HA BAO NGOC TRAN

INFO

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Auckland, New Zealand
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SKILLS

- Design principles and standards
- 3D modelling (AutoCAD, SolidWorks, Inventor, Creo, Solid Edge)
- Material knowledge
- Structural analysis (hand calculations and FEA analysis)
- Computational Fluid Dynamics (CFD)
- Simulation skills
- Analysis skills
- Production design
- Manufacturing process knowledge (sheet metal fabrication, CNC technique, tube laser cutting, tube bending)
- Workshop
- Laboratory (prototype, testing)
- Programming (Visual Basic, Matlab, Python)
- Technical management ability

REFERENCES

(Upon request)

PROFILE

Highly achieved individual with working experience in industry and academics in a multi-cultural environment.

A highly motivated mechanical engineer with practical experience designing and developing machines and mechanical systems for industrial use.

Possessing highly complex problem-solving skills, adaptability, creativity, communication and teamwork skills.

EMPLOYMENT

Mechanical Design Engineer
ATROX Drilling Equipment   Auckland & Waikato, New Zealand
July 2024 – Current

Designing complex parts and systems in custom drill rigs using Solid Edge.
Collaborating with clients to transform requirements into practical designs.
Optimizing designs for manufacturing and assembly, improving quality and reducing cost.
Modifying CAD drawings and models.
Generating 3D models from 2D drawings and site measurements.
Working on hydraulic pipe routing for the drill rigs.
Producing technical drawings and fabrication drawings for the manufacturing process (sheet metal fabrication, CNC machining, tube bending, welding, assembly, etc).
Creating a program to extract BOMs from Solid Edge and manage ordering data within company system, eliminating the need for third-party outsourcing.
Managing Bills of Materials (BOMs) and ordering parts and accessories for drill rigs.
Managing purchase orders, quotes, costs, and data on company management system.
Maintaining relevant documents.
Liaising with suppliers for outsourced works and quality assessment of ordered parts, machines and engines.
Installing and assembling the drill rigs, testing the rigs, and solving technical problems.
Being familiar with electric, hydraulic and pneumatic power systems.
Writing reports and technical documentation, including user manuals and commissioning checklists.

Graduate Teaching Assistant
The University of Auckland   Auckland, New Zealand
July 2019 – June 2024, Jul 2016 - Nov 2016

Teaching assistant of Dynamics of Fluids and Structures (MECHENG 325), Thermo-fluids (MECHENG 211) and Aero-hydrodynamics (MECHENG 712).
Set up the experiments. Troubleshooted and repaired the testing machines.
Supervised labs (wind tunnel lab and CFD lab), supervised course tutorials, marked assignments and test papers, and responded to student's inquiries.

Laboratory Technical Assistant
The University of Auckland   Auckland, New Zealand
November 2023 – March 2024

Assisted Cycling New Zealand to test the aerodynamics of bicycles and athletes to prepare for the Summer Olympics 2024 in Paris, France.
Set up the experiments, conducted testing, and reported on results.

Intermediate University Lecturer

Vietnam Maritime University   Haiphong, Vietnam
August 2013 – July 2019.

Taught mechanical engineering courses and mechanics of materials courses and developed program content at undergraduate and postgraduate levels.
Supervised postgraduate students in mechanical engineering, structural analysis, renewable energy and marine engineering.
Managed laboratory of structural analysis.
Consistently produced top scientific research on the problems of structural analysis, fatigue analysis, marine engineering, mechanical engineering and renewable energy.
Connected with industry and attracted research funding.

Naval Architect Intern
Pha Rung Shipbuilding and Bach Dang Shipbuilding Ltd   Haiphong, Vietnam
July 2012 - October 2012, July 2011 – October 2011

Designed ship parts and created technical drawings, welded and assembled metal sheets to build different parts of cargo ships.
Reported and estimated costs and consulted clients on the cost-effective repair plan.
Worked with technical database management system.

EDUCATION

Doctor of Philosophy in Mechanical Engineering
The University of Auckland   Auckland, New Zealand
July 2019 – May 2024

Designed and programmed a system of multiple oscillating aerofoils to replicate the complex natural wind environment into the wind tunnel using Autodesk Inventor and SolidWorks. Applied hand calculations and FEA calculations for structural analysis and fatigue analysis.
Tested and analysed the performance of Unmanned Airplanes (UAVs) in extreme weather conditions (using MS Excel, Matlab, and other advanced techniques). Applied CFD for simulations.

Master of Engineering in Mechanical Engineering
First Class Honours
The University of Auckland   Auckland, New Zealand
February 2016 - June 2017

Conceived, designed, optimized, and manufactured a three-bladed scale model tidal turbine with an incredible efficiency of 39.1% energy conversion, near the maximum theoretical value using Advanced MS Excel, Visual Basic, AutoCAD, Creo and Autodesk Inventor. Applied hand calculations and FEA calculations for structural analysis and fatigue analysis.
Assembled the mechanical and electrical parts to form a complete tidal turbine rig to carry out experiments in a flume. Programmed and modeled in MATLAB and National Renewable Energy Laboratory (NREL) software.

Bachelor of Engineer in Naval Architecture
First Class Honours
Vietnam Maritime University   Haiphong, Vietnam
September 2008 - March 2013, GPA 3.79/4

Performed consistently at the top of the class with various prizes and scholarships.
Designed a tugboat in the final year operating in sea areas at the 2nd limitation level with a 500 kW engine, including the ship profiles, ship arrangements and calculations of holds, decks, anchors, propeller, rudder, lifeboats, windlass, ship structures, fire system to ensure the buoyancy and stability properties.