

FutureX AI Pipelines

Powering the 3rd wave of Artificial Intelligence Research

Pantelis Monogioudis, Gurudutt Hosanghani, Ming Lu, AAAIR, Bell-Labs

Michael Rooke, Bell-Labs

A nautical analogy on where we are today with AI in networks

DARPA considers AI development in waves

Symbolic GOFAI



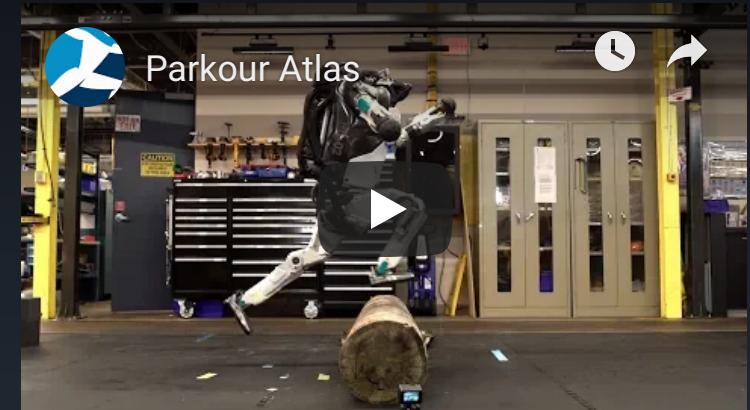
> 1980

Connectionism



> 2010

AGI



2020s

Meaning and reasoning in NLP, Inference and Representation of Causality, Computationally-tractable Uncertainty Representations, Long-term Goal Planning

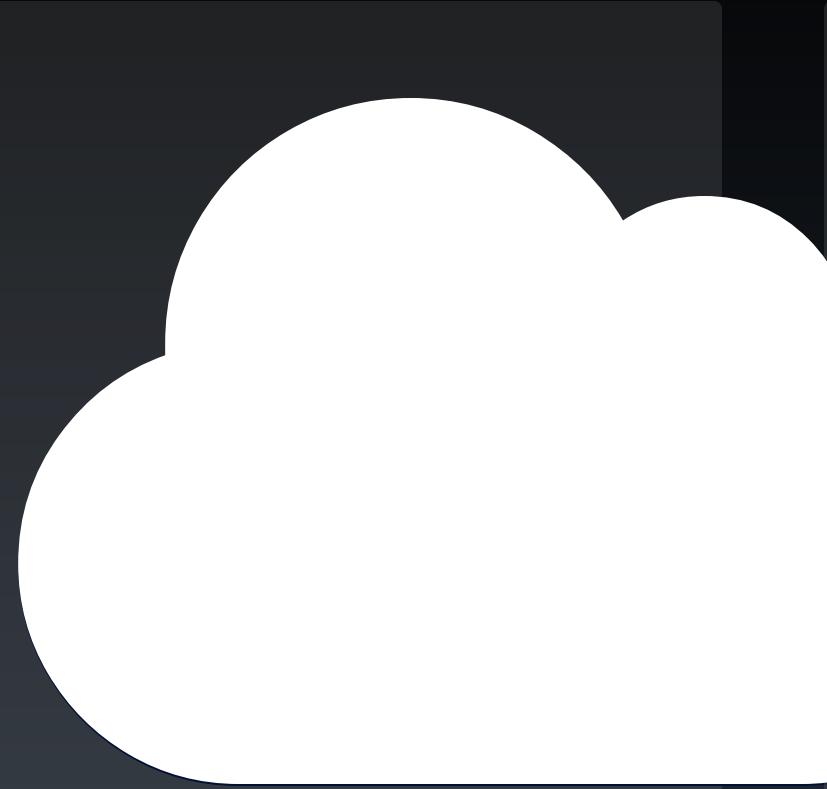
Reveal the stenosis: generative augmented physical (CFD)
modeling from CT Scans



What we need from AI Pipelines



Composabilit
y



Scalability &
Resilience



Portability
across workstation, training rigs, dedicated edge devices and public clouds.

Many moving parts other than model code.



Target Model Compression



Model & ML Frameworks



Specialized (5G-enabling) Target Devices



Multi-Cloud (Edge/Core) Deployment

Linux Foundation - Deep Learning Foundation

Acumos Architecture

Acumos 1.0 documentation » Architecture Guide »

[previous](#) | [next](#) | [index](#)



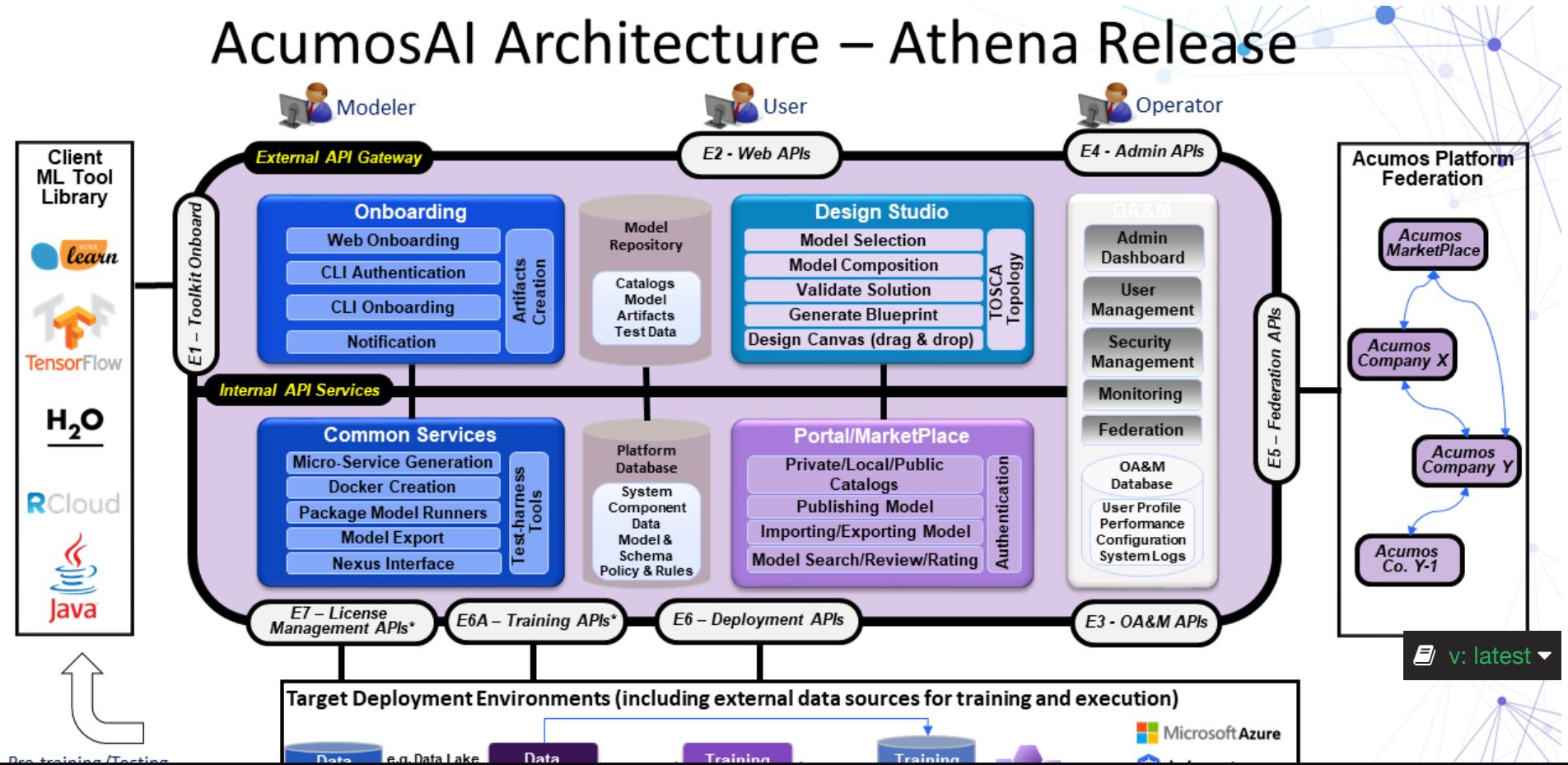
Table Of Contents

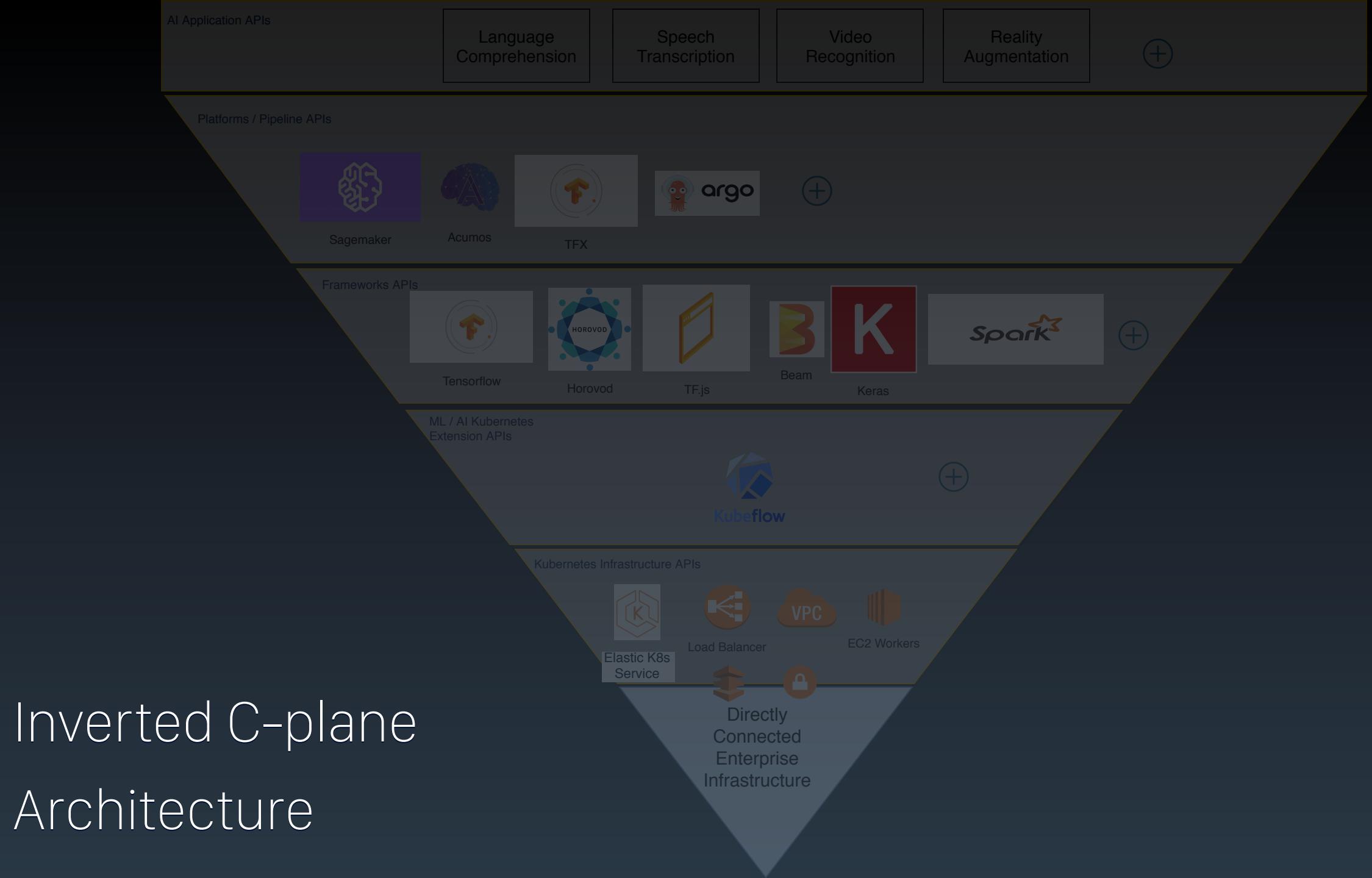
- 4. Architecture
 - 4.1. Architecture Overview
 - 4.2. Component Interactions
 - 4.3. Interfaces and APIs
 - 4.3.1. External Interfaces and APIs
 - 4.3.1.1. E1 - Toolkit Onboarding
 - 4.3.1.2. E2 - Web APIs
 - 4.3.1.3. E3 - OA&M APIs
 - 4.3.1.4. E4 - Admin APIs
 - 4.3.1.5. E5 - Federation APIs
 - 4.3.1.6. E6 - Deployment APIs
 - 4.3.1.7. Microservice Generation
 - 4.3.2. Internal Interfaces and APIs
 - 4.3.2.1. Common Data

4. Architecture

4.1. Architecture Overview

AcumosAI Architecture – Athena Release



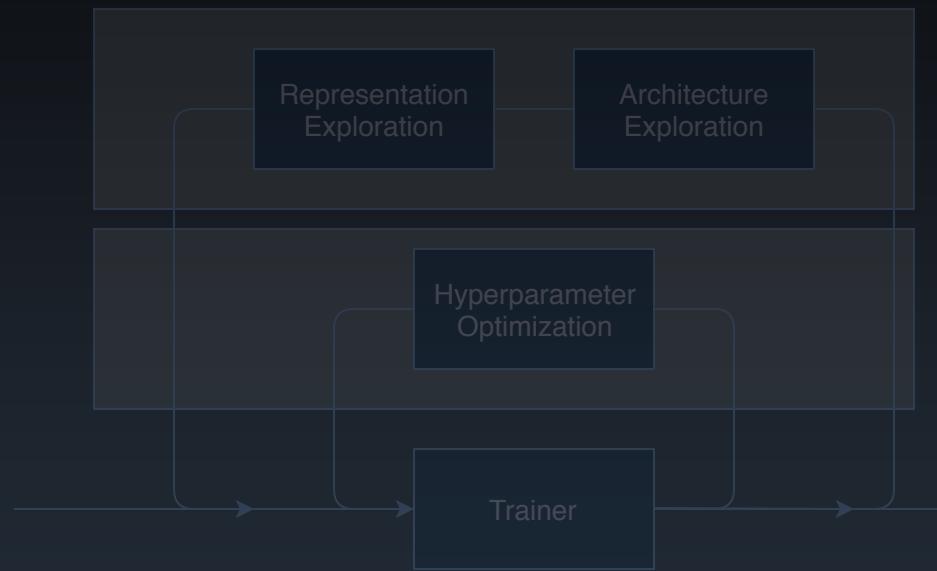




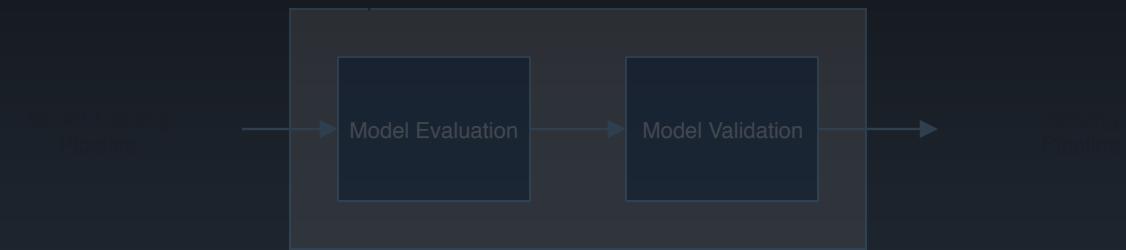
Acumos defines 4 pipelines



Data Pipeline



Model Training Pipeline



Model Evaluation & Validation Pipeline



Serving Pipeline

Demo

FutureX AI Pipelines

Thank you!



@monogioudis