NATIONAL CHUNG CHENG UNIVERSITY

2026 CCU/CoE

INTERNATIONAL INTERNSHIP PROGRAM

COLLEGE OF ENGINEERING (CoE)

國立中正大學工學院
National Chung Cheng University
College of Engineering

2026 CCU/COE INTERNATIONAL INTERNSHIP PROGRAM

In Engineering Field

Continuing the yearly internship program in engineering field, the College of Engineering (CoE) offers on-campus research internships for international university students in 2026.

This project-based program provides an opportunity to better understand CCU's research in engineering and technology. Students may practice their skills in the projects, acquire new competence, and experience a different culture.

PROGRAM BENIFITS

To have an enjoyable and enriching experience in academic study and exchange their ideas of research with CCU students.

Internship Period

June 1 –December 31, 2026

At least 9 weeks. Individual mentors may have a different definition of Internship Period. For self-supported interns, the period may not be limited as mentioned above. Please refer to each research topic for precise definitions.

FEES

FEE-FREE. The program fee and registration fee will be provided by CoE.

SCHOLARSHIP

Research topics are offered in two types:
(A) Scholarship and (B) self-supported.
For **type-A**, CCU offers a scholarship of around NTD 12,000 per 30 days, covering on-campus accommodation, living expenses, and partial airfare. These are standard items and numbers, and the total amount may be amended by the project mentor based on the program budget and the interns' performance.

PROGRAM ELIGIBILITY

- Graduate school students (master & PhD students)
- University junior students (3rd year or above).
- Those who already complete PhD degree are ***NOT*** eligible to apply.
- Passport holders of People's Republic of China, Hong Kong, or Macau are ***NOT*** eligible to apply.
- Current degree-seeking students, exchange, and visiting students in Taiwanese educational institutions are ***NOT*** eligible to apply.

APPLICATION MATERIALS

1. Online Application Form
2. Curriculum Vitae in PDF format
3. Official Transcripts
4. Letter of Recommendation in PDF format
5. Certificate of language proficiency
6. Research Plan in PDF format
7. Copy of Passport (Bio-page)
8. Head-shot Photo in JPG format (at least 300 KB files ize, 826X1062 pixels.)
9. Other Supplementary Documents(Optional)

APPLICATION

- Applicants should read the requirements of each research topic carefully, complete the online application form, prepare **application materials**, and send them in a ZIP-compressed file to coleng_dia@ccu.edu.tw.
- The title of the E-Mail please be marked with "**Application for 2026 CCU/COE International Internship**". All the intern research topics and their requirements are listed as follows.
- **Application deadline: Mar. 22, 2026**
- More detailed information about application can be found on the website https://sites.google.com/view/ccu-coe-internship/home

CONTACT

+886-5-2720411 ext. 23003, 23005

coleng_dia@ccu.edu.tw

No.168, Sec. 1, University Rd., Minhsiung, Chiayi 621301, Taiwan (R.O.C.)

INTERN RESEARCH TOPICS

Project Number	P1
Project title	Optimal Transport and Information Geometry: Applications in Privacy-preserving Artificial Intelligence
Description of the research	This project links optimal transport and information geometry to privacy-preserving AI. Using the Monge–Kantorovich formulation, Wasserstein metrics, divergence functions, and entropy-regularized transport, we study how distribution geometry can guide learning and data analysis. The project also connects these tools to differential privacy theory, using Wasserstein-based and divergence-based measures to study how perturbation noise affects data or model outputs or to analyze the privacy–utility trade-off. The work focuses on methods that remain practical on high-dimensional data, using entropy regularization and efficient approximations to make transport computations faster and more stable. The internship suits students with solid mathematics and probability who enjoy theory but also want to implement and test methods on real datasets.
Project Mentor at CCU	■ Asst. Prof. Tsung-Wei CHIANG ■ Department of Computer Science and Information Engineering, National Chung Cheng University, Taiwan. ■ E-mail: twchiang@ccu.edu.tw ■ Website: https://sites.google.com/view/twchiang
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 12 weeks. The best case is 16 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P2
Project title	Trustable Artificial Intelligence for Critical Applications and 6G Security in Quantum Era
Description of the research	Artificial Intelligence (AI) technologies (Vision Transformer, ChatGPT, LLM), 6G networking, and quantum computing are the leading forces in bringing the world to the era of better intelligence and full automation. However, the rapid development of such technologies raises concerns that they could be used to damage human life, destroy critical infrastructure, and further violate user privacy. For example, AI power can be exploited to scan the vulnerabilities of critical control systems (SCADA, ITS) or track a target user in a restricted access building, even without physical intrusion. Early detection of security attacks and secure AI models are the top targets of many current research efforts. In short, this project encourages the talents who are interested in the following topics: (1) AI for Cybersecurity; (2) Cybersecurity for AI; (3) 6G security; (4) Space and Quantum security (5) Trustable AI for critical applications **Preferred Intern Education Level** - Third-year undergraduate students or above - Graduate candidates (had Bachelor/ Master) - Ph.D. students **You can refer** The details of past interns' activity: https://sites.google.com/view/teepcislab
Project Mentor at CCU	■ Asst. Prof. Van-Linh Nguyen ■ Department of Computer Science and Information Engineering, National Chung Cheng University, Taiwan. ■ E-mail: nvlinh@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 12 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P3
Project title	Computer Vision And Generative AI for Smart Manufacturing and Autonomous Driving
Description of the research	Artificial Intelligence is now reaching many applications in our society's life. Many AI-based applications, such as ChatGPT, can provide great answers to many difficult questions beyond average human capability. However, AI has not yet performed well in what humans can do easily, e.g., help robots move smoothly, and drive the car in complex environments. Further, AI requires very large training and extensive computing resources, which not every lab can do. This project aims to propose usable AI and tiny AI to solve our common problems that make AI more reachable and affordable. This topic can cover the following issues: (1) Usable AI: (2) Tiny AI (3) Quantum AI. BE/MSc/PhD students with background in computer vision and software engineering are highly recommended. **About our lab**: The lab has been the home of many international students. In 2023-2025, there were a total of 40 international students from 11 countries to do internships at the lab. Several interns have successfully submitted their research at our lab to prestigious conferences/journals. **You can refer** The details of past interns' activity: https://sites.google.com/view/teepcislab Lab website: https://ccucyberseclab.github.io
Project Mentor at CCU	■ Asst. Prof. Van-Linh Nguyen ■ Department of Computer Science and Information Engineering, National Chung Cheng University, Taiwan. ■ E-mail: nvlinh@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 12 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P4
Project title	Lidar and Camera Fusion for Autonomous Driving
Description of the research	This project revolves around the integration of lidar and camera sensor data, aiming to develop robust algorithms for enhanced perception and decision-making in self-driving systems. Interns will engage in the fusion of lidar and camera inputs, leveraging Python and advanced machine learning models. The primary objectives include developing algorithms for sensor data calibration, point cloud processing and image processing to create a comprehensive and accurate representation of the vehicle's surroundings. The primary objective is to develop and optimize algorithms for efficiently processing and interpreting the multi-modality. This includes tasks such as semantic segmentation, feature extraction, and object recognition, all of which are pivotal for the accurate perception of the vehicle's surroundings.
Project Mentor at CCU	■ Prof. Jui-Chiu Chiang ■ Department of Electrical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: rachel@ccu.edu.tw
Expected student level	Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 12 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P5
Project title	Computer Vision Applications Based On Deep Learning Techniques
Description of the research	This project is to do researches on computer vision based on the modern deep learning (machine learning) techniques. In this research, you will learn deep learning techniques such as CNN, RNN, LSTM, AE, VAE, etc. The possible applications and topics include: (1) 3D human skeleton extraction, (2) fine-grained skeleton-based action recognition or diseases diagnosis (e.g., dementia, Parkinson), (3) object (head/vehicle/ human/ object) pose estimation from a single RGB image, (4) 3D human mesh model reconstruction from a single image, (5) robotic grasp pose estimation from 3D point cloud data, (6) AI-generated content (AIGC), such as Text-to-Image, Text-to-Video, Text-to-Motion generation, (7) elderly caring application of AIGC, (8) Remote PPG estimation from facial image sequence (9) AF (Atrial Fibrillation) detection from facial video, (10) Carotid artery stenosis (CAS) measurement based on smart phone. The intern student is expected to have some preliminary knowledge on NN (neural network) or deep learning and skilled in Python programming. He/She will learn how to apply state-of-the-art deep learning techniques to solve the indicated problems. For more detail about my topics, please visit my Youtube video at: https://youtu.be/tIwenpyFRhw
Project Mentor at CCU	■ Prof. Wen-Nung Lie ■ Department of Electrical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: ieewnl@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship
Intern period	At least 12 weeks (or, 3 months) between Jun. 1 and Dec. 31, 2026. However, 4-6 months are preferred.

Project Number	P6
Project title	Impulse Radar Imaging System, mmWave/RF Intergrated Circuit design and Energy Harvesting
Description of the research	Four investigation topics over Ultra-Wideband Impulse Radar imaging system: 1. A back-projection imaging algorithm used to reconstruct the radar image. 2. The studies of the transmitting and receiving circuits and Vivaldi antenna array. 3. mmWave/RF integrated circuit design such as PA and LNA, by CMOS process or III-V technology. Energy harvesting within wireless communications environment
Project Mentor at CCU	■ Prof. Janne-Wha Wu ■ Department of , Electrical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: jwwu@ccu.edu.tw)
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 10 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P7
Project title	Renewable Energy Integration: Modern Power System Analyses, State Estimation, Power Conversion Technologies, Intelligent Control for Renewable Energy Resources, Fault Diagnosis, Forecasting Technologies for Renewable Power Generation
Description of the research	The students will learn the research topics about renewable energy integration, which includes one of the following issues: ➢ Wind farm modeling and control, Frequency and voltage control by renewable power generation resources ➢ Fault diagnosis for solar power systems ➢ Artificial intelligence applications on renewable power systems, including forecasting and fault diagnosis ➢ Power system protection, Energy storage systems ➢ Control technologies for voltage source converter, including grid forming and grid following technologies ➢ Inertia estimation and supporting ➢ Smart grid control and operation ➢ New state estimation technologies ➢ Power system reliability and resiliency The detailed information for the Renewable Energy and Power System Lab led by Prof. Wu https://repsly.ccu.edu.tw/?Lang=en
Project Mentor at CCU	■ Distinguished Prof. Yuan-Kang Wu ■ Department of Electrical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: allenwu@ccu.edu.tw
Expected student level	■ Third/forth-year undergraduate senior student Warm welcome if you would like study master or PhD degree in our Lab
Category	■ Scholarship
Intern period	At least 15 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P8
Project title	Development of Electrodes for Anion Exchange Membrane Water Electrolysis
Description of the research	Hydrogen production using renewable energy is important in moving forward to 2050 net zero emissions. The anion exchange membrane water electrolysis using non-noble metallic catalysts, reducing the cost of producing hydrogen. The efficiency depends on the reaction kinetics of both anode and cathode electrodes. Students in this project will learn the development of electrode and operation of water electrolysis.
Project Mentor at CCU	■ Prof. Yong-Song Chen ■ Department of Mechanical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: imeysc@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship
Intern period	At least 9 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P9
Project title	Numerical Modeling and Experiments of an Atmospheric Pressure Plasma Reactor
Description of the research	Atmospheric-pressure plasmas have been developed extensively for applications such as wound healing, treatments of cancer cells, and plasma agriculture due to the generation of abundant reactive species being critical for manipulating reaction pathways in different fields. However, it is still challenging to develop a proper plasma source with controlled parameters by experimental measurements because of fast discharge dynamics and complex plasma chemistry. Alternatively, numerical simulations can be used to capture discharge dynamics with detailed chemistry revealed. In this project, a two-dimensional plasma fluid model will be integrated with a two-dimensional gas flow model to predict the dynamic behavior of an atmospheric pressure plasma. The simulated results will be compared with experiments to validate the model. It is a topic involving fluid mechanics, thermofluid science, physics, and chemistry, which is suitable for students with a background in mechanical engineering.
Project Mentor at CCU	■ Assoc. Prof. Kun-Mo Lin ■ Dept of Mechanical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: imekml@ccu.edu.tw; kmlin.tw@gmail.com
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 9 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P10
Project title	Characterization of a Low-pressure Discharge for Semiconductor Manufacturing
Description of the research	Plasma technology plays a crucial role in modern semiconductor manufacturing, enabling precise, efficient, and scalable processes. In microelectronics fabrication, plasma is widely used for dry etching (PEALE), deposition (PECVD/PEALD), surface modification, and cleaning. Plasma etching is one of the most critical steps for defining nanoscale patterns on silicon wafers. By generating reactive species such as ions and radicals, plasma can selectively remove material with excellent anisotropy, allowing the creation of vertical sidewalls and high-aspect-ratio structures essential for advanced devices. Compared to wet chemical etching, plasma etching offers superior process control, uniformity, and compatibility with small feature sizes. In this project, participants are going to work with a low-pressure discharge system using instruments to measure discharge parameters and conduct theoretical analyses. Specific tasks will be assigned to resolve engineering issues and contribute to the ongoing project with domain knowledge learned in lecture courses.
Project Mentor at CCU	■ Assoc. Prof. Kun-Mo Lin ■ Dept of Mechanical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: imekml@ccu.edu.tw; kmlin.tw@gmail.com
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 9 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P11
Project title	Study of Metal 3D Printing
Description of the research	Metal Additive Manufacturing, also known as metal 3D printing, offers the possibility to produce complex metal parts without many of the constraints of traditional manufacturing processes. Our lab is recruiting talents who are interested in the following topics: 1) Process Analysis of Metal 3D Printing: The primary objective of this project is to perform a comprehensive parametric study of the Directed Energy Deposition (DED) and Selective Laser Melting (SLM) processes for stainless steel. This will involve an in-depth examination of various scanning parameters and their effects on the quality of printed lines, surfaces, and bodies. 2) Failure Analysis of Metal 3D Printing: The primary objective of this project is to conduct a series of mechanical tests on stainless steel samples fabricated by DED and SLM processes. The study will meticulously examine material properties, metallurgical micrographs, and SEM images to comprehend the failure mechanisms of metal 3D printed materials.
Project Mentor at CCU	■ Prof. Pai-Chen Lin ■ Department of Mechanical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: imepcl@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 10 weeks (2 months) between Jun. 1 and Dec. 31, 2026

Project Number	P12
Project title	Numerical Simulation of Boiling and Condensation Heat Transfer in Two-Phase Immersion Cooling Systems
Description of the research	As computing power continues to increase, the cooling demands of AI servers have risen dramatically. Traditional single-phase liquid immersion cooling designs are gradually becoming insufficient to meet these thermal requirements. Therefore, the development of two-phase immersion cooling systems with higher heat-dissipation efficiency has become an inevitable trend for the future. Two key phase-change heat transfer mechanisms govern the operation of two-phase immersion cooling systems: boiling and condensation. In this project, students will be trained on two key topics: 1) Boiling heat transfer in two-phase immersion cooling systems using computational fluid dynamics (CFD) software. 2) Condensation heat transfer in two-phase immersion cooling systems using computational fluid dynamics (CFD) software.
Project Mentor at CCU	■ Asst. Prof. Yu-Chen Lin ■ Department of Mechanical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: imeyclin@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 12 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P13
Project title	Design of Computer-aided Diagnosis Combined With Hyperspectral Imaging For Bio-medical Applications
Description of the research	Most of the computer-aided diagnosis (CAD) models developed in the recent years use only RGB images which has only three different color bands. One of the advanced non-invasive techniques used in clinical research is hyperspectral imaging (HSI), which captures data across hundreds of narrow, contiguous bands, each representing a distinct portion of the electromagnetic spectrum. This allows for detailed analysis of tissue characteristics, making HSI a powerful tool in medical diagnostics. This project will utilize various machine learning models, including YOLOv5, YOLOv8, R-CNN, Faster R-CNN etc, to detect and CNN, SVM and Random forest etc for multiple biomedical applications. It will make use of two models of the white-light images (WLI) model and the hyperspectral narrowband images (HSI-NBI) model. These models will be generated through a conversion algorithm referred to as the spectrum-aided vision enhancer (SAVE). The main goal will be to discover early stage bio-markers for effective prognosis. The evaluation of model performance will be conducted using the created confusion matrix and five important indicators: precision, recall, F1-score, mAP, and the confusion matrix of the trained model.
Project Mentor at CCU	■ Prof. Hsiang-Chen Wang ■ Department of Mechanical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: hcwang@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship
Intern period	At least 12 weeks between 12 and 25 weeks

Project Number	P14
Project title	Smart Sensing Technology for Smart Manufacturing
Description of the research	At the AISC Lab, our mission is to transform production through three core pillars: 1. Smart Tool Holders: We develop advanced smart tool holders that monitor real-time cutting dynamics. By integrating sensors directly into the tooling, we gain high-fidelity insights into the machining process, significantly boosting precision and production quality. 2. AI-Driven Smart Manufacturing: Recognizing that AI is only as good as its data, we focus on signal processing to ensure sensor accuracy. Our work bridges the gap between raw data and reliable AI models, optimizing modern manufacturing through robust, data-driven intelligence. 3. Robotics & Digital Twins: We leverage Digital Twin modeling and Reinforcement Learning to advance robotic automation. By creating high-accuracy virtual replicas, we train robots to master complex missions autonomously and efficiently. We welcome students who are passionate about these topics and eager to contribute to the future of smart manufacturing technology.
Project Mentor at CCU	■ Prof. Her-Terng Yau ■ Department of , Mechanical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: htyau@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship
Intern period	At least 9 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P15
Project title	Study of Water splitting, Electrocatalytic HER and OER, Ammonia Cracking and Li-based Battery Applications
Description of the research	The research will primarily concentrate on the study of electrocatalysts and nanoarchitectured materials with the aim of exploring innovative applications in the realm of energy conversion and storage. These applications encompass batteries, hydrogen Production, Ammonia dissociation, fuel cells and supercapacitors.
Project Mentor at CCU	■ Prof. Yuan-Yao Li ■ Department of Chemical Engineering, National Chung Cheng University, Taiwan. ■ E-mail: chmyyl@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 12 weeks between Jun. 1 and Dec. 31, 2026

Project Number	P16
Project title	Implementing Evaluation Scenarios In B5G/6G Communication of IMT-2030
Description of the research	This project focuses on building topologies and deriving environmental channel conditions for key scenarios that address the advanced challenges of B5G/6G within the IMT-2030 framework. These scenarios encompass hybrid networks integrating disparate technologies, including fixed, mobile cellular, high-altitude platforms, satellites, and others yet to be defined. A critical aspect of this project is exploring the role of AI-enabled wireless technologies in optimizing network operations, resource allocation, and system performance across these diverse networks. The integration of AI with wireless communication is expected to enhance the adaptability, efficiency, and intelligence of B5G/6G systems, enabling them to meet the demands of increasingly complex scenarios. By leveraging AI, this project aims to model and optimize communication environments dynamically, providing robust solutions for real-world applications. The outcome of this project will serve as a foundation for the realization, visualization, demonstration, evaluation, and calibration of future B5G/6G communication systems within IMT-2030.
Project Mentor at CCU	■ Assoc. Prof. Jen-Yi Pan ■ Department of Communications Engineering, National Chung Cheng University, Taiwan. ■ E-mail: jypan@ccu.edu.tw
Expected student level	■ Post-graduate student ■ Third/forth-year undergraduate senior student
Category	■ Scholarship ■ Self-supported
Intern period	At least 9 weeks between Jun. 1 and Dec. 31, 2026