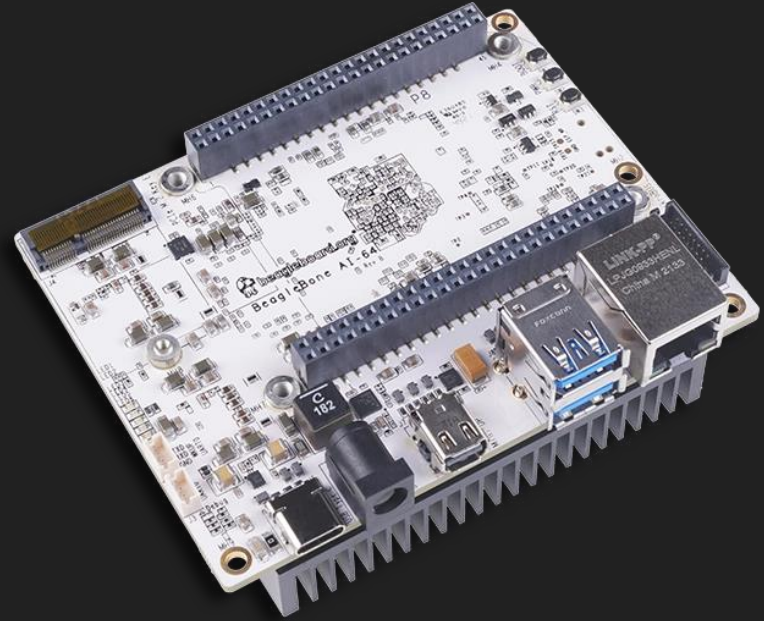


Developing Edge AI & Machine Learning Solutions with BeagleBone AI-64



Brian Berner, Platform Marketing Manager, Texas Instruments
Jason Kridner, Founder and President, BeagleBoard.org Foundation

Introduction

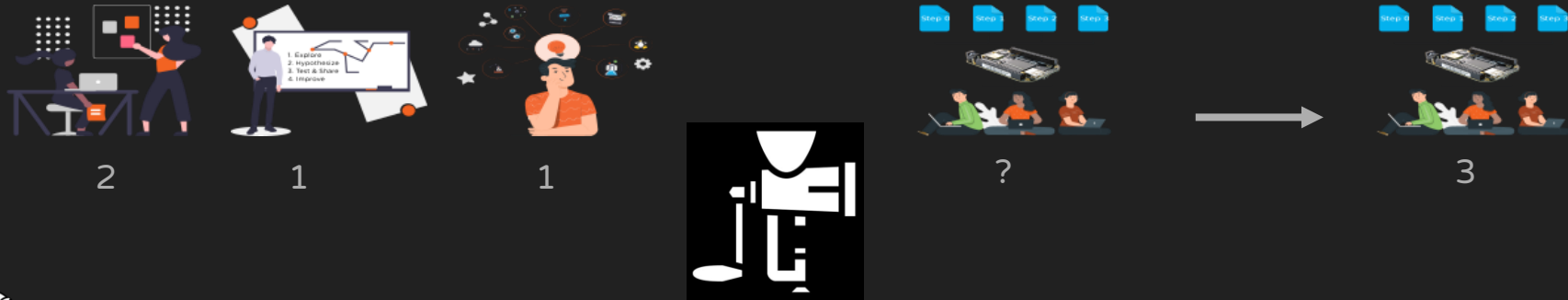
- What is AI on the edge?
- Latest Beagle open hardware computer
- Running Python/GStreamer-based Edge AI
- Getting help
- Plans to extend BeagleBone AI-64 capabilities



Jason Kridner, Founder and president
BeagleBoard.org Foundation
<https://beagleboard.org/about/jkridner>

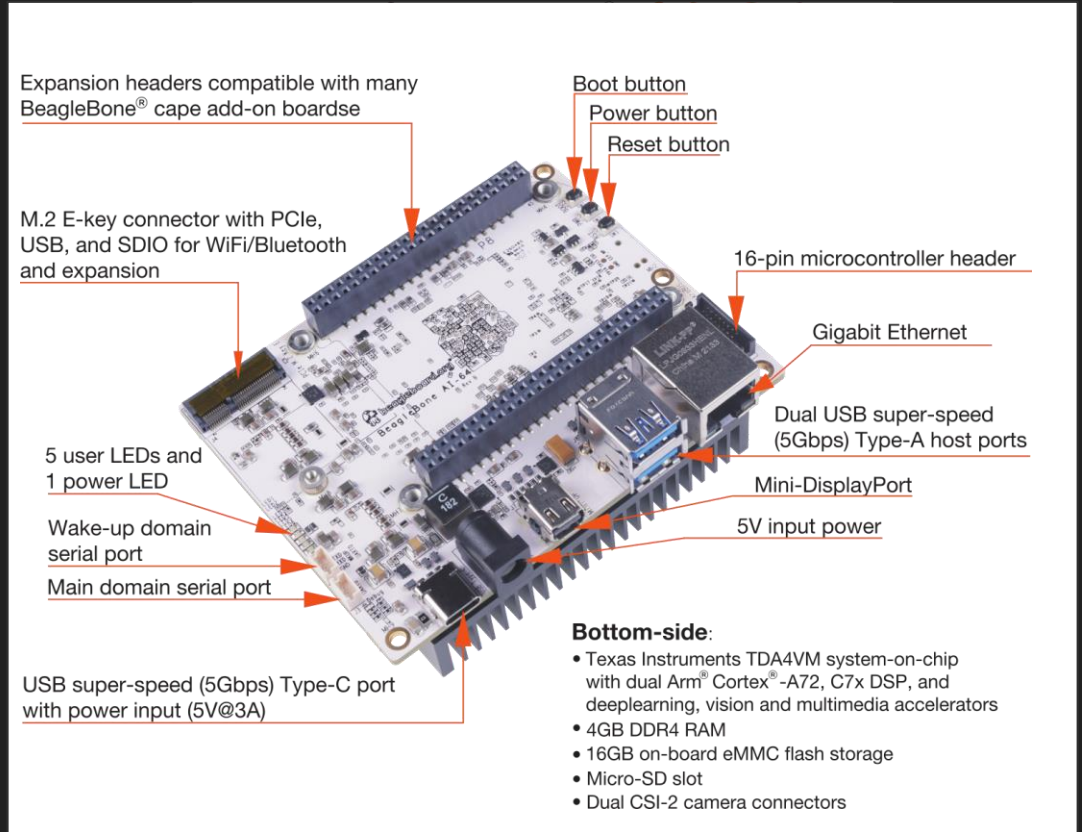
Overview of AI and its applications

- Artificial intelligence (AI) mimics human intelligence and behavior
- Machine learning (ML) is a subset of AI using data with error functions
- Training can be supervised, unsupervised or reinforced
- Examples today on supervised learning with pre-trained models
- Applicable in healthcare, finance, retail, transportation, manufacturing, education, agriculture and more



Introduction to BeagleBone AI-64

- Dual A72 @ 1.5GHz
- 6x R5 and 12x PRU
- 3x DSP, MMA (8 TOPs)
- M.2 w/ PCIe + USB
- 2x USB3-SS Type-A
- USB3-SS Type-C
- Gigabit Ethernet
- BeagleBone headers
- Mini-DisplayPort
- 4GB DDR, 16GB flash
- 2x CSI, 1x DSI

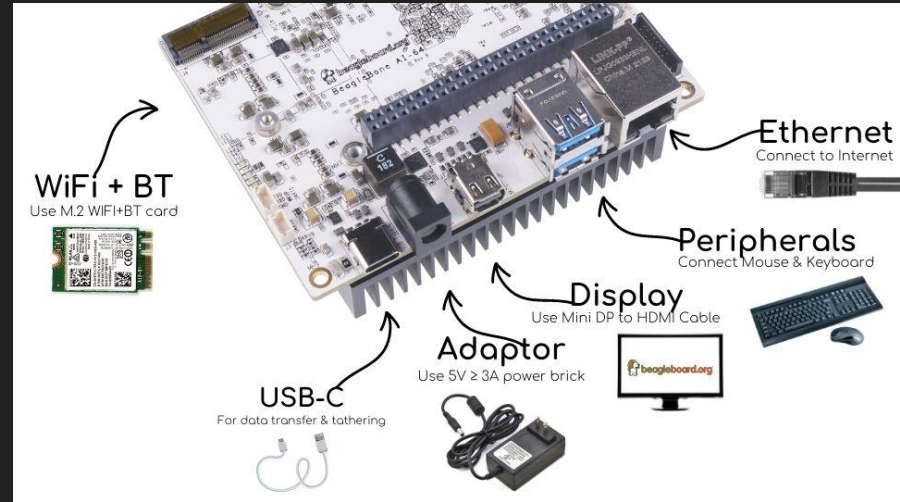


Demonstration of BeagleBone AI-64

- BeagleBone AI-64 running 2023-01-02 image
- USB Type-C power supply
- Logitech C922 USB camera
- TP-Link USB WiFi dongle

Recording:

- Ivanky mini-DP to HDMI adapter
- IOGear USB Type-C HDMI capture
- Laptop running OBS Studio



<https://youtu.be/iwu5vszqczY>

<https://www.beagleboard.org/distros/bbai64-webinar-demo-202211>

Input / Output options for Edge AI demos

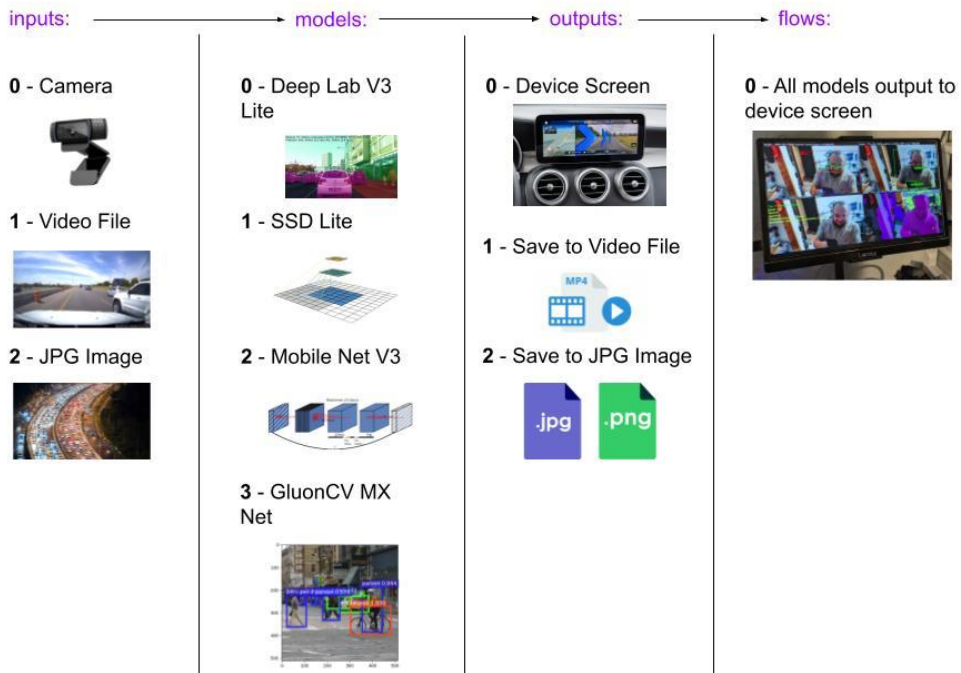
- Inputs

- USB
- CSI
- Video files
- Image files

- Outputs

- Monitor
- Video Files
- Image Files

single_input_multi_infer.yaml Breakdown



Task: [Hydrogenika - Edge Analytics](#)
Object Detection Demo

Model: ONR-DD-8050-ssd-lite-reqNetX-800mf-fpn-bgr-mmdet-coco



Examining the Beagle support process

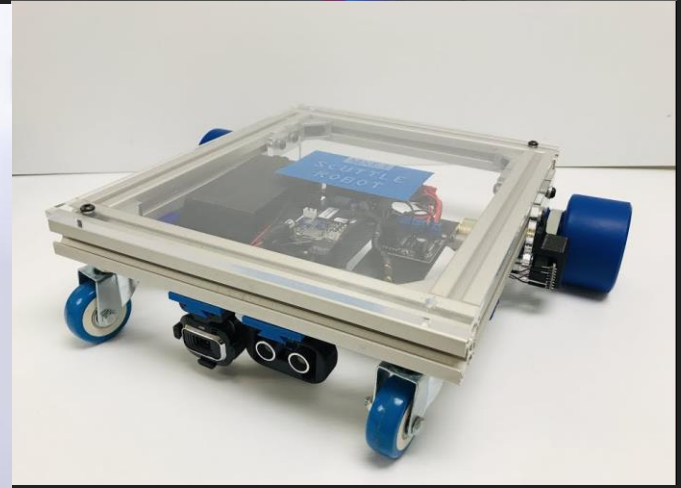
- Documentation open for public contribution
 - docs.beagleboard.org
- All official support via forum.beagleboard.org
 - Issue tracker at git.beagleboard.org/beagleboard/beaglebone-ai-64
 - Live chat on IRC (web.libera.chat/#beagle)
 - Give 24 hours for a useful answer
 - Escalate to me via beagleboard.org/about/jkridner
- Private, commercial support available through consultants
 - beagleboard.org/resources
- You have access to the design materials and take responsibility for use in developing and producing your product

Examples and case studies

Amazon Proteus

SCUTTLE bot

BeagleCar



Conclusion

Documentation: docs.beagleboard.org

Where to buy: www.beagleboard.org/boards/beaglebone-ai-64

Suggested price: \$189



Questions?