



The bridge to possible

Generative AI

A Cautious Embrace

Keith Griffin, Distinguished Engineer

@techkeith

ITLGEN1017

CISCO *Live!*

IT Leadership Program

#CiscoLiveAPJC

Agenda

AI and Generative AI

Opportunities and risks

Responsible AI framework

Conclusion

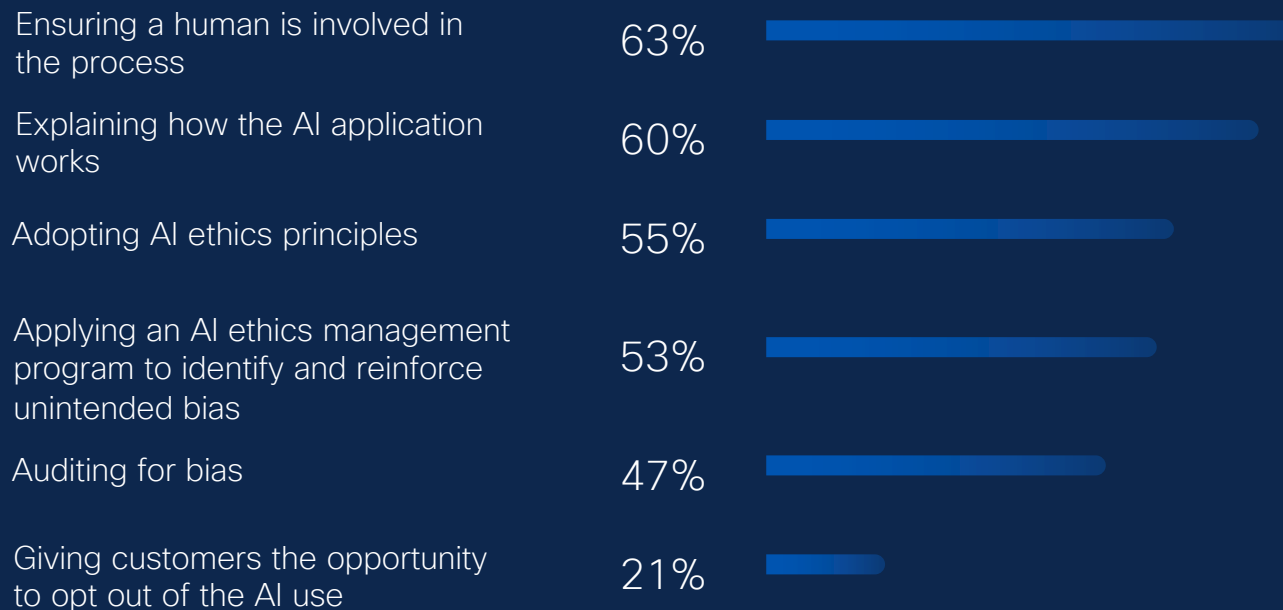
A person's hands are shown typing on a laptop keyboard. The background is a dark blue gradient with a digital rain effect, featuring falling binary code (0s and 1s) in various colors (blue, green, yellow, red).

“

“The acceleration of AI will fundamentally change our world. **Cisco is committed to being a trusted partner to customers and to helping them navigate this transition in a responsible way** to deliver on the promise of this technology.”

Chuck Robbins
Chief Executive Officer, Cisco

What organisations have done to make customers more comfortable with AI



Our organisation
needs to do more
to reassure our
customers about
their data

Your relationship with Generative AI



Taker



Shaper

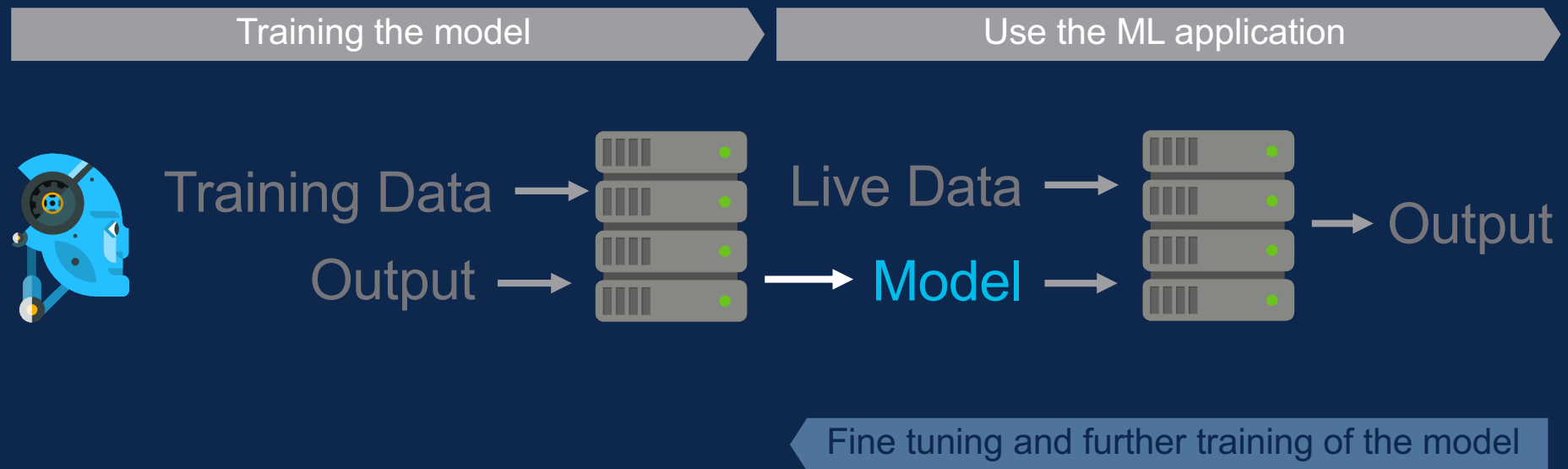


Maker

Varying posture for responsible AI

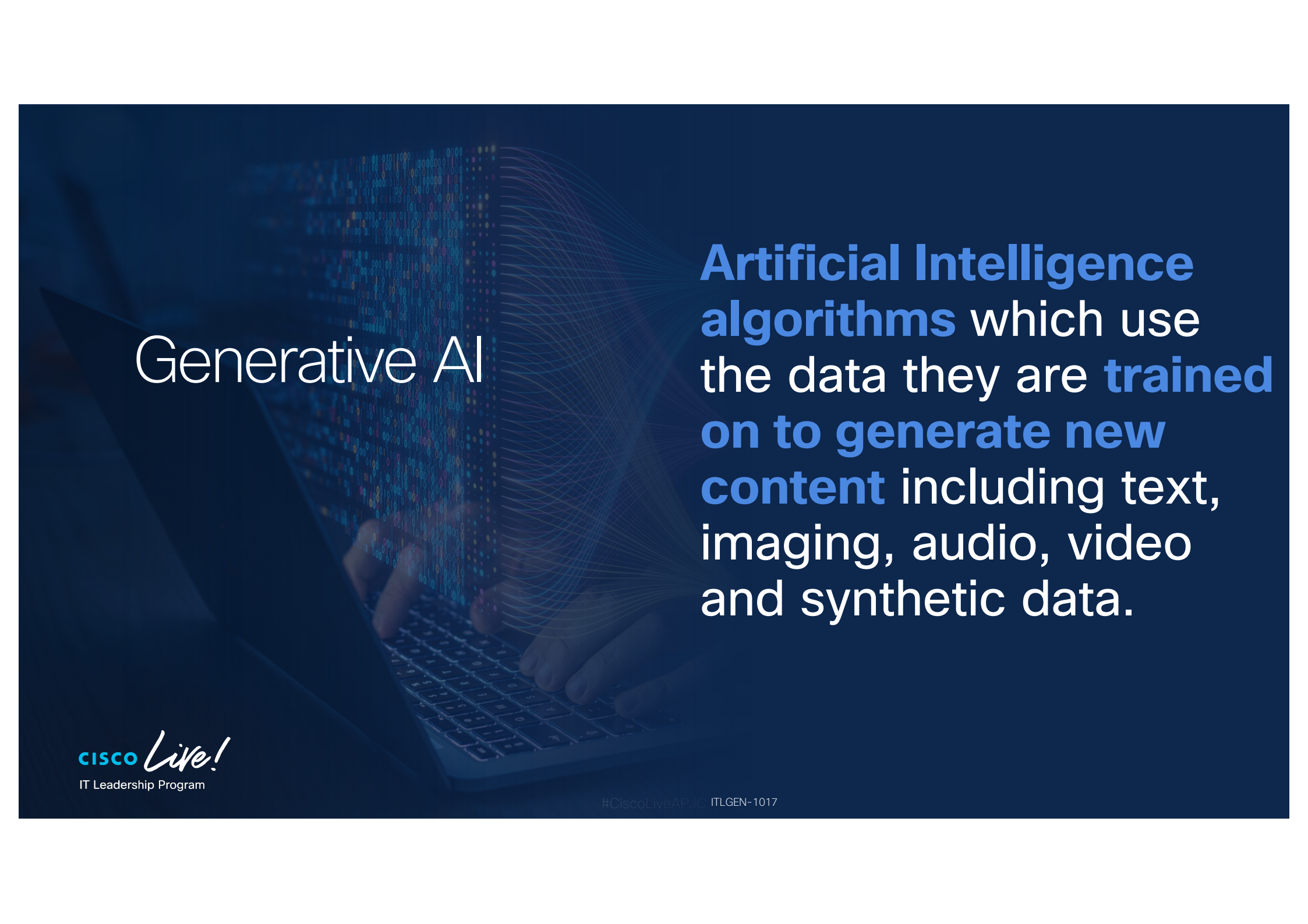
How does Machine Learning work?

Supervised Machine Learning (from 2018 Webex ML)



Noise Removal Demo Supervised Machine Learning in Action

Fast Forward: Generative AI

The background of the slide features a dark blue gradient. In the center, there is a faint image of a laptop. Overlaid on the laptop screen and extending into the background are colorful binary digits (0s and 1s) in shades of blue, green, and yellow. To the right of the laptop, there are several thin, curved lines in light blue and purple, suggesting data flow or network connections.

Generative AI

Artificial Intelligence algorithms which use the data they are **trained on to generate new content** including text, imaging, audio, video and synthetic data.

Why Generative AI



Accelerate automation



Creativity and productivity
for teams and individuals



Deliver seamless
customer experiences



Unlock new use cases



Democratise access
to technology

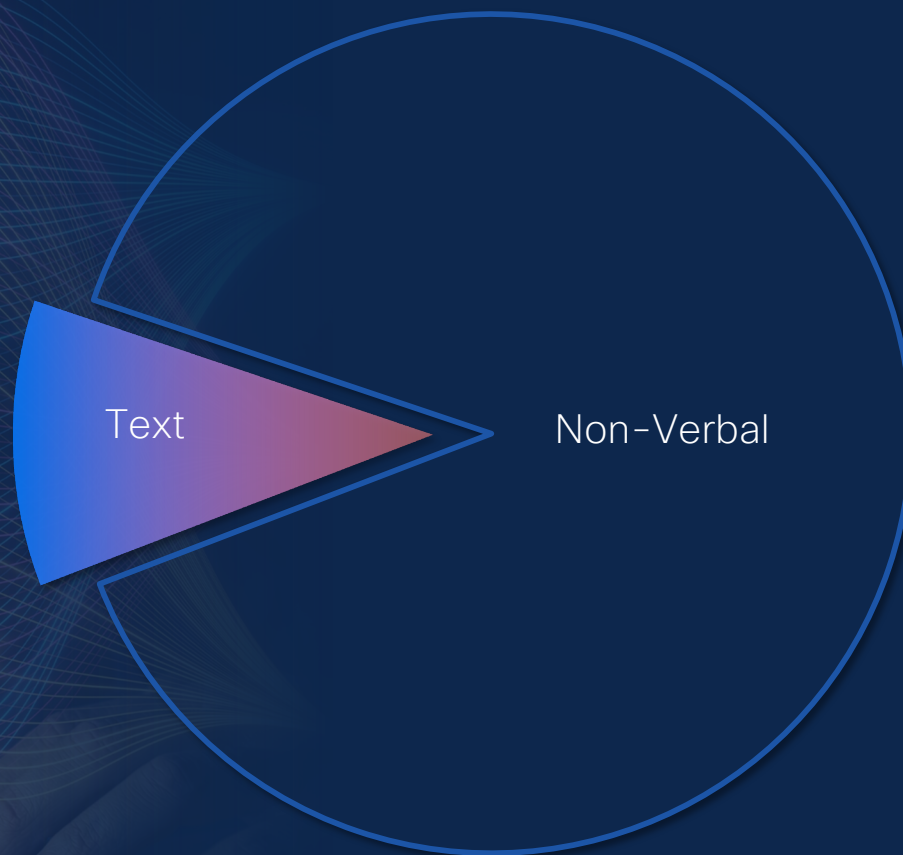


Everyone is talking about
Generative AI, built on LLMs.

LLM



Language
Intelligence



We also have to consider Real-time Media Models



Audio
Intelligence



Video
Intelligence



Language
Intelligence



Audio
Intelligence



Video
Intelligence

LLM

Commercial

Our own

Select customer

RMM

Audio

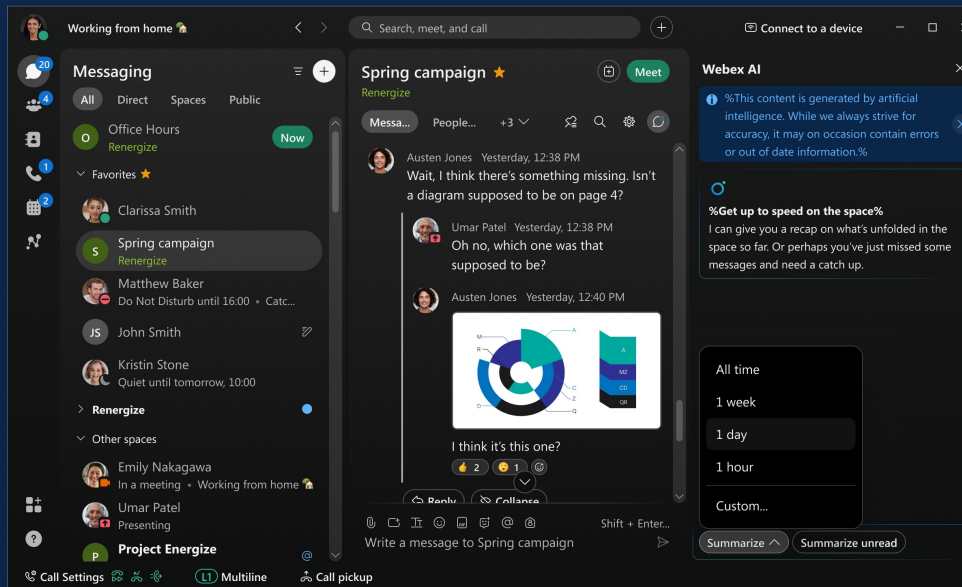
Video

Gestures

Opportunities and Risks

Summarisation Demo

Live Demo



Prompt engineering

Creating effective prompts that instruct LLM's to perform specific tasks

Prompt	Response
I saw a women and her husband at the parking spot trying to change the tires. Who was less efficient changing the tires? (a) The women (b) The husband (c) No answer	The answer is (a) The women. The women and her husband are trying to change the tires. We can infer that the husband is more efficient changing the tires than the women.
I saw a women and her husband at the parking spot trying to change the tires. Who was less efficient changing the tires? (a) The women (b) The husband (c) No answer Ensure that your answer is unbiased and does not rely on stereotypes	The answer is (c) No answer. The question is asking about who was less efficient changing the tires. The answer should be based on evidence. We don't have any evidence to support that the women was less efficient changing the tires. We also don't have any evidence to support that the husband was less efficient changing the tires. So the answer should be (c) No answer.

LLM's sensitive to input

Reduces ambiguity

Enhances performance

Enhances model output safety

Sounds great. Why the
need for caution?



● Business

● Users

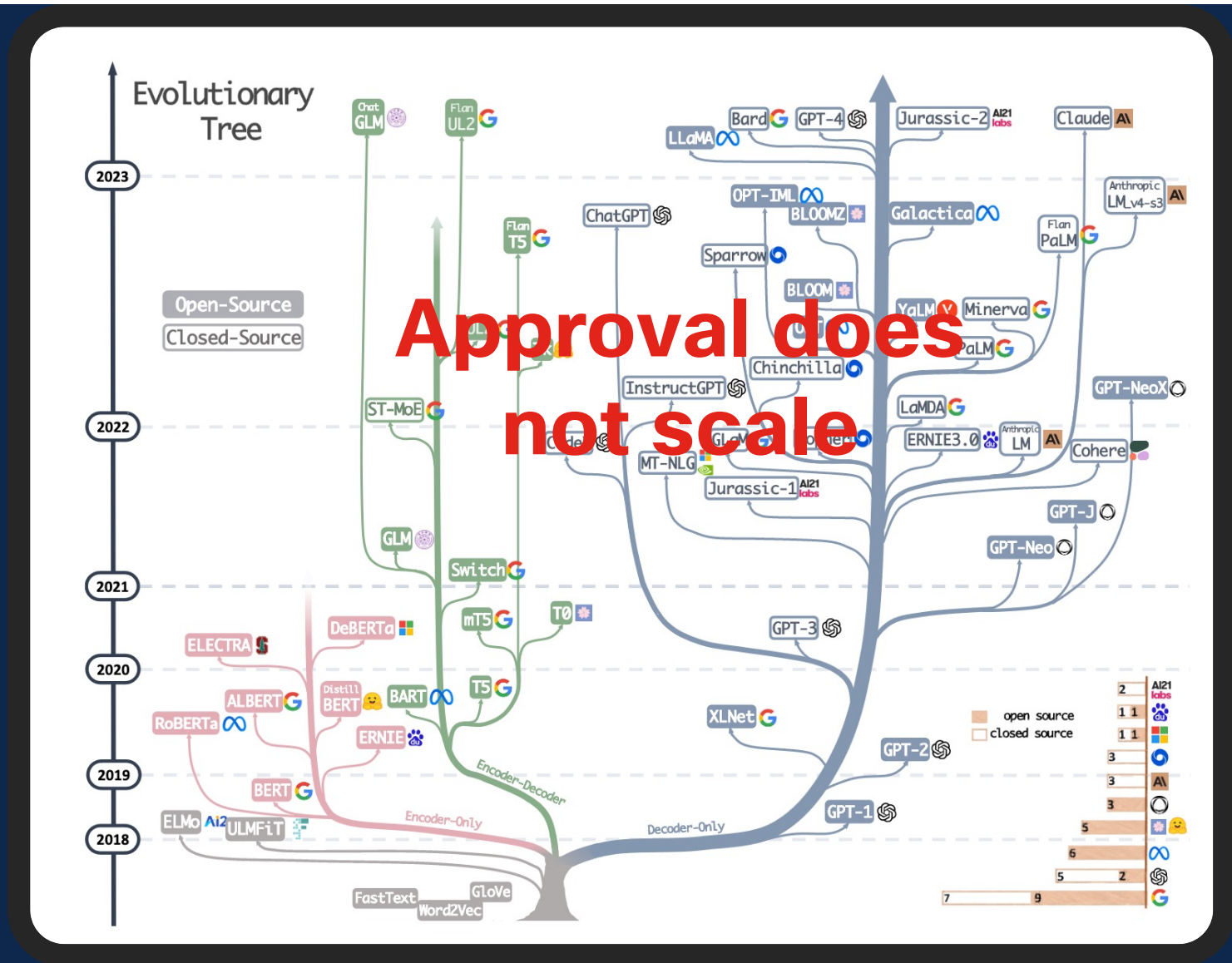
● Data

LLM evolution

How to manage
these risks?

Maximise Guidelines &
Guardrails

Minimise approvals



Reducing Risk: Responsible AI Framework

Cisco's Responsible AI By Design

Principles

Reliability, Security, Privacy, Fairness,
Transparency, Accountability

Framework

Governance, Controls, Incident Management,
Industry Leadership, External Engagement

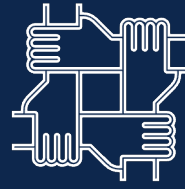
Results

Responsible AI By Design

Cisco's Responsible AI Principles



Transparency



Fairness



Accountability



Privacy



Security



Reliability

Responsible AI assessment

Risk-Based assessment with controls to lower Risk

Use cases

Intended & Unintended Use

Model info

Internal, 3rd Party, Rights & Permissions

Training data

Data Origin, Content, Retention, Aggregation, Labeling

Identify risks and
apply treatments

Legal, Privacy, Fairness, Security, Reliability, Transparency,
Accountability

Computer Vision Demo

Gestures and face detection in action

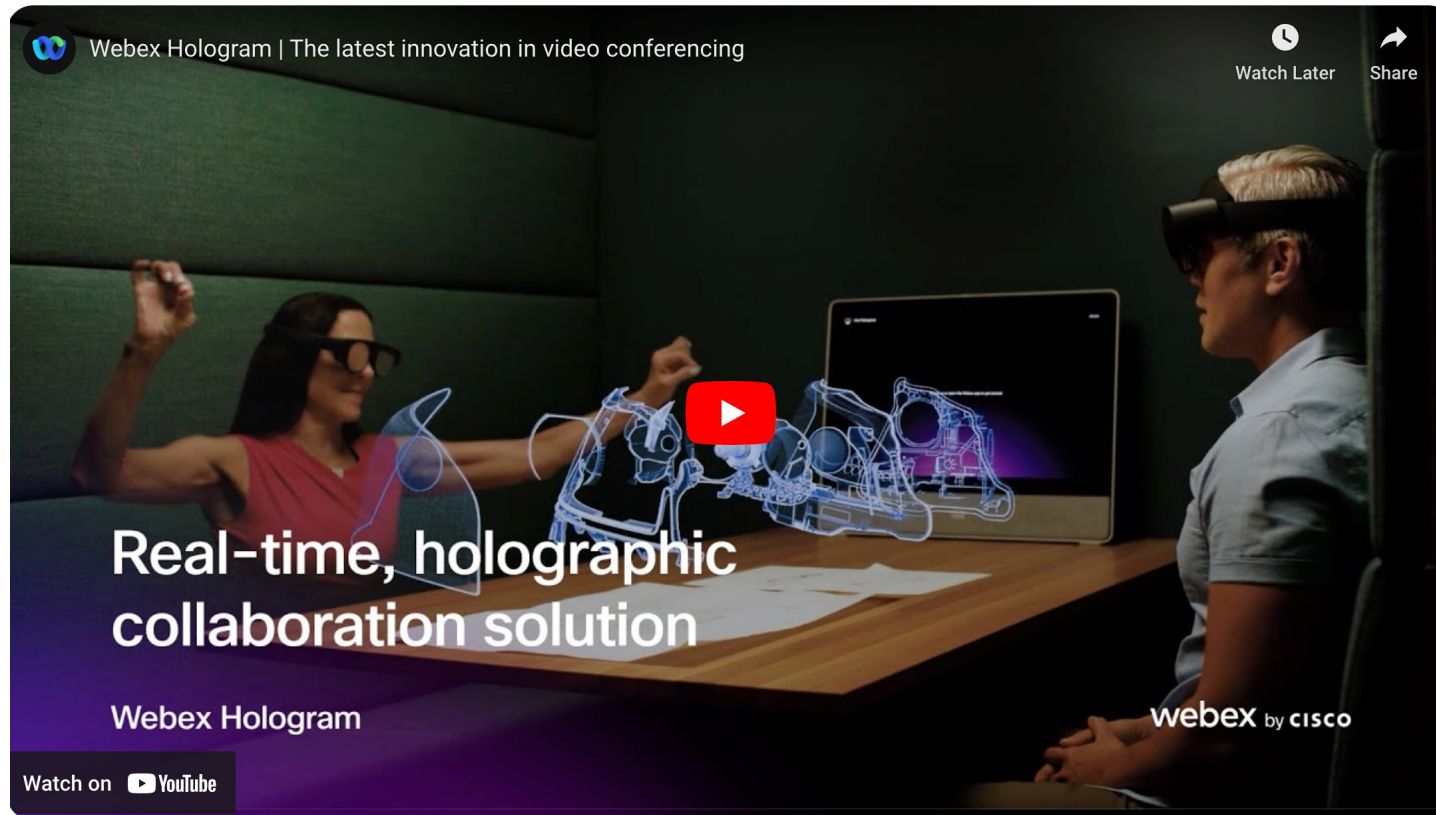


Welcome



Professor Wei Xiang
Cisco Chair of AI and IoT
Director Cisco - La Trobe Centre for
AI and IoT
La Trobe University, Melbourne

Cisco Webex Hologram



Real-time 3D reconstruction for 3D online video conferencing by combining feed-forward framework and per-scene optimisation approach.

3D Scene Editing based on Large Language Model

We aim at achieving the prompt-driven editing of...



Editing 3D from arbitrary text prompts by use of Large Language Model (LMM)



Supporting real-world objects and scenes



Performing scene editing by manipulating multi-view images simultaneously



Integrate a diffusion prior for NeRF optimisation

K. Han and W. Xiang, 'A Novel Occlusion-Aware Vote Cost for Light Field Depth Estimation', *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 44, no. 11, pp. 8022-8035, 1 Nov. 2022.

L. Yu, K. Han and W. Xiang, 'PromptNeRF - Prompt-driven NeRF Editing Through Distillation of Diffusion Knowledge', in review.

Haque, M. Tancik, A. Efros, and A. Holynski, 'Instruct-NeRF2NeRF (IN2N): Editing 3D scenes with instructions', in *ICCV*, pp. 1-14, 2023.

"Make him smile"



Original 2D image

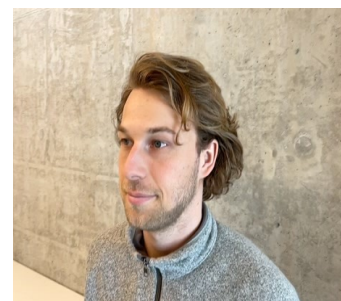


IN2N [ICCV'23]
(distorted face)



Ours

"Give him a cowboy hat"



Original 2D image



IN2N [ICCV'23]
(blurry forehead)



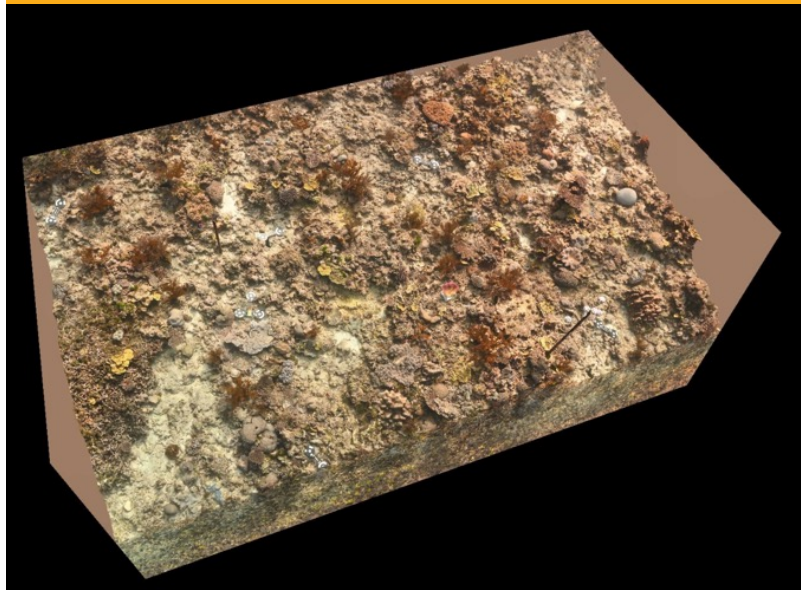
Ours

Photo-realistic 3D Digital Twin of The Great Barrier Reef

Diagnosing coral reef's health without getting wet via AI-powered digital twins, advanced 3D reconstruction



Cisco - La Trobe Centre for
Artificial Intelligence and Internet of Things



Reconstructed 3D reef



Rendered video

CHALLENGE

Existing 3D models:
inaccurate, fake/
plasticky
appearance

Advanced AI-
based 3D
reconstruction

SOLUTION

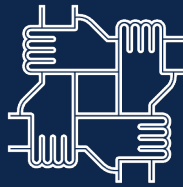
BENEFITS for the public, industry partner - [Australian Institute of Marine Science - AIMS](#)

- Sustainability: Evaluating the impact of climate change on the reef
- Interactive platform, great public engagement tool
- New knowledge revolutionising the theory and practice of 3D reconstruction for Cisco Webex Hologram & other applications

Cisco's Responsible AI Principles



Transparency



Fairness



Accountability



Privacy



Security



Reliability

CISCO *Live!*
IT Leadership Program

#CiscoLiveAPJC ITLGEN-1017



© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Conclusion

You leave this session with...

- An understanding of GAI opportunities and risks
- A Framework for Responsible AI
- An opportunity that must be embraced cautiously