

# Bronco Ember An Edge Computing Acceleration Platform with Computer Vision



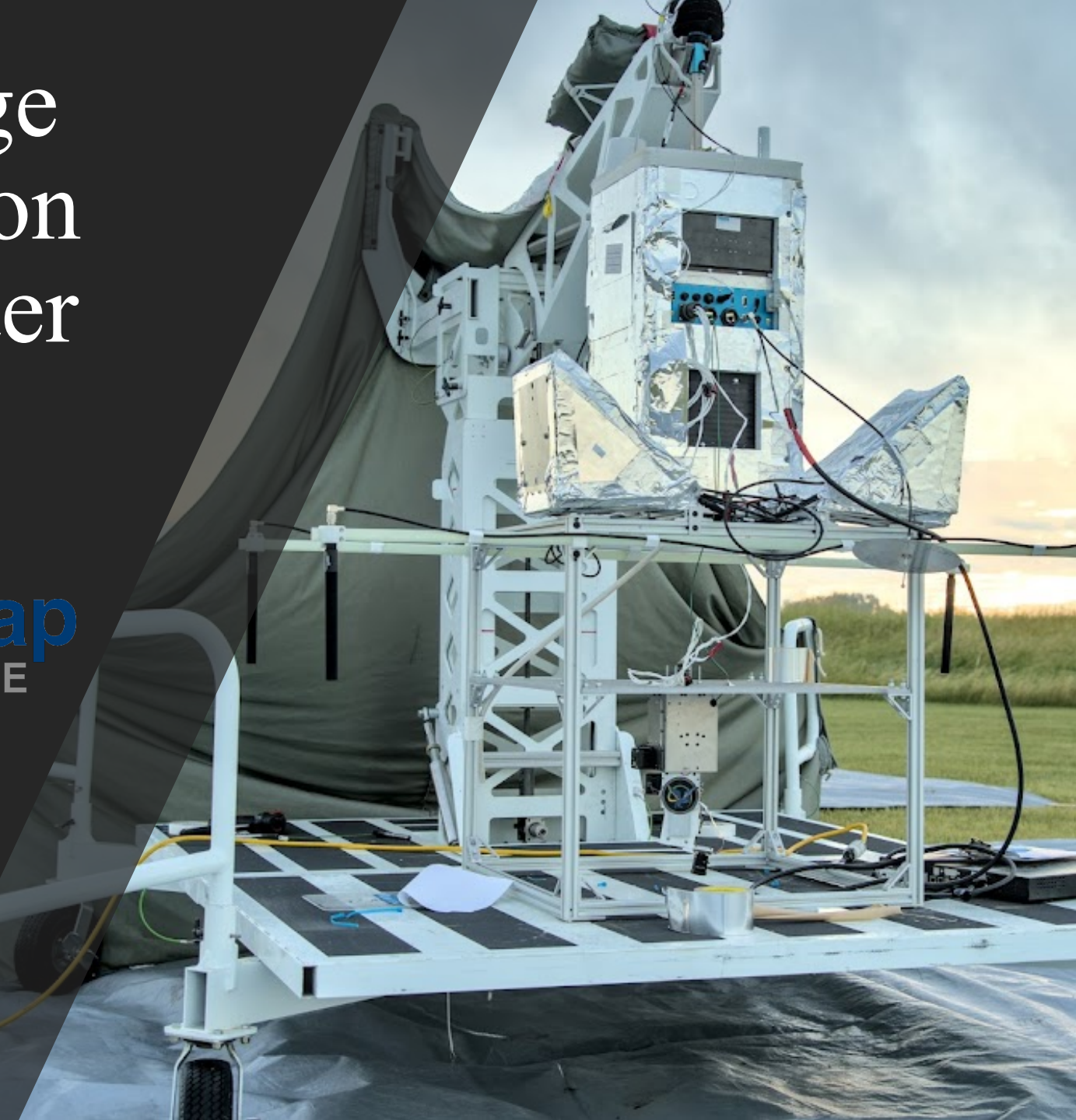
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Bronco Space

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# Overview



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## Bronco Ember A Nascent Wildfire Detection System

- Edge Computing Capabilities
- Multi-Spectral Imaging
- 85% Success Rate In Being Able To Detect Wildfires
- Fire Spread Prediction
- Supported Through The NASA TechLeap Autonomous Observation Challenge No. 1

## Components

- 2 DOF gimbal
- InGaAs SWIR camera
- NVIDIA Jetson Xavier NX
- Artificial Intelligence Software





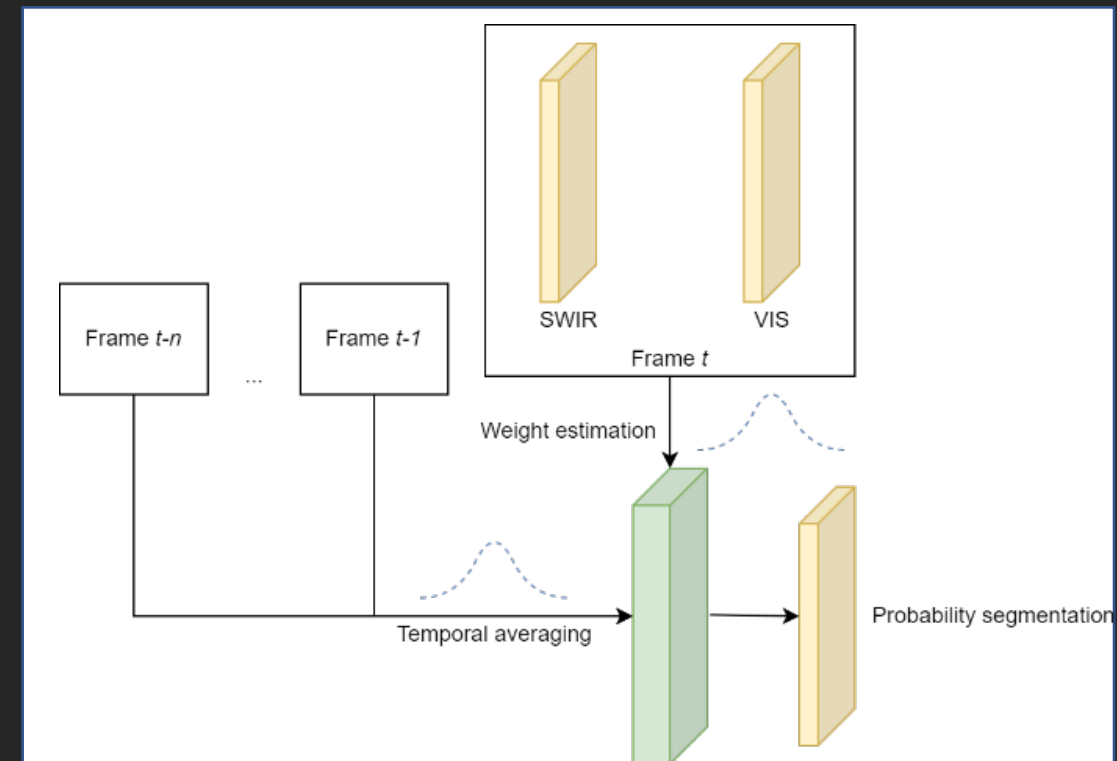
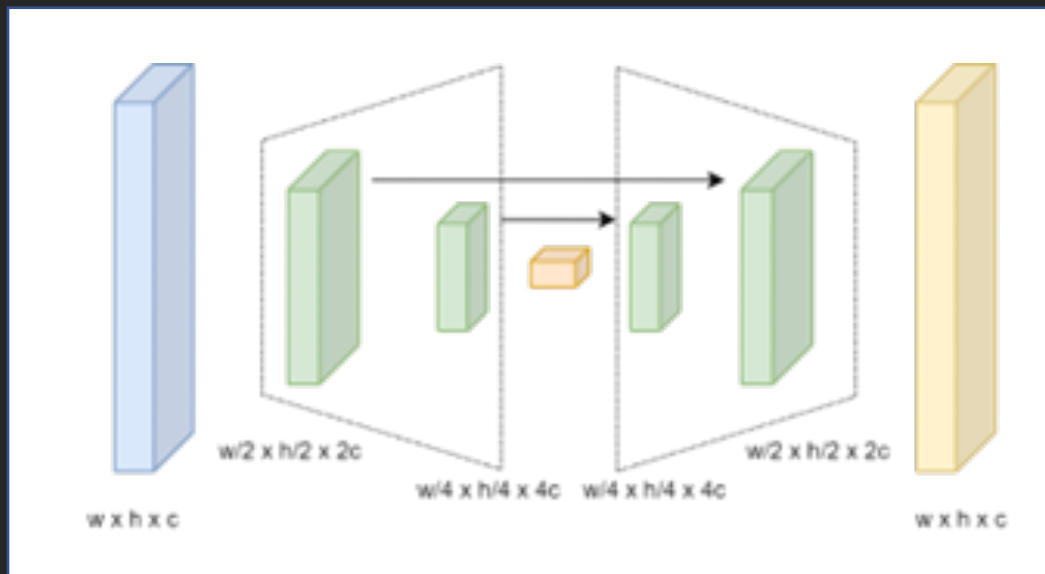
# AI Software



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## Segmentation and Localization Networks

- CNN-Style Processing
- Bayesian Neural network



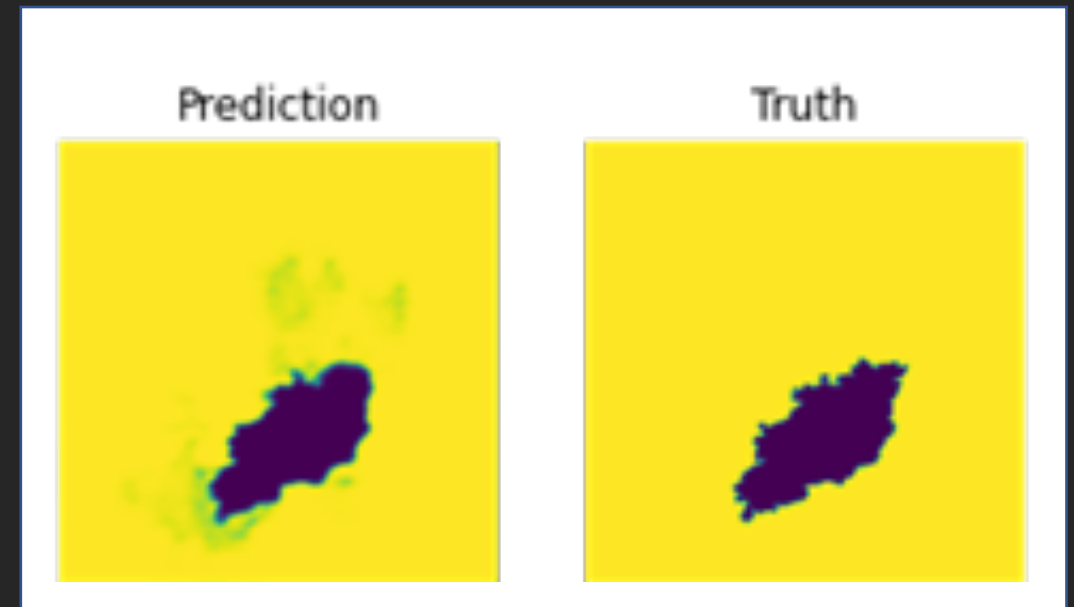
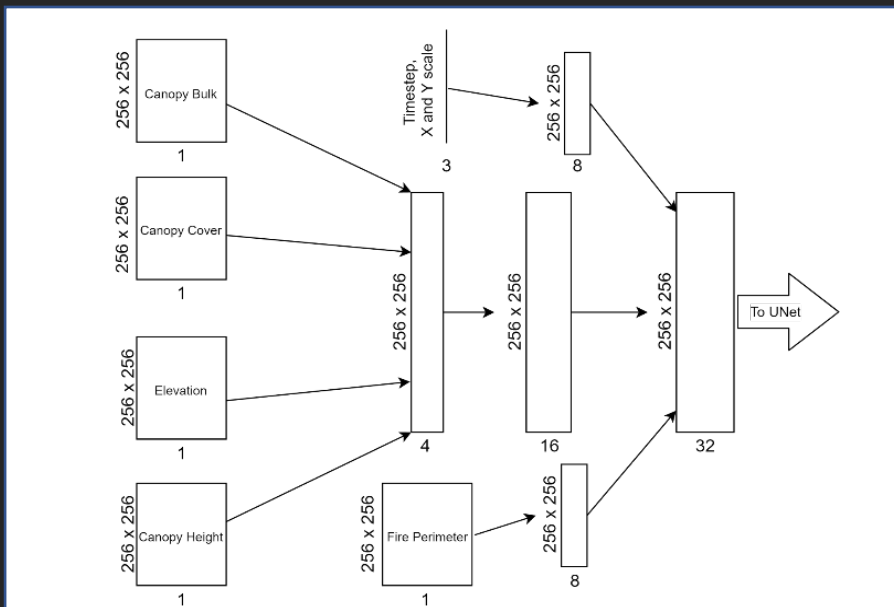


# AI Software



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- Analysis of Fire Spread over time
- Multimodal Neural Network





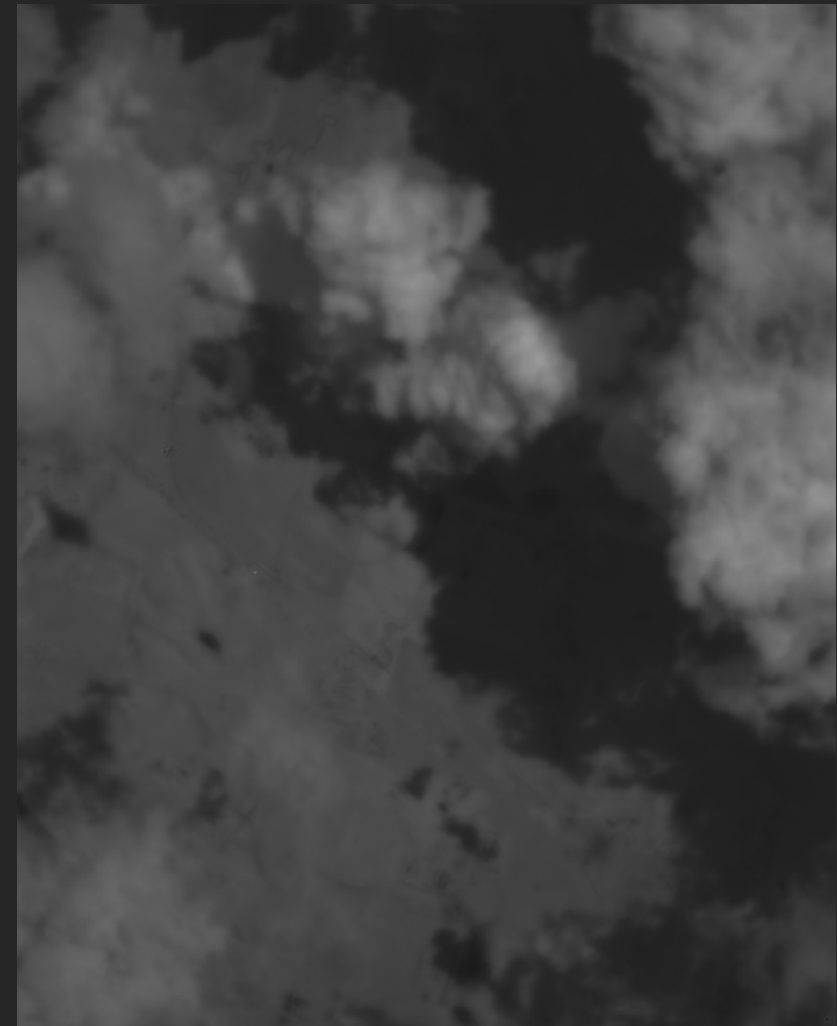
# Future Work



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## Continue Software Development and Data Acquisition

- Implementation of Transformers
  - Replace the Time Series and Fire Spread Systems
- Planned up coming test flights
- Implementation on long duration drones/HABs







Thank You!



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