AI ENGINEERING TOOLS

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engineering new zealand
te ao rangahau

The field of AI-driven engineering tools is evolving at an unprecedented pace, with new innovations emerging regularly to enhance design, simulation and automation processes across various engineering disciplines.

These tools are leveraging artificial intelligence to improve workflows, reduce manual effort and improve accuracy in engineering tasks. This document serves as a reference for AI-powered engineering tools as of the date of publishing.

Disclaimer: Due to the rapid advancements in AI technology, new tools are frequently being introduced while existing ones continue to improve or become obsolete. You're encouraged to verify tool availability, features and relevance periodically to ensure you're leveraging the most up-to-date and effective solutions.

Contents

General AI engineering tools

Website	Description	Relevant engineering discipline
Autodesk Generative Design	AI-powered generative design tool that optimises engineering models based on constraints and performance goals.	• Mechanical engineering • Aerospace engineering • Civil engineering
GetLeo.ai	AI-powered assistant for engineers, aiding in automation, documentation, and engineering workflow improvements.	• General engineering • Mechanical engineering
Neural Concept	AI-driven deep learning tool for engineering design and optimisation, focusing on structural and aerodynamic performance.	• Aerospace engineering • Mechanical engineering • Structural engineering
TensorFlow	Open-source machine learning framework widely used in engineering for predictive modelling, data analysis, and AI-driven simulations.	• AI and machine learning • Software engineering • Data science
Transcend Infra	AI-driven infrastructure design automation tool for water, energy, and transport projects.	• Civil engineering • Environmental engineering
Wolfram Alpha	Computational intelligence tool for solving mathematical and engineering-related queries, including symbolic computation and simulations.	• General engineering • Electrical engineering • Mechanical engineering
Uizard.io	AI-based UI/UX design tool for engineers developing software interfaces, applications, and embedded systems.	• Software engineering • Ui/ux design

CAD tools

Website	Description	Relevant engineering discipline
Cadscribe Labs	AI-assisted CAD drafting tool to enhance precision and automation in engineering design.	• Civil engineering • Mechanical engineering
CNC Apps AI Text-to-DXF	Similar to Vector Apps, focused on generating DXF files for CNC machining and manufacturing applications.	• Manufacturing engineering • Mechanical engineering
SolidWorks	AI-enhanced CAD software with automation and predictive design capabilities.	• Mechanical engineering • Product design • Manufacturing

OpenArt AI CAD Generator	AI-driven CAD drawing generator using natural language input.	• Mechanical engineering • Industrial design
Vector Apps AI Text-to-DXF	AI-powered tool for converting text into DXF (Drawing Exchange Format) files, useful for CAD applications.	• Mechanical engineering • Civil engineering
Zoo.dev - Text-to-CAD	AI-powered text-to-CAD generator that converts text descriptions into CAD models.	• Mechanical engineering • architecture • Civil engineering

AI simulation tools

Website	Description	Relevant engineering discipline
Altair HyperWorks	AI-powered simulation and optimisation tool for structural analysis, fluid dynamics, and electromagnetics.	Mechanical Engineering, Electrical Engineering, Civil Engineering
Ansys Discovery	AI-driven simulation and real-time physics modelling for engineering design and optimisation.	Mechanical Engineering, Aerospace Engineering, Civil Engineering
NVIDIA Omniverse	AI-driven real-time simulation platform for engineering collaboration and digital twins.	Mechanical Engineering, Aerospace Engineering, Civil Engineering
SimScale	Cloud-based AI simulation software for CFD, FEA, and thermal simulations.	Mechanical Engineering, Aerospace Engineering, Civil Engineering

AI data science and predictive analytics tools

Website	Description	Relevant engineering discipline
IBM Watson for Engineering	AI-powered platform providing predictive maintenance, process optimisation, and engineering analytics.	• Industrial engineering • Manufacturing engineering
MATLAB AI Toolbox	AI-enhanced toolbox for data-driven engineering applications, machine learning, and simulations.	• Electrical engineering • Mechanical engineering • Control systems

AI and deep learning for engineering

Website	Description	Relevant engineering discipline
PyTorch	AI framework used for deep learning applications in engineering, such as predictive modeling and design automation.	• AI and machine learning • Data science • Software engineering

Tailored AI engineering tools

This section explores AI tools tailored to specific engineering disciplines.

Geotechnical and civil engineering

Website	Description	Relevant engineering discipline
Civils.ai	AI-powered platform for civil and structural engineering, providing design automation, material selection, and compliance checking.	• Civil engineering • Structural engineering
Deep Foundations AI (PLAXIS)	AI-driven geotechnical analysis software for simulating soil-structure interaction, deep foundation behaviour, and slope stability.	• Geotechnical engineering • Civil engineering
GeoStudio AI	AI-powered software for geotechnical and groundwater modelling, used for slope stability, seepage, and soil analysis.	• Geotechnical engineering • Civil engineering
PLAXIS (AI-enhanced)	AI-enhanced finite element analysis (FEA) tool for geotechnical modelling, predicting soil behaviour, and tunnel excavation analysis.	• Geotechnical engineering

Structural engineering

Website	Description	Relevant engineering discipline
RAM Structural System	AI-powered structural analysis tool used for steel, concrete, and foundation design in large-scale projects.	• Structural engineering • Civil engineering
STRAP AI	AI-assisted structural analysis and design software for buildings, bridges, and infrastructures.	• Structural engineering

Electrical and power engineering

Website	Description	Relevant engineering discipline
Ansys Maxwell	AI-driven electromagnetic field simulation software for electric motors, transformers, and power electronics.	• Electrical engineering • Electromagnetics
ETAP	AI-powered electrical system modelling software for power grids, industrial power systems, and smart grids.	• Electrical engineering • Power systems

Chemical and process engineering

Website	Description	Relevant engineering discipline
AspenTech AI	AI-based process modelling software for chemical, oil & gas, and manufacturing industries.	• Chemical engineering • Process engineering
Siemens COMOS	AI-powered software for process engineering, plant automation, and predictive maintenance.	• Chemical engineering • Industrial engineering

Aerospace and mechanical engineering

Website	Description	Relevant engineering discipline
MSC Nastran	AI-powered simulation software for aerospace structures.	• Aerospace engineering • Mechanical engineering
Optistruct	AI-enhanced software for topology optimisation and lightweighting.	• Aerospace engineering • Mechanical engineering

New Zealand-specific AI engineering tools

The tools below are produced by companies and organisations based in Aotearoa.

Website	Description	Relevant engineering discipline
Civils.ai	NZ-based AI-powered platform for civil and structural engineering.	• Civil engineering • Structural engineering
GeoStudio AI	NZ-developed geotechnical and groundwater modelling software.	• Geotechnical engineering • Civil engineering
HydroTech AI	NZ-developed tools for water resource management and hydraulic modelling.	• Environmental engineering • Civil engineering
NZTA AI	AI-powered tools for infrastructure planning and road maintenance by NZ Transport Agency.	• Civil engineering • Transport engineering
Seequent Leapfrog	Geological modelling software used in NZ's environmental and geotechnical sectors.	• Geotechnical engineering • Environmental engineering
Transpower Grid AI	NZ's national grid operator using AI for grid optimisation and forecasting.	• Electrical engineering • Power systems