

Bosch Research

Economy of Things – Contributions to the community

Towards AIoT: Bosch machine learning trials go live on Fetch.ai

Fetch.ai, a Cambridge-based artificial intelligence lab building an open-access decentralized machine learning network for smart infrastructure, announced today that the team of the “Economy of Things” (EoT) strategic advance engineering project at Bosch Research will be initiating machine learning trials on the Fetch.ai Collective Learning network. The system will attempt to predict potential failures in Bosch’s machinery while maintaining data privacy.

The main focus of Bosch Research is the research and implementation of innovative new technologies. Bosch Research originally entered into a collaboration with Fetch.ai in 2019 and deployed a node on a Fetch test network in early 2021. The launch of a Collective Learning proof-of-concept for Bosch’s manufacturing operations is an extension of that partnership that will evaluate the feasibility and effectiveness of Collective Learning as it applies to predictive maintenance.

Predictive maintenance is a process that identifies potential failures of machinery before they happen. This has become an important challenge for manufacturers as maintenance costs are a significant downtime in an assembly line, caused by a single machine failing. Breakdowns in the maintenance process are extremely costly to the manufacturer and increase overhead costs and lead time, adding unnecessary delays in the entire supply chain.

“Using machine learning to identify equipment failures is a difficult problem to solve as these events occur very infrequently,” said Jonathan Ward, CTO of Fetch.ai. “The collective learning system enables the different manufactures that use Bosch’s equipment to share information with each other without giving access to the raw data, to greatly improve their ability to detect failures, and thereby improve the efficiency of their operations.”

Bosch will be using Fetch.ai’s Collective Learning testnet to alleviate equipment failures by helping multiple stakeholders train a machine learning model and allowing each party to vote on whether a proposed model by one of the network participants has improved performance on their local dataset. The goal of this testnet is to help Bosch understand and adopt machine learning algorithms relevant to manufacturing using a publicly available dataset.

The decentralized nature of using collective learning techniques based on DLT to jointly gain insights from data without compromising on data security and privacy, is a first of its kind implementation. This use case fits the strategic direction of Bosch on becoming a leading AIoT company. In short: making connected things smarter for the benefit of people.

“Secure and trustworthy computation across several participants, while keeping the raw data and possibly even the learned model private is key to unlock the true value of distributed data,” said Dr. Alexander Poddey, leading researcher for digital socio-economy, cryptology, and artificial intelligence in the EoT project. “In our view, collective learning is a key enabler to leading digital socio-economy to efficiency.”

About Fetch.ai

Fetch.ai, a Cambridge-based artificial intelligence lab, is building the infrastructure required for autonomous software agents to begin performing useful economic work on behalf of individuals, machines, businesses, and organizations. Fetch.ai's network is based around open-source technology and gives users access to the power of AI on a world-scale secure dataset to carry out complex coordination tasks in the modern economy.

About Bosch and Bosch Research

The Bosch Group is a leading global supplier of technology and services and comprises Robert Bosch GmbH as well as its roughly 440 subsidiary and regional companies in 60 countries. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology.

Operating in a global network, Bosch Research fills the innovation pipeline of the Bosch business sectors. The research areas cover a wide portfolio from e-mobility and chemical energy conversion to autonomous systems, information and communication technologies, resource and energy efficiency and healthcare solutions. Research has formed part of Bosch's DNA for over 130 years and is driven by the belief that research is not an end in itself, but something that makes a tangible contribution to improving the quality of people's lives. That belief is reflected in the words "Invented for life".

Cambridge / Renningen, August 5, 2021