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| EDUCATION | National Taiwan University <i>Bachelor of Science in Engineering</i> <ul style="list-style-type: none">• Major: Electrical Engineering• GPA: 4.23/4.30• Rank: 7/266 (3%) | Taipei, Taiwan 2022 - 2026(expected) |
| RESEARCH PROJECTS | An On-shell Approach to Anomalous Threshold <i>Department of Physics, National Taiwan University</i> <ul style="list-style-type: none">• Research Assistant to Professor Yu-tin Huang.• Study the analytic structure of amplitudes and the dispersion relation for unstable particles.• Design an on-shell approach to anomalous threshold.• Restoration of EFT positivity bound in the unstable region.• K. Aoki, Y.-t. Huang, T.-K. Hsu, <i>On-shell Approach to Anomalous Threshold</i>, under construction. Reconstruction of B Meson Decay Process via Deep Learning <i>Department of Physics, National Taiwan University</i> <ul style="list-style-type: none">• Mentored by Professor Kai-feng Chen.• Study the deep learning algorithms and collider physics.• Training neural networks for capturing non-linear features of collision process.• Compare CNN model and Transformer model efficiency. | 2024.08 - present 2023.09 - present |
| INTERNSHIPS | n_TOF, CERN Geneva, Switzerland <ul style="list-style-type: none">• Mentored by Professor Alberto Mengoi.• Developed an online nuclear cross-section database for astrophysical simulations.• Supported experimental analysis and data organization for the n_TOF facility.• The modular design allows extension, as more measurements become available.• T.-K. Hsu, <i>CERN n_TOF Database of Maxwellian-Averaged Cross Sections (MACS)</i>, CERN, 2025. report and online database. Institute of Physics, Academia Sinica Taipei, Taiwan <ul style="list-style-type: none">• Mentored by Professor Wen-Chen Chang.• Participated in the design and construction of a fixed-target cosmic-ray detector.• Built automation programs for data acquisition and monitoring of cosmic rays.• Project Presentation | 2025.07 - 2025.08 2024.07 - 2024.08 |
| AWARDS | <ul style="list-style-type: none">• Best Maker Prize, MAKENTU Makerthon Contest,• Outstanding Academic Achievement Awards, National Taiwan University,• Outstanding Academic Achievement Awards, National Taiwan University, | 2024.05 2023.09 2023.06 |

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| ACADEMIC & LEADERSHIP EXPERIENCE | Teaching Assistant Classical Mechanics, under Professor Yu-tin Huang | Fall, 2025 |
| | Research Assistant Theoretical Physics, under Professor Yu-tin Huang | Spring, 2025 |
| | Host MAKENTU Makerthon Contest | Spring, 2025 |
| | Head of R&D Department NTU Learning Optimization Club | Spring, 2024 |
| COURSE PROJECTS | <u>A Brief Introduction to Integrable Systems in Statistical Mechanics</u> | |
| | <i>Statistical Physics (II)</i> | Fall, 2025 |
| | <ul style="list-style-type: none"> First introduced the Bethe ansatz for integrable spins, and then discussed its applications in statistical mechanics. | |
| | <u>A Brief Introduction to Black Hole Entropy</u> | |
| | <i>Advanced Topics in Gravity</i> | Spring, 2025 |
| | <ul style="list-style-type: none"> Introduced two methods for calculating the entropy of Schwarzschild black holes and discussed the concept of microstates. | |
| | <u>Anisotropic Transmission of Quantum Information through Quantum Fields</u> | |
| | <i>Quantum Information and Computation</i> | Spring, 2025 |
| | <ul style="list-style-type: none"> Studied quantum information transmission, combining the non-perturbative quantum field theory with the Unruh-De Witt model, and tried some approaches to the anisotropic transmission. | |
| | <u>A Brief Introduction to the Effective Theory of Binary Inspirals</u> | |
| | <i>Special Topics on Effective Field Theory and Scattering Amplitudes</i> | Fall, 2024 |
| | <ul style="list-style-type: none"> Introduced the EFT framework, the hierarchy of scales, and the power counting rules for binary inspirals, and calculated the gravitational potential using Feynman diagrams. | |
| LANGUAGES & SKILLS | <u>A Brief Introduction to Conformal Bootstrap</u> | |
| | <i>Quantum Field Theory (II)</i> | Fall, 2024 |
| | <ul style="list-style-type: none"> First introduced the basic concepts of conformal group, and then explained the algorithm of primary spectrum from the OPE associativity in Euclidean signature. | |
| RELEVANT COURSE-WORK | Languages: English (TOEFL iBT 106 : 29/28/22/27), Chinese | |
| | Programming: Mathematica, ROOT, MadGraph, Python, C++, L ^A T _E X. | |
| | Basic: Quantum Field Theory (I) & (II) (A+), Classical Mechanics (A+), Electromagnetics (I) & (II) (A+), General Relativity (A), Quantum Mechanics (I), Statistical Physics (II). | |
| | Advanced: Special Topics on Effective Field Theory and Scattering Amplitudes (A+), Quantum Information and Computation (A+), Advanced Topics in Gravity (A+), Basics of String Theory: from conformal field theory to supersymmetry (A+), Quantum Fields in Cosmology (A). | |