MANUEL GUAN

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PROFILE

- Final-year Master of Renewable Energy Engineering at UNSW with a Distinction average - WAM: 82.4
- Combines a Bachelor's in Mechanical Engineering with advanced studies in Power Systems, Power Electronics
- Skilled in PowerWorld, PSCAD, and PVsyst, for system modelling and design
- Interned at ABB and Anhui Shine Power, gaining hands-on experience in Auto CAD design
- Demonstrated ability in PV and Wind farm feasibility studies and energy storage solutions

EDUCATION

Master of Engineering in Renewable Energy September 2024 - December 2026
University of New South Wales

- WAM: 82.4
- Relevant course: Power System Analysis; Power Electronics for RE; PV, Wind and RE systems Design; Energy Efficiency and Storage; Electricity Industrial Operation; Project Management

Bachelor of Science in Mechanical Engineering September 2021 - June 2024
University of Houston

- GPA: 3.125
- Recognised as Mechanical Engineering (ANZSCO 233512) by Engineers Australia
- Conducted Capstone Project as team leader

RELEVANT PROJECTS

Power System Analysis September 2025 - December 2025
University of New South Wales

- Performed power flow and system losses using Gauss-Seidel/Newton-Raphson methods in PowerWorld
- Optimised generator Economic Dispatch in PowerWorld to minimise operational costs under grid constraints
- Simulated electromagnetic transients and short-circuit faults in PSCAD for dynamic stability assessment

Energy Storage Solution of Critical Infrastructure September 2025 - December 2025
University of New South Wales

- Led discussion of 4 energy storage strategies for Children's Hospital (Hydrogen, Lithium, VRFB and Pumped Hydro)
- Ranked 4 strategies with differentiated weighted criteria and reported each feasibility

Utility / Off-Grid PV System Design, Modelling and Analysis February 2025 - August 2025
University of New South Wales

- Created a TMY file and designed a PV system for a specific location
- Simulated with Pvsyst and programmed with Excel for system's performance
- Calculated 25 years' NPV and LCOE for financial and life cycle decisions

Wind farm feasibility study February 2025 - June 2025
University of New South Wales

- Modelled site-specific wind profiles and annual energy production for a 150 MW wind farm using Furow
- Evaluated Katic wake models' losses and quantified overall energy efficiency
- Assessed financial and environmental viability by calculating NPV, LCOE, and net CO2-e mitigation across diverse market scenarios

Project Management Plan of Transport for NSW September 2024 - December 2024
University of New South Wales

- Developed a PMP for TfNSW to deploy a smart occupancy-tracking system across 16 light rail stations
- Orchestrated scheduling, budgeting, and risk management to ensure delivery of 5 critical milestones within a 12-month timeline
- Planned integration of IoT sensors, predictive APIs, and a live mobile dashboard, aligning outcomes with NSW's Future Transport Strategy

Capstone Design September 2023 - June 2024
University of Houston

- Led study on effect of phase change material layout and cushion structure on performance of smart heated seats
- Prototyped a seat's internal model with SolidWorks and simulated various materials with ANSYS Fluent
- Assembled physical model of object seat and tested its performance

Fluid Mechanics and Aviation Design August 2023 - October 2023
Tsinghua University
- Studied improvement of subway energy efficiency by optimisation of aerodynamic characteristics
- Submitted paper to Conference on Computing Innovation and Applied Physics (CONF-CIAP 2024)

WORK EXPERIENCE

Intern June 2023 - August 2023
Anhui Shine Electric Power Technology Co., LTD, Hefei
- Managed international trade inquiries on Made-in-China.com, responding to quotes for electrical equipment to facilitate sales and customer engagement
- Produced CAD drawings of sketches for customer-specific requirements, designed company's CAD title frames
- Accompanied team on visits to partner factories, collaboratively reviewed technical drawings to support accurate component design and project alignment

Intern July 2022 - August 2022
ABB Hefei Transformer Co., LTD, Hefei
- Organized high-voltage coils in workshop to maintain efficient production workflow and safety standards
- Categorized, tagged, and archived transformer drawings from 1995–2020 in Excel, enabling faster document retrieval for employees and improving operational access
- Compiled and created technical presentation files (PowerPoint) for department heads, facilitating clear communication of project data and supporting decision-making

EXTRA CURRICULAR ACTIVITIES

General Volunteer February 2026 - Present
ARC UNSW Wellness Warrior
- Arranged weekly wellness events, random acts of kindness and Stress Less Week to promote student mental health (Upcoming)

New Media Editor September 2020 - September 2021
Houston International Institution
- Edited and formatted school push articles, ensuring high-quality layout, clear content, and timely publication to promote college events and international programs
- Hosted and conducted interviews for special activities and events, capturing key insights from participants to create engaging content and document campus life

TECHNICAL SKILLS

- PVsyst - PV system modelling and performance analysis in RE System Modelling & Analysis course
- Excel - Data analysis and Off-Grid / Grid-Connected PV system modelling and programming
- Furow - Wind farm layout design and feasibility studies in Wind Energy Convert course
- PowerWorld & PSCAD - Power system modelling, simulation and analysis in Power System course
- NEMsight - National Electricity Market operations and control in Electricity Industry Operation and Control course
- AutoCAD - Component drawing in undergraduate studies and internships
- Ansys Fluent - CFD and fluid dynamics simulation in capstone design project
- MATLAB - Numerical computing and scripting learned in undergraduate studies
- English - IELTS Band 7
- Mandarin - Native Speaker Level

INTERESTS

- Piano – Grade 8 certification
- Filming

REFEREES

- Wenkai Liang - Reference letter available upon request