

Jin Tao | Ph.D.

Machine Learning Scientist | Data Scientist

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Professional Overview

I am a skilled AI Research/Data Scientist with **13 years of experience** in **academia (7 years)** and **industry (6 years)**. I possess a broad background in developing and deploying advanced ML models to address complex challenges across multiple industries. My expertise spans data analysis, algorithm design, and statistical modeling, enabling me to spearhead innovation and significantly enhance operational efficiencies. I have a strong reputation for collaborative, tenacious, positive and autonomous. My collaborative nature ensures the seamless integration of machine learning solutions with strategic business objectives, delivering substantial value.

- **AI-Driven Product Innovations:** Played a pivotal role in the development and launch of an AI-powered weight distribution measurement system for RV towables, improving hardware design decisions, achieving a 95% accuracy for estimating weight distribution with actual towables. (Silo AI Oy)
- **Innovative Model Development:** Pioneered a DDPG-optimized control framework for powered parafoils, achieving trajectory tracking accuracy within 10 meters and demonstrating resilience against winds up to 6 m/s. (Nankai University)
- **Data-Driven Strategy Transformation:** Led a 6-member cross-functional (product, engineering, support) team in enhancing hydraulic systems for greater energy efficiency and cost savings of SR-X Rotary Drilling Machine, reducing its operating cost up to 15%. (Sany Group)
- **Cutting-Edge Research and Publication:** Authored and co-authored over 60 peer-reviewed articles in top-tier scientific journals on topics such as deep learning applications in robotics, contributing to the advancement of knowledge in machine learning and its practical applications, and receiving several industry awards for research excellence.

Machine Learning Algorithms | Deep Learning | Data Visualization | Software Engineering Practices | Cloud Services | Azure | MLOps | ETL | Python | R | C++ | MATLAB

Professional Experience

SENIOR AI SCIENTIST, Silo AI, Helsinki, Finland | www.silo.ai

January 2022 - Present

Silo AI is the largest private AI lab in the Nordics – a trusted AI partner that brings competitive advantage to product R&D.

- Led development of production-grade solutions for clients across diverse industries.
- Leveraged extensive academic expertise to drive and advance R&D projects in Machine Learning and Data Science fields, resulting in the development of highly innovative and reliable solutions and products.
- **Project 1 (Deep Video Compression):** Spearheaded an innovative project focusing on neural network-based video compression to improve computer vision task accuracy, specifically for machine-based video analysis. Developed an end to end evaluation pipeline using Compressai and Detectron2, introducing bpp-mAP curves for image efficiency assessment.
- **Project 2 (Optimal Working Angle for Hydraulic Breakers):** Directed the development of real-time sensor data analysis to identify optimal angles and potential failure modes, reducing wear and noise emissions while optimizing performance.
- **Project3 (AI for Robotics):** Led a pivotal initiative centered on enhancing robotic applications through AI, concentrating on dynamic modeling, path planning, optimization, and intelligent control.

ASSOCIATE PROFESSOR IN MACHINE LEARNING, Nankai University, Tianjin, China | www.nankai.edu.cn

October 2020 - December 2021

Nankai University is ranked 384th in the QS World University Rankings 2024. It is a national key university in China, located in Tianjin.

- Supervised a 5-member group comprising 3 Master students and 2 Ph.D. Candidates.
- Actively pursued collaboration opportunities with industry partners, such as AVIC, Huawei.
- Conducted groundbreaking research and teaching in machine learning, deep reinforcement learning, complex system dynamics and control, acoustic manipulation, and swarm intelligent control.

ACADEMY OF FINLAND POSTDOCTORAL RESEARCH FELLOW, Aalto University, Espoo, Finland | www.aalto.fi
August 2017 - September 2021

Aalto University is a well-regarded institution in Finland and ranks #109 in the QS World University Rankings.

- Principle investigator (PI) of Academy of Finland Postdoctoral Research Fund.
- Executed diverse research initiatives, fostered international collaboration, and contributed to educational activities.
- Pioneered research into modeling acoustic displacement fields, enabling precision control of micro-particles based on reinforcement learning.

SENIOR DATA ENGINEER, Sany Group, Beijing, China | www.sany.com.cn
April 2011 - August 2014

Sany Group is a world leading manufacturer of construction machinery, including excavators, heavy equipment, concrete machinery, and wind turbines.

- Played a key role in designing and implementing data-driven solutions to optimize engineering processes, including developing robust data architectures, implementing efficient ETL processes, leveraging big data technologies.
- Integrating advanced analytics and machine learning, ensuring data security and compliance, and fostering collaboration with cross-functional teams.
- Project 1 (Rotating Drill Testing via LabVIEW): Led the development of a precision testing system for drill machines, merging engineering with data analytics to enhance performance assessment.
- Project 2 (Pile Hole Perpendicularity Detection): Pioneered a detection system for pile hole alignment using machine learning models, boosting construction quality and efficiency.

Education Background

Nankai University Doctor of Philosophy Control Science and Engineering & Artificial Intelligence	September 2014 - July 2017
Peking University and Guangxi University of Science and Technology Master of Science Control Science and Control Engineering	September 2008 - July 2011
Qingdao University of Science and Technology Bachelor of Science Automation	September 2004 - July 2008

Personal Characteristics & Community Involvement

I'm driven by an unending commitment to learning and utilizing advanced technologies to tackle real-world issues. I am known for an optimistic outlook, resilience, and a collaborative spirit. I regularly volunteer my time to mentor young people at universities, contribute to educational programs, and support extracurricular activities that enhance learning and development. I thrive on keeping fit, and regularly participate in outdoor activities including boot camps, swimming, and skiing.