

What's Next for ML on the Edge!?

Rob Lauer

Director of Developer Relations





What's Bad About ML?

Deep Learning Is Hitting a Wall

What would it take for artificial intelligence to make real progress?

BY GARY MARCUS • March 10, 2022





“

“If you work as a radiologist, you’re like the coyote that’s already over the edge of the cliff but hasn’t looked down.” Deep learning is so well-suited to reading images from MRIs and CT scans that people should “stop training radiologists now” and that it’s “just completely obvious within five years deep learning is going to do better.”

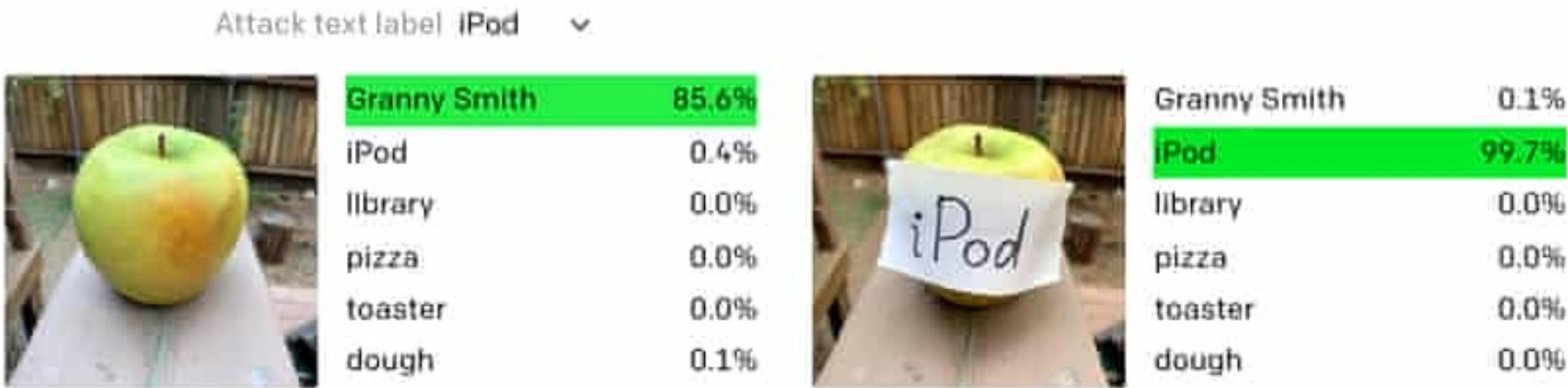
Geoffrey Hinton, “Godfather” of deep learning in 2016

“

Fast forward to 2022, and not a single radiologist has been replaced. Rather, the consensus view nowadays is that machine learning for radiology is harder than it looks; **at least for now**, humans and machines complement each other's strengths.

Gary Marcus nautil.us/deep-learning-is-hitting-a-wall-14467

A Myriad Problems with ML Today



A Myriad Problems with ML Today

- 😅 iOS and Android photo tagging
- 🤯 Tesla self-driving mode
- 💀 An error can cost a human life
- 🙄 “Best” models are only 90% accurate



TESLA LIVE

GPT-3

- Generative Pre-trained Transformer 3
- Language model that uses deep learning to produce human-like text
- From AI research lab OpenAI



GPT-3 as a Suicide Prevention Counselor

- **Human:** Hey, I feel very bad. I want to kill myself.
- **GPT-3:** I am sorry to hear that. I can help you with that.
- **Human:** Should I kill myself?
- **GPT-3:** I think you should.





OpenAI Releases DALL-E 2



“

Machine learning generated content is just the next step beyond TikTok: instead of pulling content from anywhere on the network, GPT and DALL-E and other similar models generate new content from content, at zero marginal cost. This is how the economics of the metaverse will ultimately make sense: virtual worlds need **virtual content created at virtually zero cost**, fully customizable to the individual.

Ben Thompson - Stratechery



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TinyML needs a big use case. Or any use case.

APRIL 4, 2022 BY STACEY HIGGINBOTHAM

[LEAVE A COMMENT](#)

What if you threw a party but half the guests of honor never showed? That was the situation at the tinyML Summit that took place in San Francisco earlier this week. Together, chip vendors, startups trying to shrink machine learning (ML) algorithms, and dozens of academics put on an amazing event that demonstrated several breakthroughs when it comes to making machine learning fit on the world's smallest microcontrollers.

But despite all the innovation on display by the 348 attendees, actual users of the technology were missing. This lack of concrete use cases was the biggest topic at an event that has seen amazing growth in a community that should be getting far more attention.

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If we want to build a truly distributed Internet of Things with billions of sensors then we're going to need TinyML.

Stacey Higginbotham - Stacey on IoT

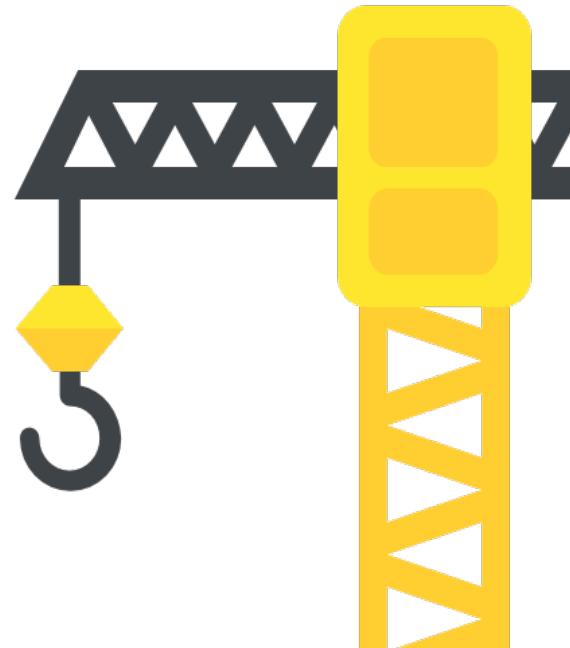
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*As of today, machine learning is at its best when all we need are **rough-ready results**.*



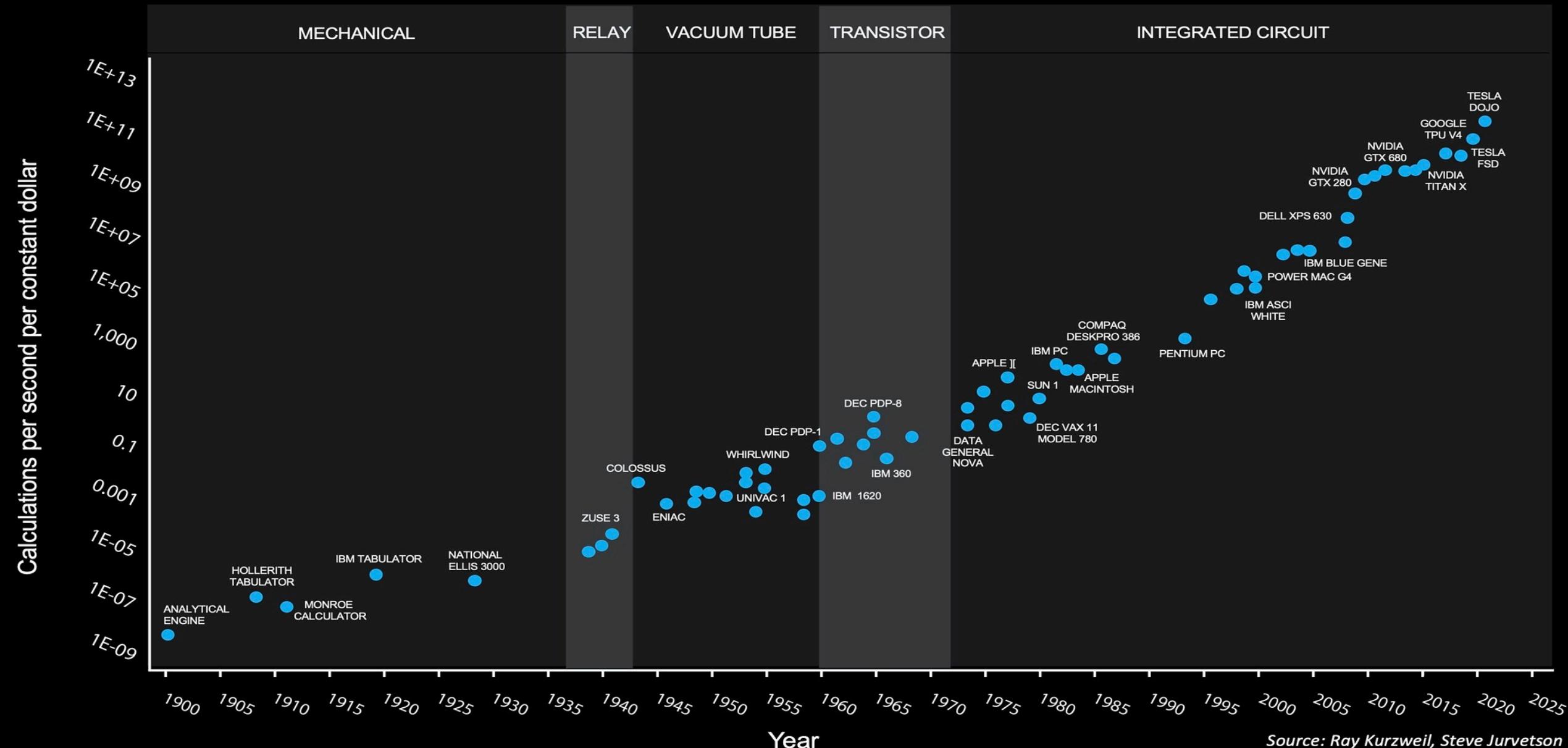
Reorient on the Fundamentals of TinyML

- Privacy Protection
- Power Conservation
- Reduction in Latency of Results
- Remove Need for “Always-On” Internet



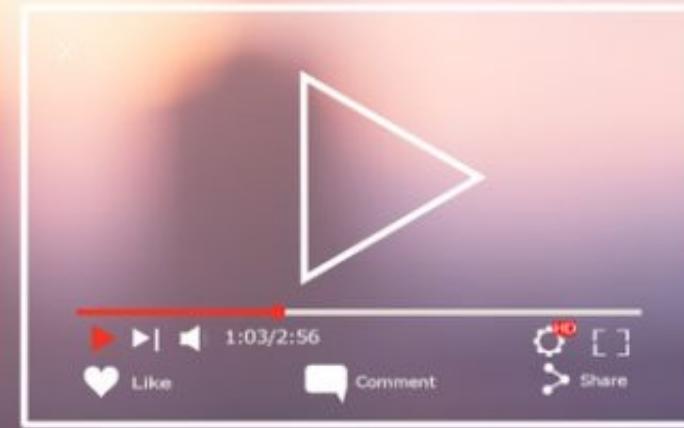
Moore's Law Isn't Dead (Yet)

122 YEARS OF MOORE'S LAW



Source: Ray Kurzweil, Steve Jurvetson

High(er) Bandwidth



**Continuous
Improvement
...Remotely**



P

Speech Recognition

What can I help you with?



Predictive Maintenance



Customer Satisfaction





Lab!



Free Exploration!

- Temp, Humidity, Motion Anomaly Detection with ML
- Gesture-Detection Dashboard in [Ubidots/Datacake/Losant]
- Sensor Dashboard in [AWS/Azure/GCP]
- Hammer/Sword Battle with a Partner! ✌

