Microtron AI

Artificial Intelligence:

How Algorithms got a bit smarter

Presentation - 2025

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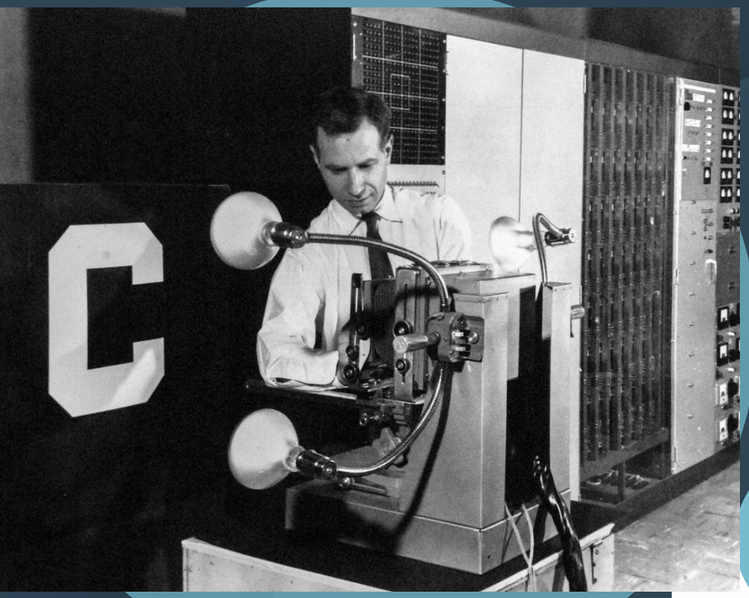
More Information
www.microtronai.com



First
A Short History Lesson

1943

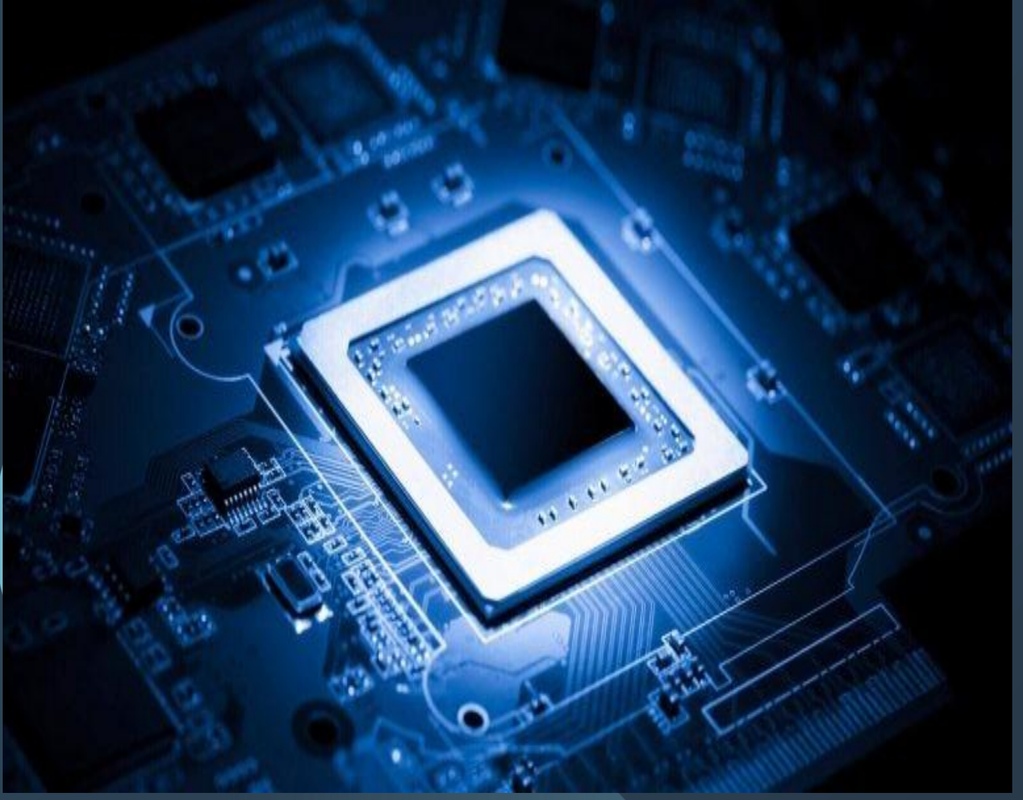
The idea of a Perceptron was invented by Warren McCulloh and Walter Pitts.

1957

The First Implementation of the Perceptron with image recognition by Frank Rosenblatt, with the Mark I perceptron machine.

2012

AlexaNet was made by Alex Krizhevsky in collaboration with Llya Sutskever and Geoffrey Hinton. AlexaNet was built on 1.3 million images with two GPU’s to win the ImageNet competition.



Current AI Landscape

- Today we have an AI boom, from Large Language Models (LLM) like ChatGpt to models that can make 3D model scenes from a text prompt.
- The hype of the AI boom, has allowed practical AI tools to blossom, however prompted a lot of software companies implemented AI in their products... some unpractical.
- Going from AI models with millions of parameters, to hundreds of billions of parameters in just a decade brings up the Question...

Microtron AI

What About Artificial General Intelligence?

- I agree with Sam Altman when he said at Stanford University about chatGPT-4 “mildly embarrassing at best”. We have a fairly long journey to an AI that thinks like humans.
- With current neural networks today that power the AI models we use, are a great steppingstone, however there are two main problems. The first problem is energy efficiency, and the second problem is adaptive neural networks in real time.
- Today's neural, however impressive, do not adapt to the problem networks they are solving, but are made to predict the outcomes of an input on pre-trained data.

Solving The Energy Problem

- When it comes to saving energy, we can look at spiking neural networks.
- Spiking neural networks (SNNs) mimic real brain function by sending information only when a neuron's electrical charge hits a specific threshold.
- Traditional neural network neurons activate a lot more frequently causing more energy consumption. Chat GPT 4 costs 7,200 MW/h (Mega-Watts per hour) for 150 days to train the AI model, this will be greatly reduced with spiking neural networks.
- In reference, the average American household consumes 1,214 Watts of power per day.

Solving The Adaptability Problem

- This is a complex issue with no complete answer. An interesting concept are Liquid neural networks, which are designed to be adaptive even after training data to the neural network.
- Imagine you learned how to play the piano, but at the last minute you need to play the xylophone. With a neural network that can adapt to real time events, an adaptive neural network would perform better then a traditional neural network.
- The problem is, liquid neural networks are not at the point where the results are good enough for real world situations. More research will need to be done to build a similar architecture to solve this problem.

Microtron AI & PAD
Artificial Intelligence

- With the pursuit of energy efficient and adaptive neural networks as our leading research, here at Microtron AI we have been working towards improved AI models with our several services.
- We focus on several tools, frameworks, and AI models to build the foundation of a user-friendly interactive AI eco-system. This includes vision, speech recognition, text to speech, Augmented reality/Virtual reality, Conversational AI, emotion detection and sentiment with many more features currently on our toolbelt.
- PAD is the brains of the AI technology built to power products.

A Short Demo
AI & PAD

About Our AI
Technical Details

- We work in multiple eco-systems such as Microsoft .NET using C# along with other programming languages, which include C++, JavaScript with NodeJS, and python.
- Working with tensorflow and torch machine learning libraries, we can design different neural network designs to meet the demands of our clients.
- Working with data and training AI models, we are focusing our efforts to security and to work towards SOC 2 certified as with many values we hold, security is a big one at microtron AI.

Our Plans For Artificial Intelligence

Services & API’s

- **We currently house a full spectrum of API’s that we use, and other third-party developers can use for their projects and services. Like said before we have...**
  - **Vision: Multi-object detection and classification, facial emotion detection, object tracking, hand tracking/ hand gestures, text detection, and customization.**
  - **Text-to-Speech, speech recognition, various classification models and conversational AI with personality and emotion detection.**

Research & Apply Future Neural Networks

With further research with additional funding, we are planning on integrating adaptive and power efficient neural networks for further the advancement of AI. This will open doors to better accuracy to outcomes to automating problem solving and making businesses more efficient.

Meta-Neural Networks

- **Meta-neural networks using both power efficient neural networks and adaptive neural networks to create new AI models that are apart of the same eco-system to solve different problems. This would be a data first driven approach technology where you would provide data and a prompt to generate a new neural network. We could automate the data collection and prompt to build a self-sufficient general artificial intelligence system. This project is in a early stage of prototyping but has great potential for generalize AI that not only learns and adapts, but also would evolve by changing it’s architecture over time.**

Conclusion

“If there is no struggle, there is no progress.”

Frederick Douglass (not ChatGPT)

Questions?