

## Nasdaq CTA Artificial Intelligence & Robotics™ Index (NQROBO™)

*April 2024 Update*

### **Overview & Methodology**

The Nasdaq CTA Artificial Intelligence and Robotics™ Index (NQROBO™) is designed to track the performance of companies engaged in the artificial intelligence (AI) and robotics segment of the technology, industrial, medical, and other economic sectors.

CTA first qualifies each index constituent as an AI and/or robotics company and then assigns an Intensity Rating that captures the perceived degree of a company's AI & robotics sector involvement within one of the three categories:

- Enablers are companies that develop the building block components for robotics or artificial intelligence, such as advanced machinery, autonomous systems/self-driving vehicles, semiconductors, and databases used for machine learning.
- Engagers are companies that design, create, integrate, or deliver robotics and/or artificial intelligence in the form of products, software, or systems.
- Enhancers are companies that provide value-added services within the AI and robotics ecosystem but which are not core to their product or service offering.

Securities that meet the applicable Security Eligibility Criteria are ranked within their categories by their companies' CTA Intensity Ratings. Securities ranked in the top 30 within each category, including ties, are selected for the Index.

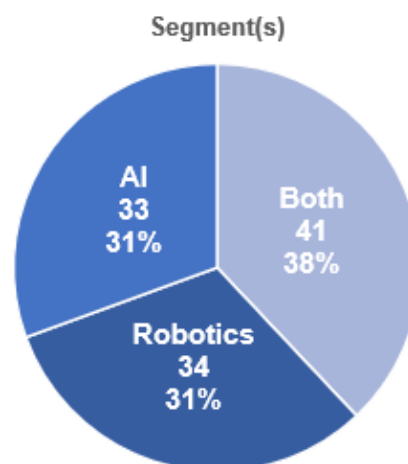
Based on the index methodology, the NQROBO Index is comprised of 108 constituents across the entire AI and robotics ecosystem with representation of underpinning technologies, products, and services focused in areas including:

- 3D Printing & Additive Manufacturing
- Advanced Driver Assistance Systems (ADAS) & Self-Driving Software and Systems
- Artificial Intelligence (AI) & Machine Learning (ML)
- Automated Logistics & Fulfillment; Computer and Machine Vision
- Industrial Internet of Things (IoT)
- Consumer, Industrial & Medical Robotics
- Natural Language Processing (NLP) & Large Language Models (LLM)
- Robotics Process Automation & Low/No Code
- Semiconductors
- Simulation Software
- Unmanned Vehicles

CTA routinely evaluates each constituent within the NQROBO Index and assigns one of three segmentations:

- Artificial Intelligence (AI)
- Robotics
- Both AI & Robotics (Both)

Nearly 40% of index constituents (41 companies) work in both AI & Robotics. Roughly 30% of constituents (34 companies) focus on robotics without AI efforts, while roughly 30% (33 companies) develop AI innovations without engaging in robotics.



### NQROBO Index Constituents

<u>Company Name</u>	<u>Classification</u>	<u>Company Focus</u>	<u>Segment</u>
<b>3D Systems Corp</b>	Enabler	3D Printing / Additive Manufacturing	Robotics
<b>ABB Ltd</b>	Enabler	Industrial & Collaborative Robots	Robotics
<b>Advanced Micro Devices Inc</b>	Enabler	AI/ML Semiconductors	AI
<b>AeroVironment Inc</b>	Engager	Autonomous Systems	Both
<b>Akamai Technologies Inc</b>	Enhancer	Enterprise AI	AI
<b>Alibaba Group Holding Ltd</b>	Enhancer	Enterprise AI	Both
<b>Alphabet Inc</b>	Enhancer	Enterprise AI	Both
<b>Amazon.com Inc</b>	Enhancer	Enterprise AI	Both
<b>Ambarella Inc</b>	Engager	AI/ML Semiconductors	Both

<b>ANDRITZ AG</b>	Enabler	Simulation Software & Industrial Manufacturing Equipment	Both
<b>ANSYS Inc</b>	Engager	Simulation Software	Both
<b>Appian Corp</b>	Engager	RPA & Low/No-Code Software	Both
<b>Apple Inc</b>	Enhancer	Consumer AI	AI
<b>Aptiv PLC</b>	Enhancer	Self-Driving & Smart Mobility	Both
<b>ATS Corp</b>	Enabler	Automated Production Solutions	Both
<b>Autodesk Inc</b>	Enhancer	Enterprise AI	Both
<b>Baidu Inc</b>	Enhancer	Enterprise AI	Both
<b>BlackBerry Ltd</b>	Engager	Enterprise AI	AI
<b>C3.ai Inc</b>	Engager	RPA & Low/No-Code Software	Both
<b>Cadence Design Systems Inc</b>	Engager	AI Semiconductor Design	AI
<b>CCC Intelligent Solutions Holdings Inc</b>	Engager	Enterprise AI	AI
<b>Cerence Inc</b>	Engager	Enterprise AI	AI
<b>Cognex Corp</b>	Enabler	Computer Vision	Both
<b>Daifuku Co Ltd</b>	Enabler	Manufacturing & Logistics Automation	Robotics
<b>Darktrace PLC</b>	Engager	Enterprise AI	AI

<b>Dassault Systemes SE</b>	Engager	Enterprise AI	Both
<b>Deere &amp; Co</b>	Enhancer	Precision Agriculture	Both
<b>Delta Electronics Inc</b>	Enabler	Industrial Automation	Robotics
<b>Denso Corp</b>	Enhancer	Self-Driving & Smart Mobility	Both
<b>Duerr AG</b>	Enabler	Manufacturing Automation	Robotics
<b>Dynatrace Inc</b>	Engager	Enterprise AI	Both
<b>Emerson Electric Co</b>	Enhancer	Industrial Automation	Robotics
<b>Exscientia Plc</b>	Engager	Medical AI	AI
<b>FANUC Corp</b>	Enabler	Industrial Robotics	Robotics
<b>FARO Technologies Inc</b>	Enabler	3D Manufacturing	Robotics
<b>Gentex Corp</b>	Engager	Automotive Connectivity and Vision	Robotics
<b>GXO Logistics Inc</b>	Enhancer	Enterprise AI	Both
<b>Hexagon AB</b>	Engager	Simulation Software	Both
<b>Hirata Corp</b>	Enabler	Industrial Robotics	Robotics
<b>Illumina Inc</b>	Engager	Medical AI	Both
<b>Intel Corp</b>	Enhancer	AI/ML Semiconductors	AI

<b>International Business Machines Corp</b>	Enhancer	Enterprise AI	AI
<b>Intuitive Surgical Inc</b>	Enabler	Medical Robotics	Robotics
<b>JD.com Inc</b>	Enhancer	Autonomous Systems	Both
<b>John Bean Technologies Corp</b>	Enabler	Automated Guided Vehicles	Both
<b>Johnson &amp; Johnson</b>	Enhancer	Medical AI	Both
<b>Kakao Corp</b>	Enhancer	Enterprise AI	AI
<b>Kawasaki Heavy Industries Ltd</b>	Enhancer	Industrial Robotics	Robotics
<b>Keyence Corp</b>	Enabler	Robotic/Machine Vision	Both
<b>KLA Corp</b>	Enabler	Semiconductor Equipment	Robotics
<b>Kratos Defense &amp; Security Solutions Inc</b>	Enhancer	Autonomous Systems	Both
<b>Luminar Technologies Inc</b>	Engager	Self-Driving Tech	Robotics
<b>Magna International Inc</b>	Enhancer	Autonomous Driving	Robotics
<b>Medtronic PLC</b>	Enhancer	Medical Robotics	Robotics
<b>Meta Platforms Inc</b>	Enhancer	Enterprise AI	AI
<b>Micron Technology Inc</b>	Enabler	AI/ML Semiconductors	AI
<b>Microsoft Corp</b>	Enhancer	Enterprise AI	AI

<b>Mitsubishi Electric Corp</b>	Enhancer	Industrial Robotics	Robotics
<b>Mobileye Global Inc</b>	Engager	Self-Driving & Smart Mobility	Both
<b>NAVER Corp</b>	Enhancer	Enterprise AI	AI
<b>Nice Ltd</b>	Engager	Enterprise AI	AI
<b>Nidec Corp</b>	Enabler	Robotics Components	Robotics
<b>NIO Inc</b>	Enhancer	Self-Driving & Smart Mobility	Both
<b>Northrop Grumman Corp</b>	Enhancer	Autonomous Systems	Both
<b>NVIDIA Corp</b>	Enabler	AI/ML Semiconductors	Both
<b>NXP Semiconductors NV</b>	Enabler	AI/ML Semiconductors	Both
<b>Ocado Group PLC</b>	Engager	Enterprise AI	Both
<b>Omnicell Inc</b>	Enhancer	RPA & Low/No-Code Software	Both
<b>Omron Corp</b>	Enabler	Robotic Automation	Robotics
<b>Palantir Technologies Inc</b>	Engager	Enterprise AI	AI
<b>Palo Alto Networks Inc</b>	Engager	Enterprise AI	AI
<b>Pegasystems Inc</b>	Engager	RPA & Low/No-Code Software	Both
<b>PKSHA Technology Inc</b>	Engager	Enterprise AI	AI

<b>PROS Holdings Inc</b>	Engager	Enterprise AI	AI
<b>Proto Labs Inc</b>	Enabler	3D Printing	Robotics
<b>PTC Inc</b>	Enhancer	Enterprise AI	AI
<b>QinetiQ Group PLC</b>	Engager	Robotic Automation	Robotics
<b>QUALCOMM Inc</b>	Enabler	AI/ML Semiconductors	AI
<b>Renesas Electronics Corp</b>	Enabler	AI/ML Semiconductors	AI
<b>Rockwell Automation Inc</b>	Enabler	Industrial IoT	Robotics
<b>Salesforce Inc</b>	Enhancer	Enterprise AI	AI
<b>Samsung Electronics Co Ltd</b>	Enhancer	AI/ML Semiconductors	AI
<b>Schneider Electric SE</b>	Enabler	Industrial IoT	Robotics
<b>Seiko Epson Corp</b>	Enhancer	Robotic Automation	Robotics
<b>Selvas AI Inc</b>	Engager	Enterprise AI	AI
<b>SentinelOne Inc</b>	Engager	Enterprise AI	AI
<b>ServiceNow Inc</b>	Engager	Enterprise AI	Both
<b>Shibaura Machine Co Ltd</b>	Enabler	Industrial IoT	Robotics
<b>Siemens AG</b>	Enhancer	Industrial IoT	Robotics

<b>SoftBank Group Corp</b>	Enhancer	Industrial IoT	Both
<b>Sony Group Corp</b>	Enhancer	AI/ML Semiconductors	Both
<b>Stryker Corp</b>	Enhancer	Automated medical equipment	Robotics
<b>Symbotic Inc</b>	Enhancer	Enterprise AI	Both
<b>Synopsys Inc</b>	Engager	AI Semiconductor Design	AI
<b>Taiwan Semiconductor Manufacturing Co Ltd</b>	Enabler	AI/ML Semiconductors	AI
<b>Tecan Group AG</b>	Enabler	Automated medical equipment	Robotics
<b>Tencent Holdings Ltd</b>	Enhancer	Consumer AI	AI
<b>Teradyne Inc</b>	Enabler	Industrial IoT	Both
<b>Tesla Inc</b>	Enhancer	Self-Driving & Smart Mobility	Both
<b>Topcon Corp</b>	Engager	Industrial IoT	Robotics
<b>UiPath Inc</b>	Engager	RPA & Low/No-Code Software	Both
<b>Upstart Holdings Inc</b>	Engager	Enterprise AI	AI
<b>Valeo</b>	Engager	smart mobility	Robotics
<b>Valmet Oyj</b>	Enabler	Industrial IoT	Robotics
<b>Workday Inc</b>	Engager	Enterprise AI	AI



<b>Yaskawa Electric Corp</b>	Enabler	Industrial IoT	Robotics
<b>Yokogawa Electric Corp</b>	Enabler	Industrial IoT	Robotics
<b>Zebra Technologies Corp</b>	Enabler	Industrial IoT	Robotics

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