

# Chieh-An Lin

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## Experiences

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**Lead Software Engineer** · Radiant Industries, Inc. · USA 2025-Present

**Senior Software Engineer** · Radiant Industries, Inc. · USA 2024-2025

- Built a digital twin of a newly designed microreactor by modeling its nuclear and thermal-hydraulic physics
- Conducted software-in-the-loop testing of reactor controllers under a dozen of safety-assured scenarios
- Supported structural design, safety analysis, and hardware-in-the-loop tests by performing realistic simulations

**Senior Embedded Software Engineer** · WPC Systems Ltd. · Taiwan 2020-2024

- Designed subsystems for aviation industries; applied Hardware-in-the-Loop (HIL) in the context of Environmental Control Systems (ECS); developed AHRS & INS for drones
- Built a stand-alone control system that leads to Taiwan's first domestically developed Train Wheel Profile Measuring System; achieved a precision level of 1mm
- Brought to market >30 IIOT products across 3 series (USB, Wi-Fi, & Ethernet) for data acquisition (DAQ) & industrial control
- Created firmware & cross-platform software driver for in-house products, with a diverse range of features: real-time signal measurement, motion control, bootloader, etc.
- Led a firmware team of 3 engineers in developing real-time embedded systems; built coding guidelines, unit tests, debugging methodologies, & version control workflow

**Research Staff** · Royal Observatory of Edinburgh · UK 2017–2020

- Found the Universe smoother than expected using ML, likelihood analysis, & MCMC
- Implemented & executed simulations of physical processes for 1 trillion objects across 10,000 datasets for covariance analysis; delivered a public code
- Applied Variational Inference with CNNs & Active Learning to astrophysics
- Crafted an interactive website visualizing Taiwan's COVID-19 data
- Published 20 papers (>2000 citations); gave >30 professional speeches; reviewed articles

**National Civil Service Draftee** · Fenglin Veteran Hospital · Taiwan 2016–2017

**PhD-Level Researcher** · Alternative & Atomic Energies Commission · France 2013–2016

- Thesis: Cosmology with weak-lensing peak counts
- Cut computing time by 2 orders of magnitude by inventing a new simulation algorithm
- Accelerated inference with Approximate Bayesian Computation (ABC) by 80%
- Solved a theoretically intractable problem in cosmology using a stochastic model

## Education

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<b>PhD</b> · Astrophysics · Paris-Diderot University · France	2013–2016
<b>MSc</b> · Physics · École Polytechnique · France	2012–2013
<b>French Engineering Degree</b> · École Polytechnique · France	2009–2013
Preparatory Program (CPGE) · Maths & Physics · Lycée Louis le Grand · France	2007–2009

## Skills

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**Programming** · C (13 years) · Python (13 years) · Git · Linux · FreeRTOS · LwIP ·  $\LaTeX$  · LabVIEW · MicroPython · HTML/CSS · Javascript · D3 · C# · C++

**Statistics** · Inference · Probabilistic Modeling · Bayesian Statistics · General Machine Learning · Image Processing · Dimension Reduction · Data Visualization

**Protocols** · I2C · SPI · UART · CAN · TCP · UDP · USB (HID & DFU)

**Languages** · English · French · Mandarin · Taiwanese