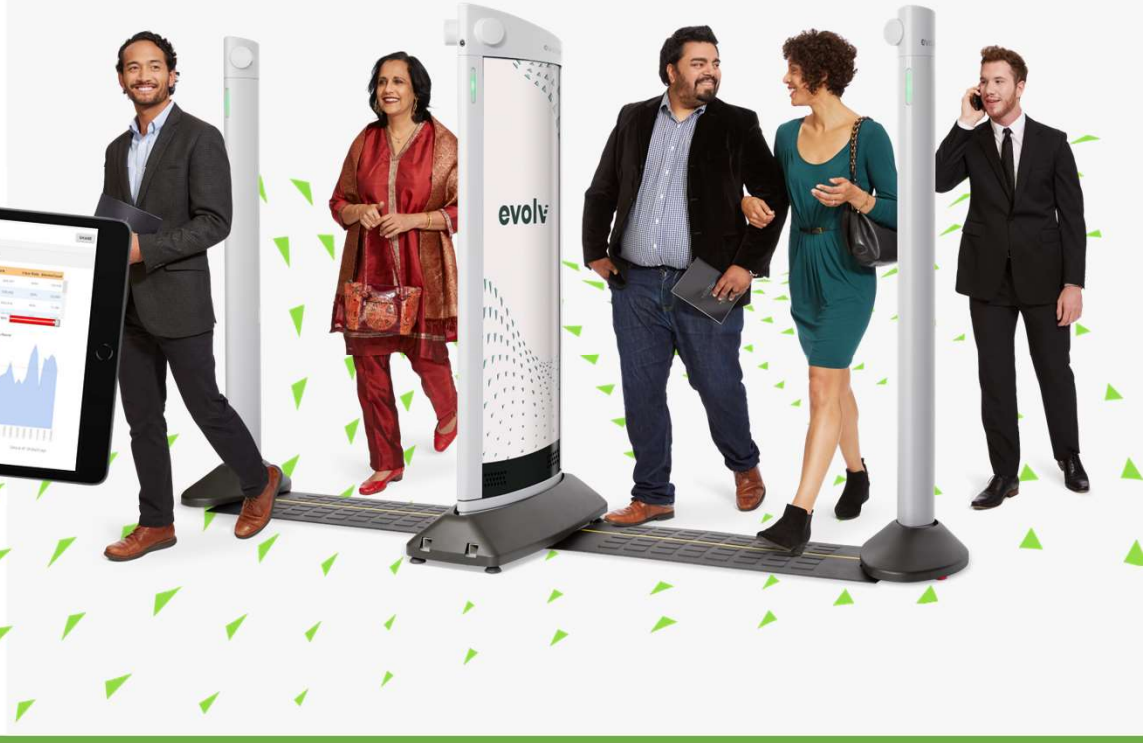
How Evolv Express® Works

- Custom EM sensor suite
- Multiple synchronized camera streams
- Dedicated IoT link
- Growing ecosystem of integrations

600M+ Visitors Screened



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Evolv AI

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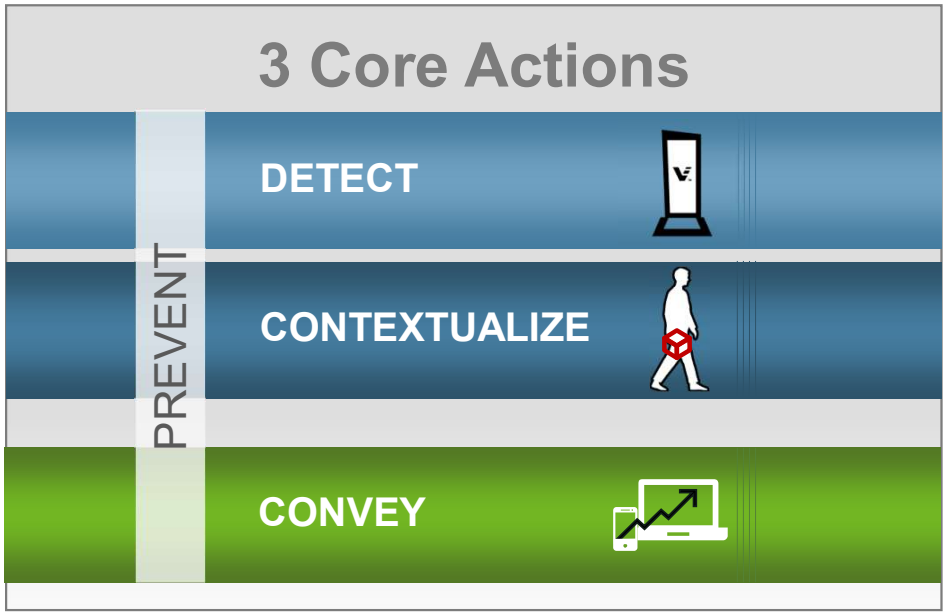
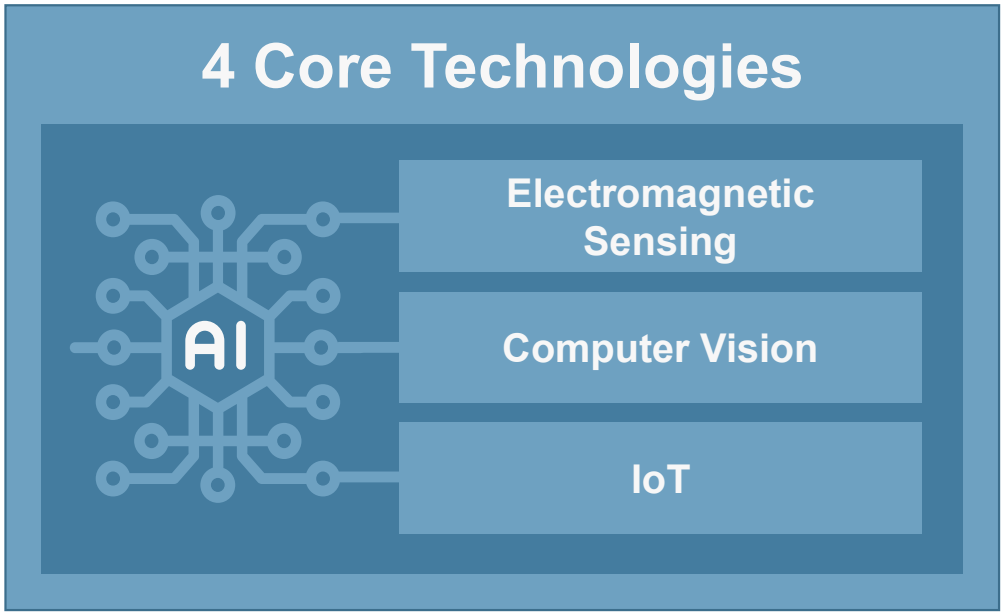
Evolv Digital Platform





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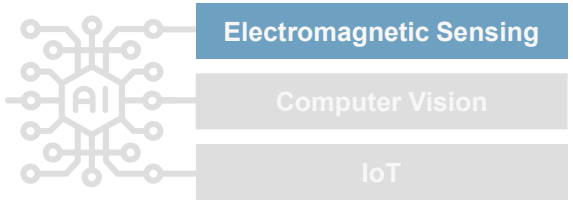
Electromagnetic Sensing



Conventional Metal "Detection"

Metal Content

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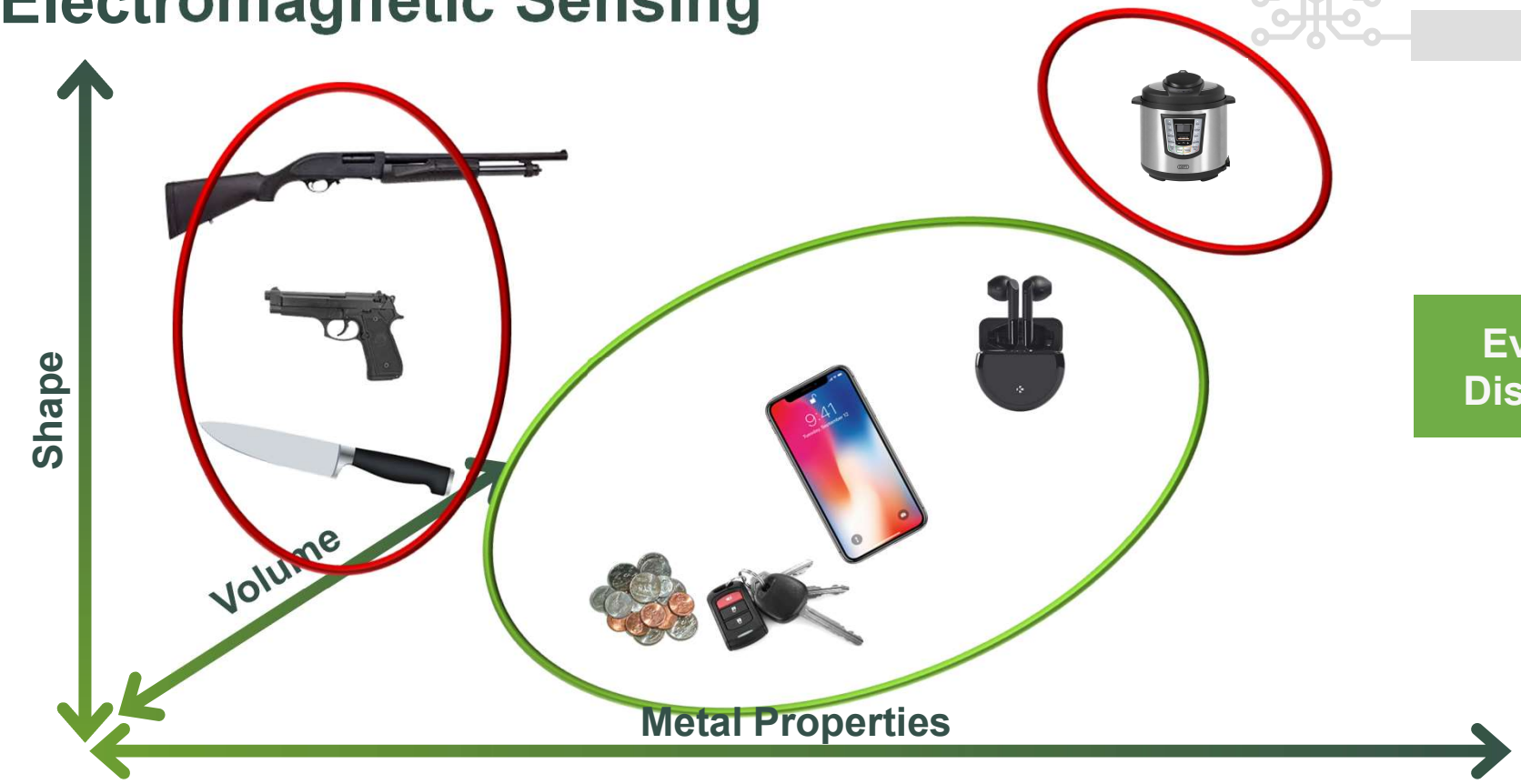
Electromagnetic Sensing

Computer Vision

IoT

Electromagnetic Sensing



Evolv Threat Discrimination

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Electromagnetic Sensing

- RF sensor suite built from the ground up
- Tracks objects and aggregates data over a 3D volume
- Proprietary real-time algorithms that pinpoint threats out of the crowd

Custom and multifaceted detection to bring screening to the speed of life

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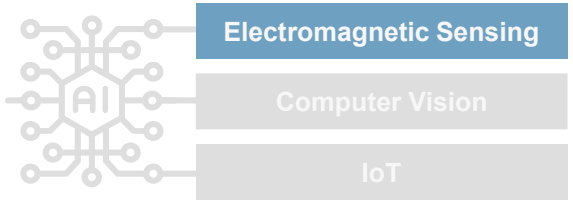
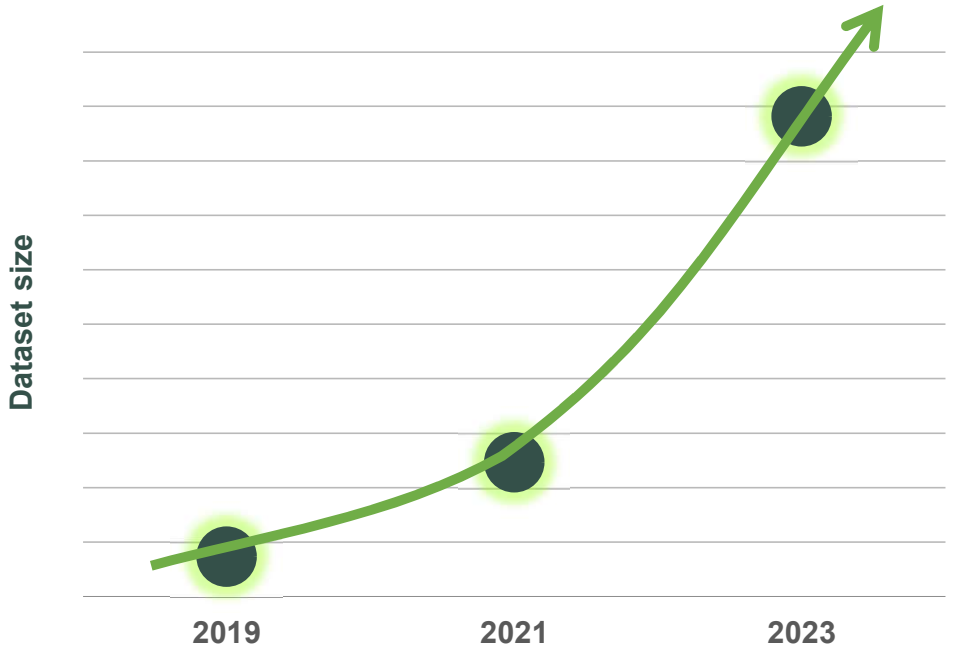
Electromagnetic Sensing



- Continually expanding our training datasets
- Further optimizing the RF spectrum
- Re-packaging in new form factors



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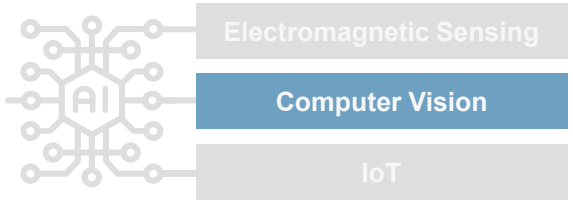

Computer Vision

Optimizing the human/machine interaction via

- Positive identification of alarming individual
- Directed search of alarming object

Up to 6 cameras per system, synchronized directly to the EM sensors

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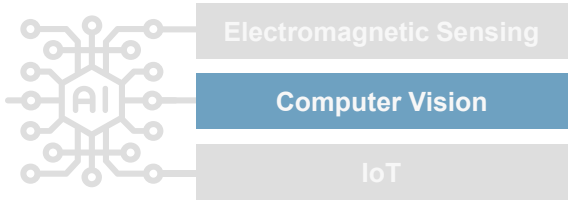
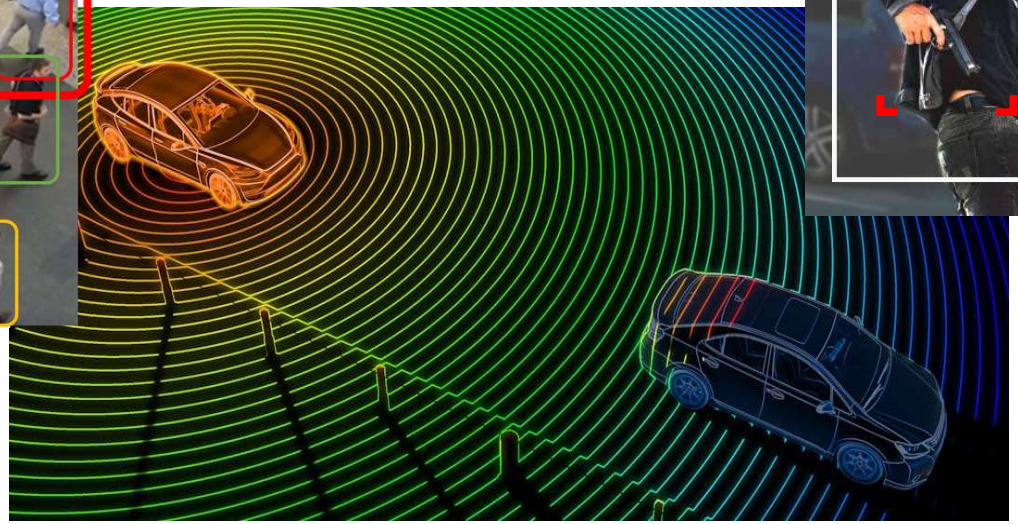


Computer Vision

Advancing depth perception and edge computation to explore

Enhanced UIs via
layered visual context

Brandished
firearm detection



3D vs 2D:
moving towards
“human” vision

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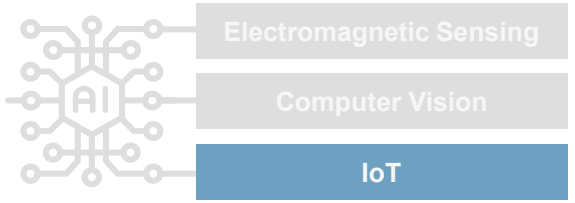
IoT



The first-of-its-kind connected physical security fleet, and it's growing… ***FAST***

Instantaneous software updates

3rd party integrations

Centralized fleet management

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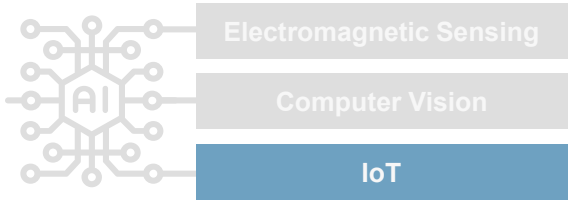
IoT



SaaS

Track record of continual innovation and delivering software releases

Key

- Detection & Operations
- Digital & Integration

2021 1H	2021 2H	2022 1H	2022 2H
• Tablet Interface Improvements • Alert Performance Improvements	• Gen 2 Algorithm • Service Diagnostics • Threat Alert Configuration	• Threat Resolution Video Analytic • New Tablet Form Factors	• Outdoor Ruggedized Mobility System • Aggregated Alerts
• Wireless Tablets • Motorola Integration • Evolv Insights ®	• Operations & Security Insights Dashboards • Request Assistance Emergency Messaging	• Video Management Integrations • Mass Notification Integrations • Screening Proactive Push Reports • Alert Tag Customization	• Unverified Alert VMS Integration • Integration Open API • Insights Data Query API • Security Staff Performance Dashboard • Service & Support Dashboard

Connectivity & Integration → Integration

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Artificial Intelligence

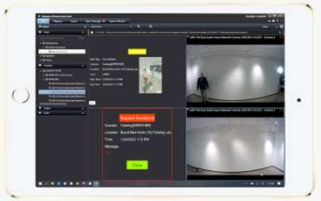
Electromagnetic Sensing

Computer Vision

IoT

multimodal sensor streams

2,800 Subscriptions



1M+
Visitors screened daily

600+ Customers

600M+
Visitors scanned

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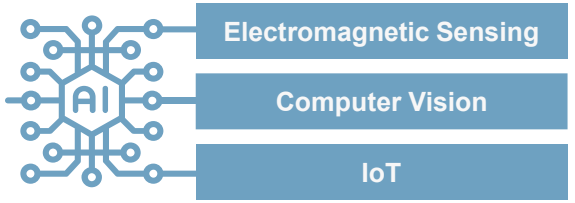
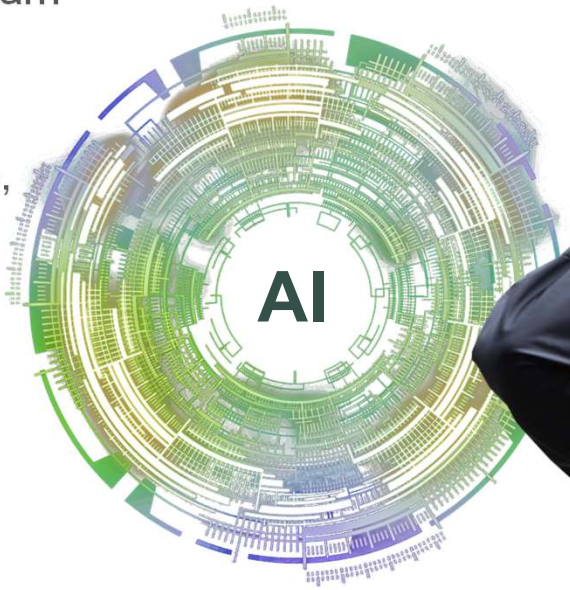
Evolv's AI North Star

- To give every venue the sight, senses, and intelligence of a trained and vigilant security team

- To remove the tedium from visitors and security staff alike, so humans can get back to the human things





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Bring Prevention Beyond the Threshold

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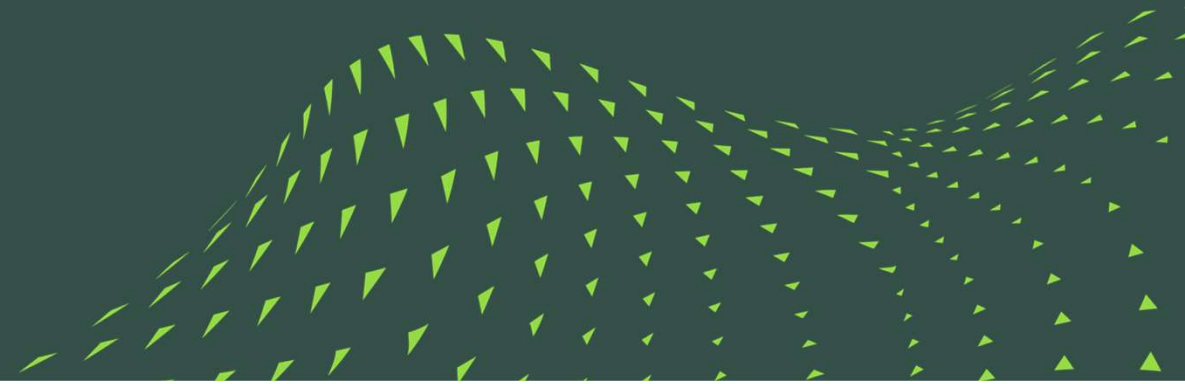
Thank You

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