Bonsai At A Glance

About

Bonsai's AI Platform empowers enterprises to build and deploy intelligent systems

Product

The Bonsai Platform provides developers, data scientists and subject matter experts with the technology and tools to more effectively program and manage AI models.

Use Cases

Bonsai enables enterprises to program AI models to increase automation and improve operational efficiency of industrial systems including robotics, manufacturing, supply chain, logistics, energy and utilities.

Benefits

- AI-enable your development team
- Reuse and share your code and models
- Debug, inspect, & refine your AI
- Build models independent of underlying algorithm
- Host and collaborate on existing models

Solution brief

Program AI models to drive increased control & automation into sophisticated industrial systems

Interactive and autonomous systems, including advanced robotics, warehouse operations, smart factories and more — are expected to operate and adapt amid increasingly dynamic environments. The complex and unconstrained problem spaces that these industrial systems must navigate, including factory floors and warehouse operations, require increased automation capabilities and more intelligent, adaptive controls.

Examples of real world industrial systems that could see significant benefits from more intelligent automation include:

- Robotics
- Warehouse operations
- Autonomous Vehicles
- Factory Line Automation
- Smart Sensors/Smart Meters

Due to the inherent complexity of low-level AI libraries and algorithms, only an extremely small subset of data scientists can build these dynamic systems today. With Bonsai, your existing development teams can program AI models to increase the control and automation of these advanced industrial systems.

The Bonsai Platform

Bonsai's AI Platform abstracts the complexity of machine learning libraries like TensorFlow, enabling enterprises to build more automated industrial systems without requiring deep expertise in machine learning. Using Bonsai, developers, data scientists and subject matter experts can can more effectively program and manage AI models that are informed by an enterprise's unique domain and subject matter expertise. In a highly dynamic environment like a warehouse, for example, an organization's intelligence around inventory management is a strategic asset; incorporating this knowledge into picker robots and automated systems is the responsibility of logistics experts and programmers, not data scientists. With Bonsai's programming language, runtime and tooling, enterprises can more efficiently build application specific AI models that increase the control and automation of these sophisticated industrial systems.

Build, Teach, Use

Using Bonsai, AI models are programed and deployed using the following Build, Teach, Use sequence outlined below:

Build

- A developer first codifies the unique control requirements desired from the AI model using Inkling, Bonsai's special purpose programming language.
- Inkling captures the desired goals of the AI model (e.g. planning an efficient route through a warehouse to fulfill a set of orders), and any specified constraints (e.g. while avoiding other robots and human workers on the warehouse floor).
- Training sources, such as simulations or data, that will be used by the program when training the model are specified within the platform

Teach

- Collectively, these inputs are fed into the Bonsai's Artificial Intelligence Engine to generate and train an AI model - one where appropriate behaviors have been learned with the underlying machine learning components managed for you.
- Developers, engineers, and subject matter experts can also debug, inspect and refine the model to further improve the output or incorporate additional scenarios.

Use

- The model produced from the AI Engine can then be connected into your software and hardware applications through Bonsai provided libraries (just like you would connect a database to your application).
- Your application will be able to stream in data and receive predictions from your AI model

Key Benefits

The Bonsai Platform brings together state of the art techniques in machine teaching and machine learning, providing developers, data scientists and subject matter experts with the tools to teach the desired intelligence to a system, while automating the complex, low level mechanics of machine learning. Using Bonsai, enterprises can more efficiently build application specific AI models that increase the automation and operational efficiency of sophisticated industrial systems.

Specific benefits to be realized from using the Bonsai platform to program your AI models include:

- **AI-enable your development team.** Bonsai allows developers to focus on programming concepts unique to a specific problem domain, leaving the management of complex, low level AI mechanics to the Bonsai AI Engine
- **Reuse & share code & models.** Programming of intelligence at a higher level of abstraction enables code and model reuse. System libraries and shared models can be leveraged across development teams.
- **Debug, inspect, & refine your AI.** The high level models produced by Bonsai enable you to understand what contributed to a prediction, identify conceptual gaps and bugs, and constantly refine your models.
- **Build models independent of underlying algorithm.** As machine learning and deep learning algorithms evolve, your Inkling code can be recompiled and retrained to take advantage of low-level technology advances.

"Bonsai's AI development platform empowers these developers and subject-matter experts with the runtime environment and tooling to program AI models that increase the automation of these systems."

- **Host and collaborate on existing models.** Interoperability with existing machine learning models allows data scientists to expand the functionality of the platform, and extend these capabilities for use by your development teams.

To learn more about whether your use case is a fit for the Bonsai Platform, visit us at www.bons.ai, or contact us at sales@bons.ai to schedule a demo.

About Bonsai

Bonsai offers an AI platform that empowers enterprises to build and deploy intelligent systems. By completely automating the management of complex machine learning libraries and algorithms, Bonsai enables enterprises to program AI models that improve system control and enhance real-time decision support. Businesses use these models today to increase automation and improve operational efficiency of industrial systems including robotics, manufacturing, supply chain, logistics, energy and utilities. Based in Berkeley, CA, Bonsai is backed by leading investors including NEA, Microsoft Ventures, ABB, Samsung and Siemens. To learn more, please visit: https://bons.ai/ or follow us on Twitter @BonsaiAI.