

Nai-Chi Cheng

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Seeking: Energy Sector Master's Thesis Opportunities. Offers a unique combination of technical writing, software tooling, and hands-on startup experience, advocating scalable practices to increase organisational agility.

Education

Double Master's of Science, Renewable Energy (RENE)

EIT InnoEnergy, 2024–2026

- Year 1: KTH Royal Institute of Technology, Stockholm, Sweden
- Year 2: Universitat Politècnica de Catalunya (UPC), Barcelona, Spain
- Modules: Smart Grids; Prototyping for Energy Projects; Control and Automation for Efficient Use of Energy; Experimental Energy Technology; Practical Energy Related Project; Methods of Research in Sustainable Energy; Energy Management; Energy Systems for Sustainable Development; Renewable Energy Technology.

Management and Entrepreneurship Program

ESADE, Barcelona, 2024–2025

- New Venture Creation Project: browser extension to aid engineering students in their studies by delivering contextual alerts and goal tracking via ingesting user browser activities, real-time job data, and learning goals.

B.Sc., Mechanical Engineering

National Taiwan University, Taipei, Taiwan, 2017–2021

- Modules: Energy Conversion Systems and Engineering; Practice of Mechanical Engineering; Machine Design Theory; Automatic Control; Digital Control System.

Communication Program (Minor)

National Taiwan University, Taipei, Taiwan, 2018–2021

- Modules: Information and Communication Systems; E-Learning; Uncovering Languages; AI and Playwriting; Voice Creativity and Collective Practice.

Work Experience and Internships

Trainee | Focused on product design and industrial design coursework

EC Design, Taiwan, 2023

Trainee | Completed Sustainable Interior Design coursework

Shih-Chien University, Taiwan, 2023

Patent Engineer

Tsai Lee & Chen Patent Attorneys and Attorneys at Law, Taiwan, 2022–2023

Drafted patents for consumer products, mechanisms, simple industrial machines and laboratory experimental configurations, and developed writing and parsing tools to structure patent language.

Account Executive

Bhuntr.com, Taiwan, 2021

Supported B2B2C SaaS company by improving sales system with accessible spreadsheets, reducing time by 80%. Automated and outsourced content pipeline, tripling SEO performance. Drafted sales and UI specifications and aided project proposals.

Skills & Languages

- Technical Skills: Coding agents (Claude Code, Cursor, Sourcegraph Amp), Python, JavaScript, C++, MATLAB, Blender, Rhinoceros, AutoCAD, Adobe Suite, Google Workspace, MS Office, L^AT_EX.
- Languages: Fluent in English and Chinese with basic Japanese.

Engineering Projects

2025 (ongoing): Cyberphysical System Configuration Tool

Addresses notation fragmentation in cyberphysical system development by providing flexible workflows for user-defined notations and imported contexts. Designed as high-level digital twin to facilitate initial project phases, emphasizing stakeholder shareability and decision capability for small teams.

2025: Waste-Sorting State Machine

Reframed predictable waste streams as finite state machines, mapping material lifecycle phases into discrete states. Demonstrated in fast food restaurant setting by encoding material transition rules, transforming waste flows from an externality into a legible, controllable system.

2025: Hairdrying Stack

Prototype applying hair and location properties to automate hairdryer settings and control strategies, preventing excessive or overly hot use. Recognizes that air drying is sometimes preferable.

2025: Biopackaging Waste-to-Energy Analysis (Stockholm)

Re-evaluated waste-to-energy potential near Stockholm through scenario analysis of dry anaerobic digestion technologies. Developed MATLAB kinetic model to simulate microbial dynamics and methane production. Demonstrated that dry AD systems achieve significantly higher energy conversion efficiency for biopackaging compared to baseline, though overall cost remains higher than alternative recovery schemes.

2024: Semi-Automatic Thesis Proposal System

Systematized thesis exploration across personal interests, supervisor compatibility, methodology, data availability, and industry relevance. Built programmatic query system using public data sources to generate, map, and reduce options, elevating judgment and selection phases to the user.

2024: District Energy Plan (Kigali)

Simulated sustainable energy pathways for Kigali's Nyarugenge District using solution exploration methodology. Applied software diagrams to map solution configuration spaces and created academic and industrial source queries. Identified non-obvious solutions through creative constraint-based exploration.

2023: Diagram Protocol

Digitized consulting diagrams to embed tacit knowledge previously locked in physical whiteboards. Embedded protocol within Discord to enable AI-assisted transformation of human commands into structured diagrams, allowing collaborative iteration in chat environments.

2023: Patent-Drafting Protocol

Developed systematic protocol to eliminate common drafting errors and improve project recall during concurrent patent tasks. Addresses the complexity introduced by patent firm house styles and individual writer flavors, enabling newcomers to learn patent drafting from first principles with reduced cognitive load.

2022: SaaS Sales Process Optimization

Cross-department startup initiative to reduce time from first sales contact to contract signature while increasing conversion rates. Automated client website analysis for interest signals and generated personalized sales materials using natural language procedures. Developed complementary processes for requirement engineering and deployment support.

2021: Cue Robot

Bachelor capstone project to design and build a billiard-playing rover. Redesigned improvised prototypes into functional units through fab lab collaboration. Extended mechanical control with human-in-the-loop live collaboration, where two observers jointly adjusted cue placement. Team placed first in cohort accuracy and was featured in department magazine.

Activities & Engagement

- Protocol School — Summer of Protocol & Ethereum Foundation (2025); reading clubs, occasional hackathons.
- Work Exchange (2024): Environmental tourism support (Emei, Hsinchu); hospitality (Tamsui Old Street).
- Sustainability: TooGoodToGo and city-walking enthusiast with ~400 orders (~4 MWh CO₂e avoided).