

YEN-HSIANG, HUANG

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RESEARCH EXPERIENCE

- ◆ **ShiNyP: An R/Shiny Platform for SNP Analysis with AI-Assisted Features** 2024–Present
| *ShiNyP* is an intuitive GUI platform developed using R/*Shiny*, designed to streamline SNP analysis in genetic research. This application generates over 70 tables and publication-ready figures, and features an integrated AI-driven reporting system to assist with structured report generation.
| *Journal article*: <https://doi.org/10.1093/molbev/msaf117>
| *ShiNyP demo*: https://teddyhuang.shinyapps.io/ShiNyP_Demo/
- ◆ **GWAS for Anaerobic Germination in Rice** 2024–2025
| This project, conducted during my research exchange at Texas A&M University, employed HPC to conduct a GWAS using high-density SNP data from the 3K Rice Genome Project. The primary objective was to identify candidate genes associated with hypoxic germination tolerance in rice.
- ◆ **Selection Footprints in Taiwanese Edamames** 2023–2024
| This study revealed distinct selection patterns between edamames and soybeans by identifying selection footprints and favorable alleles specific to edamames accessions. The findings offer valuable genomic insights to support the development of improved breeding strategies in Taiwan.
| *Electronic book*: https://teddyenn.github.io/population_genomics-edamame
- ◆ **A Multiple Phenotype Imputation for Core Collection in Taiwanese Edamames** 2022–2023
| This study suggested that multiple imputation is an efficient and reliable approach for addressing missing phenotypic data in correlated samples, reducing the need for re-phenotyping accessions.
| *Journal article*: <https://doi.org/10.3389/fpls.2022.948349>
- ◆ **Collection of Applications for Visualizing Statistics** [Side Project] 2025–Present
| A series of interactive applications are being developed using Python/Streamlit to visually convey key statistical concepts, aiming to enhance the learning experience in statistics education.
| *Demo website*: <https://stat2vis.streamlit.app>

PUBLICATIONS & MANUSCRIPTS

Journal Articles

- Huang, Y. H., Chen, L. Y., Septiningsih E. M., Kao, P. H., Kao, C. F. (2025) *ShiNyP*: Unlocking SNP-based population genetics—AI-assisted platform for rapid and interactive visual exploration. *Molecular Biology and Evolution*, 42(6), msaf117. (IF: 11.0)
- Kao, P. H., Baiya, S., Lee, C. W., Tseng, C. W., Chen, S. Y., Huang, Y. H., & Kao, C. F. (2025). Identification of key drought-tolerant genes in soybean using an integrative data-driven feature engineering pipeline. *Journal of Big Data*, 12(1), 1-30. (IF: 8.6)
- Jhan, L. H., Yang, C. Y., Huang, C. M., Lai, M. C., Huang, Y. H., Baiya, S., & Kao, C. F. (2023). Integrative pathway and network analysis provide insights on flooding-tolerance genes in soybean. *Scientific Reports*, 13(1), 1980. (IF: 4.6)
- Huang, Y. H., Ku, H. M., Wang, C. A., Chen, L. Y., He, S. S., Chen, S., ... & Kao, C. F. (2022). A multiple phenotype imputation method for genetic diversity and core collection in Taiwanese vegetable soybean. *Frontiers in Plant Science*, 13, 948349. (IF: 6.6)

Manuscripts (First Author)

- Huang et al. Genomic footprints of selection for enhancing productivity in Taiwanese vegetable soybeans through core collection framework.

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EDUCATION

- M.S. in Agronomy (Division of Biostatistics)** 2023–2025
National Chung Hsing University (NCHU), Taiwan
GPA: 4.17
Advisor: Dr. Chung-Feng Kao
Thesis: *ShiNyP*: An R/Shiny platform for SNP analysis with AI-assisted features
- B.S. in Agronomy** 2019–2023
National Chung Hsing University (NCHU), Taiwan
GPA: 3.93

WORK HISTORY

- Research Assistant** Jan–Dec, 2024
Agronomy Lab206, National Chung Hsing University, Taiwan
- Office Assistant** Jul, 2021–Aug, 2024
Office of R&D, National Chung Hsing University, Taiwan
- Intern** Jan–Feb, 2022
Taiwan Agricultural Research Institute (TARI), Taiwan
- Intern** Jul–Aug, 2020
Koo Botanic Conservation Center (KBCC), Taiwan

PROFESSIONAL EXPERIENCES

Oral Presentations

- The 32th Plant and Animal Genome Conference (PAG32), San Diego, USA Jan, 2025
- 2024 ASA, CSSA & SSSA Annual Meeting, San Antonio, USA Nov, 2024
- Taiwan Society of Agronomy Annual Meeting, Taipei, Taiwan Apr, 2024
- Mini-Symposium Bilateral on Advanced Materials for an Eco-friendly and Sustainable Society, Chon Buri, Thailand Nov, 2023

Poster Presentations

- ACSAC11, Taipei, Taiwan May, 2025
- ISEGB 2025, Taipei, Taiwan May, 2025
- ASA, CSSA & SSSA Annual Meeting 2024, San Antonio, USA Nov, 2024
- Taiwan Society of Agronomy Annual Meeting 2023, Taipei, Taiwan Apr, 2023
- ISBAB 2022, Taichung, Taiwan Nov, 2022

Guest Talks

- NSTC Research Proposal Sharing Session at NCHU Apr, 2024
- NSTC Research Proposal Sharing Session at NCHU Nov, 2023

University Visits

- Tokyo University of Agriculture, Japan Jul, 2025–Aug, 2025
- Texas A&M University, USA Nov, 2024–Feb, 2025
Host: Dr. Endang M. Septiningsih
- Kasetsart University and Chulalongkorn University, Thailand Nov, 2023
- Northwest A&F University, China Jun, 2023

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AWARDS

Academic Awards

- The 18th TSC Thesis Award: AI Application Competition, TSC (2025) *Competitive Award*
- The 6th CH Biotech Innovation Award, CH Biotech R&D Co., LTD (2025) *Gold Award*
- Diversity Student Poster Contest, CSSA (2024) *Top 15 Finalist*
- Advanced Multidisciplinary Agricultural Biotechnology Conference (2024) *Outstanding Poster*
- The 6th Science Paper Competition, NCHU (2024) *2nd Place*
- College Student Research Project, NTSC (2023) *Research Creation Award*
- Taiwan Society of Agronomy Annual Meeting, TSA (2023) *Outstanding Poster*
- The 4th CH Biotech Innovation Award, CH Biotech R&D Co., LTD (2023) *Bronze Award*
- The 5th Science Paper Competition, NCHU (2023) *3rd Place*
- The 4th Science Paper Competition, NCHU (2022) *2nd Place*

Competitions & Hackathons

- The 2nd TBIA Open Data Hackathon, TBIA (2025) *Most Popular Award*
- Agriculture Open Data Hackathon, MOA, Taiwan (2023) *Top 10 Finalist*
- English Presentation and Poster Competition, NCHU (2022) *Honorable Mention*

SCHOLARSHIPS

Unit: USD

- CH Biotech R&D Co., LTD (2025) \$6,000
- Dept. of Agronomy Alumni Association of NCHU (2025) \$300
- Chung Hwa Rotary Education Foundation (2025) \$4,100
- Hsi-Liu, Kuo Foundation (2024) \$600
- Chien Cheng STEM Scholarship (2023) \$300
- Elite Well Education Foundation (2023) \$3,000
- CH Biotech R&D Co., LTD (2023) \$3,000
- Dept. of Agronomy Alumni Association of NCHU (2023) \$300
- College Student Research Project, NTSC (2022) \$1,200
- Known-You Seed Co., Ltd. (2022) \$300
- Nitori International Scholarship Foundation (2022) \$3,000

TRAVEL GRANTS

Unit: USD

- Travel Grant for International Conference, NSTC, Taiwan (Jan, 2025) \$830
- Travel Grant for International Conference, NSTC, Taiwan (Nov, 2024) \$1,100
- NCHU-TAMU Exchange Program, MOA, Taiwan (Nov, 2024–Feb, 2025) \$6,000
- Travel Grant for University Visit to Thailand, MOA, Taiwan (Nov, 2023) \$1,500

TOOLS & LANGUAGES

Programming & Tools: R; Plink; TASSEL; Shiny (R); Streamlit (Python); Git; LlamaCloud

Languages: Mandarin: Native; English: Upper-Intermediate