

Chun-Hsiang Chan

ASSISTANT PROFESSOR | TRANSDISCIPLINARY DATA SCIENTIST · PHD DOUBLE MS BSS

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| 🌐 Chun-Hsiang Chan | 🎥 Coding the World

"I always aim to overcome my limitations."

Education

National Taiwan University (NTU)

Taipei, Taiwan

PH.D. IN GEOGRAPHY

Sep. 2015 - Jul. 2021

- **GPA:** 4.12/4.3 (76)
- Applied spatiotemporal data analysis to unveil the global airline alliance market with 50+ million of flight schedule data.
- Leveraged worldwide flight schedule data with complex network analysis to characterize the aviation market structure of global airline alliances.

Shih Chien University (USC)

Taipei, Taiwan

M.S., DEPARTMENT OF FOOD SCIENCE, NUTRITION, AND NUTRACEUTICAL BIOTECHNOLOGY

Sep. 2018 - Jul. 2020

- **GPA:** 4.0/4.0 (30)
- Revealed key physicochemical parameters of semi-gelatinized high amylose maize starch and quantified for the first time the mechanisms of slow-digesting and resistant starch during sonication by machine learning (ML) techniques.

National Taiwan University (NTU)

Taipei, Taiwan

M.S., DEPARTMENT OF GEOGRAPHY

Jan. 2013 - Jan. 2015

- **GPA:** 3.75/4.3 (31)
- Identified seismic precursors with massive electromagnetic processing (2.7 millions) and frequency domain analysis to spatiotemporally predict the epicenter (24%) and occurrence time (68%) of seismic events one week before from 2013 to 2014 (magnitude > 4).

National Taipei University of Education (NTUE)

Taipei, Taiwan

B.SOC.SCI., DEPARTMENT OF SOCIAL AND REGIONAL DEVELOPMENT

Sep. 2008 - Jul. 2012

- **GPA:** 3.79/4.3 (174)
- Determined debris-flow critical rainfall line for disaster prevention through ML techniques (FCGA, k-means clustering, and support vector machine) with 5 years of rainfall data and 21 geological types data.

Experience

Department of Geography, National Taiwan Normal University

Taipei, Taiwan

ASSISTANT PROFESSOR

2023 - Present

- Teaching subjects: Studies in Medical Geography, Urban Geographic Information System, Social Network Analysis, and Web Crawler Practice.
- Utilize agent-based modeling to simulate urban traffic flow under natural disaster.
- Elaborate the impact of natural hazards and COVID-19 pandemic on the large-scale population flow changes.

Master Program in Intelligent Computing and Big Data, Chung Yuan Christian University

Taoyuan, Taiwan

ASSISTANT PROFESSOR

2022 - 2023

- Teaching subjects: Probability and Statistics, Big Data Fundamentals and Application, Introduction to Natural Science and Artificial Intelligence, Capstone Project, Complex Network Analysis, Deep Learning, and Intro. to EECS Profession.
- Leverage graph neural network to characterize and refine the transportation structure in the urban area.
- Combine complex network analysis to characterize the spatiotemporal network structure of global heatwave events from 100+ years of data.

Taiwan Cybersecurity Foundry Company

Taipei, Taiwan

AI CONSULTANT

2022 - 2023

- Develop and deploy multiple machine learning models to automatically extract highly suspicious network security events from real-time massive flow alert data (531 millions), with an accuracy rate of 99% for each source.
- Combined with multiple time series models and federated learning to automatically detect abnormal network traffic (200 GB) for enterprise security management and meet privacy protection standards.

Far Eastern Memorial Hospital

Taipei, Taiwan

COLLABORATOR

2022 - Present

- Leverage machine learning to identify chest compression locations (left ventricle or aortic vessel) from timely A-line waveforms to improve the quality and efficiency of CPR.

Institute of Sociology, Academia Sinica

Taipei, Taiwan

DATA SCIENTIST

2019 - 2023

- Utilized complex analysis techniques to investigate the social network formulation through quantitative and qualitative approaches.
- Conducted spatiotemporal statistical analyses (SaTScan & LISA) to reveal the preferred locations of multi-religious landscapes with 400-year cultivation data in Taipei city.
- Applied Louvain community detection and ML techniques (PCA, clustering, and hierarchical clustering) to demystify the association between pilgrimage network and religious development history.

School of Journalism and Communication, The Chinese University of Hong Kong

Hong Kong, China

DATA SCIENTIST / A JOINT BUSINESS PLANNING ON SOCIAL MEDIA MARKETING

2019 - 2023

- Collected fine-dining brand's Facebook engagement data to demystify the pandemic impact on social media behavior (2019 to 2021).
- Applied ML techniques and time-series analysis to predict the reservation trend.

Department of Radiology, School of Medicine, Taipei Medical University

Taipei, Taiwan

COLLABORATOR | POSTDOCTORAL RESEARCH / DEPARTMENT OF RADIOLOGY, TAIPEI MUNICIPAL WANFANG

2022 - Present | 2021 - 2022

HOSPITAL, TAIPEI MEDICAL UNIVERSITY

- Characterize the prognosis of anabolic treatment (Romosozumab) through dual energy X-ray absorptiometry (DXA), quantitative computed tomography (QCT), and trabecular microarchitecture analysis.
- Evaluated the 3D trabecular microstructure parameters to reveal the relationship between areal bone mineral density (BMD) from DXA and volumetric BMD from QCT.
- Investigated the vertebral fracture assessment problems with a 2D plain-film radiograph and different 3D CT grading methods (conventional, consensus, and global search).
- Developed a 100% accuracy and rapid automated BMD and total body composition report generator to improve efficiency for the report production.

Department of Geography, NTU

Taipei, Taiwan

RESEARCH ASSISTANT & TEACHER ASSISTANT / GEOSPATIAL COMPUTATIONAL SCIENCE LABORATORY

2019 - 2021

- Timely estimated the global exposure risk mobile app for direct and transfer air passengers to meet WHO healthcare goals and traveler needs in the COVID-19 pandemic.
- Demystified the role of transfer activities in cross-province transmission after Wuhan city lockdown by web crawling 1+ million railway schedule data during the COVID-19 pandemic.
- Utilized survival analysis and community detection for H1N1 global disease transmission with 85+ million global flight schedules.

Department of Geography, NTU

Taipei, Taiwan

RESEARCH ASSISTANT & TEACHER ASSISTANT / REMOTE SENSING AND SPATIAL KNOWLEDGE LABORATORY

2013 - 2021

- Designed an automated low-frequency electromagnetic signal processing and pattern recognition system.
- Applied ML techniques in seismic precursor analysis and automated vertical stratum structure recognition.

CyberSecurity Technology Institute, Institute for Information Industry (III)

Taipei, Taiwan

DATA SCIENTIST ENGINEER / ANALYTICAL INTELLIGENCE SECTION, ARTIFICIAL INTELLIGENT RESEARCH AND

2017 - 2019

DEVELOPMENT CENTER

- Identified the spatiotemporal causal relationship of air pollution between stationary emission sources and ambient air quality.
- Developed a real-time and open-source cybersecurity monitoring system with Elasticsearch, Logstash, and Kibana (ELK), which analyzed the suspicious packets.
- Implemented a generative adversarial network (GAN) model to detect malicious behaviors with a 250 GB malware dataset.

Department of Social and Regional Development, NTUE

Taipei, Taiwan

RESEARCH ASSISTANT & TEACHER ASSISTANT / DEBRIS-FLOW DISASTER PREVENTION LABORATORY

2013 - 2016

- Leveraged social media advertising to promote crowd-sourcing debris-flow disaster platform and mobile app.
- Adopted several spatiotemporal hydrological analyses to timely characterize debris-flow disasters to informed experts and public users on a website and mobile app.

National Science and Technology Center for Disaster Reduction (NCDR)

Taipei, Taiwan

RESEARCH INTERN / SLOPELAND DIVISION

2011 - 2011

- Conducted spatial statistical methods to reveal the hidden debris flow and landslide areas from massive high-resolution remote-sensing images.

Department of Chemistry, NTU

Taipei, Taiwan

PROJECT STUDENT / JTC ORGANOMETALLIC RESEARCH LABORATORY

2010 - 2012

- Synthesized and characterized - from ligands to complexes [(o-C₅H₄N)C(CH₃)(R₁)NR₂]AlMe₂
- Characterized organometallic precursors by NMR techniques and X-Ray crystallography showing distorted tetrahedral structures.
- Catalyzed ring-opening polymerization of ϵ -caprolacton-caprolactone with the activities and the *M_n* values.
- Displayed the electronic and steric properties of distinct ligand influences toward molecular weight and PDI values.

Invited Talks

- Feb., 2024 **Invited Speaker**, Applying Spatiotemporal Data Mining Techniques for the Disease Prevention and Policy Planning of a Large-scale Pandemic *Academia Sinica, Taipei*
- Oct., 2023 **Invited Speaker**, GIS 在社工領域的應用-社會住宅與空間分析 *Providence University, Taichung*
- Sep., 2023 **Invited Speaker**, EMS/Resuscitation Study: Vital Signs and Signals *NTUH, Taipei*
- Sep., 2023 **Invited Speaker**, Timely exposure risk at airports app for air travelers —using the COVID-19 pandemic as an example *CYCU, Taipei*
- Sep., 2023 **Invited Speaker**, The COVID-19 Impacts on Spatiotemporal Public Transportation Patterns *NCDR, Taipei*
- May, 2023 **Invited Speaker**, The Training Paths and Challenges of Interdisciplinary Data Scientists *NTNU, Taipei*
- May, 2023 **Invited Speaker**, The Future Image of Interdisciplinary Research Capabilities *CYCU, Taoyuan*
- Nov., 2022 **Invited Speaker**, The Importance of Spatial Analysis in Epidemic Prevention Policy *PCCU, Taipei*
- Oct., 2022 **Invited Speaker**, Trial & Error Building an Interdisciplinary Life - Beyond Your Limits *NTUE, Taipei*
- Nov., 2021 **Invited Speaker**, The Roles of Spatial Analysis During the COVID-19 Pandemic *PCCU, Taipei*
- Jan., 2020 **Invited Speaker**, Characterizing Major Airline Alliances: A Network Analysis *Kyoto University*
- Jan., 2020 **Invited Speaker**, A Social Network Approach to Detect the Characteristics of Fake News *III, Taipei*
- Feb., 2019 **Keynote Speaker**, 2019 Present Sociology under Big Data *Academia Sinica, Taipei*
- Sep., 2014 **Keynote Speaker**, Define an Expectation for Your University Life *NTUE, Taipei*
- Apr., 2014 **Keynote Speaker**, 2014 Disaster Prevention and Warning Application in APP Competition *TICC, Taipei*

Thesis

- 2021 **Ph.D. Dissertation**, Characterizing Major Airline Alliances: A Network Analysis. *Department of Geography, National Taiwan University* *Taipei, Taiwan*
- 2020 **Master Thesis**, Effects of Ultrasonic Treatment on Physical Properties and *in vitro* Digestibility of High Amylose Maize Starch. *Department of Food Science, Nutrition, and Nutraceutical Biotechnology, Shih Chien University* *Taipei, Taiwan*
- 2015 **Master Thesis**, Applying Ultra Low Frequency Remote Sensing Techniques in the Earthquake Precursor Analysis —Using Taiwan as an Example. *Department of Geography, National Taiwan University* *Taipei, Taiwan*
- 2011 **Bachelor Thesis**, Ring-Opening Polymerization of ϵ -caprolactone Using Organoaluminum Complexes Bearing Amido-pyridine Bidentate Ligand. *Department of Chemistry, National Taiwan University* *Taipei, Taiwan*
- 2011 **Bachelor Thesis**, Establishing Debris-Flow Cluster and Modified Critical Rainfall Line. *Department of Social and Regional Development, National Taipei University of Education* *Taipei, Taiwan*

Certifications, Skills & Interests

LANGUAGES

Chinese: Native; **English:** Fluent; **Russian:** Conversant; **Japanese:** Beginning; **Spanish:** Beginning

CERTIFICATIONS

Emergency Medical Technician: Level 1 (EMT1)

Certified Scanning Electron Microscopy Operator | Certified X-ray Diffraction Operator

Elementary School Teacher Certificate | HACCP Quality Control (Primary & Advanced)

Tour Guide of General Examination and Tour Leader of General Examination

TBSA Certificate of Business Planning Proficiency (Elementary)

National Volleyball Referee (C) | Certified lifeguard and Certified Swimming Coach (Level B & C)

TECHNICAL SKILLS

Computer Science: Python, Matlab, R, C, C#, JavaScript, JQuery, jQueryUI, Android Development, HTML, MySQL, Nodejs, AngularJS, MongoDB, Elasticsearch, Spark, Facebook APIs and Twitter APIs

Geography: GIS (ArcGIS, QGIS, Super GIS), Spatial Statistics, Spatial Database, Complex Network Analysis, Gephi

Physics: Signal Processing (in time sequence and frequency) and Electromagnetic Analysis

Food Chemistry: Starch Science, Resistant Starch, Slowly Digestible Starch, *in vitro* Digestibility, SEM, XRD and HPSEC

Chemistry: Organometallic synthesis, NMR, IR, HPLC, ESI-MASS and pH meter

Design: Illustrator, Photoshop, Dreamwaver and Google SketchUp

Honors & Awards

RESEARCH

2020	The Second Prize , 2020 Canada - Taiwan Bilateral Conference on Nutrition, Health, Benefit and Innovative Processing of Whole Grains and Pulses	<i>Taichung, Taiwan</i>
2019	The Third Prize , 2019 International Conference on Grain Industry Development and Annual Meeting of Taiwan Grain Industry Association (TGIA)	<i>Taichung, Taiwan</i>
2018	Young Scientist Award , 2nd CiC Students' Workshop: Driving Sustainable Development	<i>Tsukuba, Japan</i>
2014	The First Prize , The 15th Cross-Strait Symposium on Environmental Resources and Ecological Conservation	<i>Zhangjiajie, China</i>
2013	The Second Prize , The 14th Cross-Strait Symposium on Environmental Resources and Ecological Conservation	<i>Kunming, China</i>
2011	The First Prize , The 12th Cross-Strait Symposium on Environmental Resources and Ecological Conservation	<i>Nanchang, China</i>
2011	Selected (Highest) , Undergraduate Student Thesis Presentation in Class of 2012	<i>NTUE, Taiwan</i>

COMPETITION

2014	Third Prize , 2014 Disaster Prevention and Warning Application in APP Competition	<i>Taipei, Taiwan</i>
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SCHOLARSHIP AND GRANTS

2021	Journal Paper Publication Grants for Doctoral Students at Dept. of Geography ,	<i>NTU, Taiwan</i>
2020	NetSci-X 2020 Travel Grants , NetSci-X 2020, Waseda University	<i>Japan</i>
2020	College of Science Travel Grants for International Conference , College of Science	<i>NTU, Taiwan</i>
2020	Honorary Membership , The Phi Tau Phi Scholastic Honor Society of the Republic of China	<i>Taipei, Taiwan</i>
2020	Academic Excellence Award , Department of Food Science, Nutrition, and Nutraceutical Biotechnology	<i>USC, Taiwan</i>
2019-2020	Grant for Ph.D. Candidates in the Humanities and Social Sciences to Write Doctoral Thesis ,	<i>MOST, Taiwan</i>
2019	College of Science Travel Grants for International Conference , College of Science	<i>NTU, Taiwan</i>
2018-2019	Presidential Award , Department of Food Science, Nutrition, and Nutraceutical Biotechnology(Fall'18, Spring'19)	<i>USC, Taiwan</i>
2018	Travel Grants for 2018 Tsukuba Global Science Week , NTU and Tsukuba University	<i>Taiwan & Japan</i>
2017-2018	Graduate Student Representative of College of Science , College of Science	<i>NTU, Taiwan</i>
2014	Budget Supplement for Graduated Student Attending International Conference ,	<i>MOST, Taiwan</i>
2010-2011	Presidential Award , Department of Social and Regional Development (Spring'10, Fall'11)	<i>NTUE, Taiwan</i>

Teaching Experience

ASSIST. PROF. | NATIONAL TAIWAN NORMAL UNIVERSITY

2023	Studies in Medical Geography , Department of Geography (Fall'23)	<i>College of Liberal Arts</i>
2023	Urban Geographic Information System , Department of Geography (Fall'23)	<i>College of Liberal Arts</i>
2023	Seminar on Geographical Studies , Department of Geography (Fall'23)	<i>College of Liberal Arts</i>
2024	Web Crawler Practice , Department of Geography (Spr'24)	<i>College of Liberal Arts</i>
2024	Social Network Analysis , Department of Geography (Spr'24)	<i>College of Liberal Arts</i>

ASSIST. PROF. | CHUNG YUAN CHRISTIAN UNIVERSITY

2022	Probability & Statistics 1 , Undergraduate Program in Applied Artificial Intelligence (Fall'22)	<i>College of EE & IS</i>
2022	Introduction to Natural Science and Artificial Intelligence , Department of Electronic Engineering (Fall'22)	<i>College of EE & IS</i>
2022	Big Data Fundamentals and Application , Master Program in Intelligent Computing and Big Data (Fall'22)	<i>College of EE & IS</i>
2022	Intro. to EECS Profession , BS in Electrical Engineering and Information Science (Fall'22)	<i>College of EE & IS</i>
2022	Capstone Project II , Undergraduate Program in Applied Artificial Intelligence (Fall'22)	<i>College of EE & IS</i>
2023	Probability & Statistics 2 , Undergraduate Program in Applied Artificial Intelligence (Spr'23)	<i>College of EE & IS</i>
2023	Programming for Artificial Intelligence , Undergraduate Program in Applied Artificial Intelligence (Spr'23)	<i>College of EE & IS</i>
2023	Complex Network Analysis , Master Program in Intelligent Computing and Big Data (Spr'23)	<i>College of EE & IS</i>
2023	Capstone Project I , Undergraduate Program in Applied Artificial Intelligence (Spr'23)	<i>College of EE & IS</i>

ADJUNCT ASSIST. PROF. | TAMKANG UNIVERSITY

2021	Advanced C Programming and It's Applications , Department of Artificial Intelligence (Fall'21)	<i>College of Engineering</i>
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Academic Service

SCI	Reviewer , European Heart Journal	<i>Journal Article</i>
SCI	Reviewer , European Radiology	<i>Journal Article</i>
SCI	Reviewer , Paddy, Water and Environment	<i>Journal Article</i>
SCI	Reviewer , Environmental Research Letters	<i>Journal Article</i>
SCI	Reviewer , Food Chemistry	<i>Journal Article</i>
SCI	Reviewer , Food Hydrocolloids	<i>Journal Article</i>
SCI	Reviewer , The Spine Journal	<i>Journal Article</i>
SCI	Reviewer , International Journal of Health Geographics	<i>Journal Article</i>
SCI	Reviewer , Plos One	<i>Journal Article</i>
SCI	Reviewer , International Journal of Environmental Research and Public Health	<i>Journal Article</i>
SCI	Reviewer , ISPRS International Journal of Geo-Information	<i>Journal Article</i>
SCI	Reviewer , Diagnostics	<i>Journal Article</i>
SCI	Reviewer , Journal of Sensors	<i>Journal Article</i>
EI	Reviewer , International Journal of Web Based Communities	<i>Journal Article</i>
NTNU	Reviewer , 地理研究	<i>Journal Article</i>

Research Projects

NATIONAL SCIENCE AND TECHNOLOGY COUNCIL

2023-2025	PI , Spatiotemporal Dynamic Urban Mobility Network Modeling: A Graph Neural Network Approach with Integrating Multimodal Public Transportation and Heterogeneous Built Environment Factors	<i>Principal Investigator</i>
2021-2022	PostDoc , Case control longitudinal study of Romosozumab vs. Denosozumab treatment for osteoporotic women in assessment of HRCT-based vertebral structural changes	<i>PostDoc</i>
2019-2020	PI , Grant for Ph.D. Candidates in the Humanities and Social Sciences to Write Doctoral Thesis	<i>Principal Investigator</i>

INDUSTRY-ACADEMY COOPERATION PROJECTS

2024	PI , NTUH The Effect of Socioeconomic Status and People Flow on Bystander Cardiopulmonary Resuscitation Rate	Principal Investigator
2024	PI , NTNU Revisiting Urban Health in the Post-COVID-19 Era: Considering Urban Population Flow Network Sustainable Mental Health for Developing an Infectious Disease Mitigation Policy	Principal Investigator
2023	PI , NCDR Spatiotemporal Mobility Patterns on Car Flow and Population Flow	Principal Investigator
2023	PI , ANXSOAR Combine Open-source Encrypted Network Traffic Analysis Module For Network Attack Detection	Principal Investigator
2023	PI , Datarget CAP Data Mining and Data Service Module Extension for Disaster Prevention	Principal Investigator

Selected Publications

Peer-Reviewed Journal Papers (* corresponding author)

- [1] Wei Chien Benny Chin, **Chun-Hsiang Chan*** (2023). Analyzing the Trends of COVID-19 and Human Activity Intensity in Malaysia. *Tropical Medicine and Infectious Disease*. 8(2), 72; <https://doi.org/10.3390/tropicalmed8020072> (**SCI IF: 3.711**; Q1 6/24 in Tropical Medicine)
- [2] **Chun-Hsiang Chan**, Wen-Chi Huang, Yi-Chien Lu, Hsing-Fen Hsiao, and Wing P. Chan (2021). BatchBMD as an Efficient and Accurate Dual-Energy X-ray Absorptiometry Report Generator. *Diagnostics*. Vol.11(12), 2403. <https://doi.org/10.3390/diagnostics1122403> (**SCI IF: 3.992**; Q2 60/172 in Medicine, General, and Internal)
- [3] **Chun-Hsiang Chan**, Tzai-Hung Wen (2021). Revisiting the Effects of High-speed Railway Transfers in the Early COVID-19 Cross-province Transmission in Mainland China. *International Journal of Environmental Research and Public Health*. Vol.18(12), 6394. <https://doi.org/10.3390/ijerph18126394> (**SSCI IF: 4.614**; Q1 45/182 in Public, Environmental & Occupational Health)
- [4] **Chun-Hsiang Chan**, Ri-Gui Wu, Yi-Yuan Shao (2021). The Effects of Ultrasonic Treatment on Physicochemical Properties and *in vitro* Digestibility of Semigelatinized High Amylose Maize Starch. *Food Hydrocolloids*. Vol.119, 106831. <https://doi.org/10.1016/j.foodhyd.2021.106831> (**SCI IF: 11.504**; Q1 3/73 in Applied Chemistry; Q1 5/144 in Food Science & Technology)
- [5] Wei-Hsian Chi, Fei-Ying Kuo, Chang-Hui Chi, Shi-Chiang Lin, **Chun-Hsiang Chan** (2021). Spatial-temporal Analysis of Pilgrimage Network of Mazu-temples in Yunlin and Chiayi County: A Study on Geographical Distribution of Pilgrimage Group. *Journal of Geographical Science*. Vol.98, 45-82. [https://doi.org/10.6161/jgs.202104_\(98\).0003](https://doi.org/10.6161/jgs.202104_(98).0003) (**TSSCI**)
- [6] **Chun-Hsiang Chan**, Tzu-How Chu, Jiun-Huei Protty Wu, Tzai-Hung Wen (2021). Spatially Characterizing Major Airline Alliances: A Network Analysis. *ISPRS International Journal of Geo-Information (IJGI)*. Vol.10(1), 38. <https://doi.org/10.3390/ijgi10010038> (**SCI IF: 3.099**; Q2 24/50 in Geography)
- [7] Yuan-Fang Tsai, **Chun-Hsiang Chan**, Keng-Han Lin, Wen-Ray Su, Jinn-Chyi Chen (2017, Jul). New Debris Flow Critical Rainfall Line Setting via Cluster Analysis and Support Vector Machine After the Chi-Chi Huge Earthquake. *2017 13th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD) (EI)*. 970-975.

Under Review Peer-Reviewed Journal Papers (* corresponding author)

- [1] **Chun-Hsiang Chan**, Fei-Ying Kuo, Wei-Hsian Chi (Under Review). A Spatial-Temporal Analysis of Religious Spread in a Multi-Religious Metropolitan: A Historical Religious Profile of Taipei City in Taiwan from 1660 to 2020.
- [2] **Chun-Hsiang Chan**, Tzai-Hung Wen (Under Review). Timely Personalized Exposure Risk Estimation for Air Travelers.
- [3] **Chun-Hsiang Chan**, Wing P. Chan (Under Review). Demystifying Paradoxical Treatment Outcomes in Patients with Severe Osteoporosis: Why Do DXA Scores Improve Yet Fracture Risk Persists?
- [4] **Chun-Hsiang Chan**, Yi-Chien Lu, Yu-Pin Chen, Yi-Jie Kuo, Wing P. Chan (Under Review). The Trabecular Microarchitectural Changes in a Woman with Very-high-risk Osteoporosis Treated with Romosozumab.
- [5] **Chun-Hsiang Chan**, Ai-Ling Hsu, Yi-Chien Lu, Russell O. Kosik, Yi-Ping Chao, Wing P. Chan (Under Review). Unveiling the Vertebral Fracture Grading Gap between Two- and Three-dimensional Approaches on CT scans.
- [6] **Chun-Hsiang Chan**, Ri-Gui Wu, Yi-Yuan Shao (Under Review). Physicochemical Properties, *in vitro* Digestibility, and Estimated Glycemic Index of Ningbo Rice Cakes with Partial Resistant Starch Substitutions.

Peer-Reviewed Conference Papers

- [1] **Chun-Hsiang Chan**, Wei-Hsian Chi, Yi-Yun Chen (Apr, 2024) Religious Spread in a Multi-Religious Metropolitan: A Historical Religious Profile of Taipei City in Taiwan from 1660 to 2020. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
- [2] Yun-Hsin Wen, **Chun-Hsiang Chan** (Apr, 2024) Urban Human Mobility Forecasting with Multimodal Transportation by Using Graph Neural Network with Heterogeneous Factors. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
- [3] Chien-Yi Lo, **Chun-Hsiang Chan** (Apr, 2024) Using Graph Generative Adversarial Networks for Forecasting Metro Passenger Flow. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
- [4] Yi-Chia Cheng, **Chun-Hsiang Chan** (Apr, 2024) Characterizing the Population Flow Patterns After the 2023 Turkey-Syria Earthquake. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
- [5] Shan-Yin Yang, **Chun-Hsiang Chan** (Apr, 2024) Determining the Global Epidemic Prevention Zone for Targeting Potential High-risk Origin Countries Through Global Aviation Network: A Case Study of the COVID-19 Pandemic. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
- [6] Po-Yu Yeh, **Chun-Hsiang Chan** (Apr, 2024) DRPT: A new technique for evaluating the robustness of synthetic data based on a box-counting algorithm. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
- [7] Yo-Yun Cheng, **Chun-Hsiang Chan** (Apr, 2024) Spatio-Temporal Deep Learning for Urban Mobility: Traffic and Pedestrian Flow Prediction with MRT Data. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
- [8] Au-Hua Po, **Chun-Hsiang Chan** (Apr, 2024) Reveal the Global and Regional Impacts of World Events on CPI through Global Trade

- Network Properties: Using the COVID-19 Pandemic as an Example. *2024 Association of American Geographers' Annual Meeting*, Honolulu, Hawaii, United States.
- [9] Wei-Hian Chi, **Chun-Hsiang Chan**, Yi-Yun Chen (Nov, 2023) Religious Landscape Analysis in Taipei Metropolitan Area. *Landscapes, Religion and the Digital Humanities*, Taipei, Taiwan.
- [10] **Chun-Hsiang Chan** (Aug., 2023) Characterizing Global Heatwave Spatiotemporal Changes: A Complex Network Approach. *Climate Hotspots in Action (CHIA) Forum*, Taipei, Taiwan.
- [11] **Chun-Hsiang Chan**, Yi-Chien Lu, Hao-Yang Wu, Wing P. Chan (May, 2023) Vertebral Trabecular Microarchitecture in Older Health Asians. *2023 WCO-IOF-ESCEO congress*, Barcelona, Spain.
- [12] **Chun-Hsiang Chan**, Wei Chien Benny Chin, Fei-Ying Kuo (Mar, 2023) Does Recurring Pandemic Waves Have a Long-term Impact on Travel Willingness: a National Scale Investigation. *2023 Association of American Geographers' Annual Meeting*, Denver, United States.
- [13] Tzu-Hsuan Chuang, **Chun-Hsiang Chan**, Yi-Yuan Shao (Oct, 2022) Maximize Resistant Starch from Waxy Maize Starch: An Integration of Debranching and Storage Temperature. *8th International Conference on International Dietary Fibre 2022*, Belgium.
- [14] **Chun-Hsiang Chan**, Yi-Chien Lu, Hao-Yang Wu, Wing P. Chan (Sep, 2022) Temporal Effects of Romosozumab on Vertebral Trabecular Quality: A Pilot Case Report. *American Society for Bone and Mineral Research 2022 Annual Meeting*, Austin, Texas, United States.
- [15] **Chun-Hsiang Chan**, Shih-Chia Wu (Jul, 2022) The Impact of Marketing Communication Strategies on Online Consumer-brand Community Engagement During COVID-19 Pandemic. *29th Annual BledCom Conference*, Bled, Slovenia.
- [16] **Chun-Hsiang Chan**, Wing P. Chan (Mar, 2022) The Hollowed Trabecular Phenomenon —Demystifying the Trabecular Aging Process in Healthy Older Adults Using Multidimensional Approaches. *WCO-IOF-ESCEO Virtual Congress 2022*, Berlin, Germany.
- [17] **Chun-Hsiang Chan**, Tzai-Hung Wen (Oct, 2021). Timely exposure risk at airports app for air travelers —using the COVID-19 pandemic as an example. *2021 Asian Seminar in Regional Science —Regional Science in Post-Pandemic Era*, Taichung, Taiwan.
- [18] **Chun-Hsiang Chan**, Shih-Chia Wu (Jul, 2021) Reversible or Irreversible User Engagement Behavior Changes During COVID-19 Pandemic: a Case Study of a Top Restaurant Brand in Taiwan. *28th Annual BledCom Conference*, Bled, Slovenia.
- [19] **Chun-Hsiang Chan**, Ri-Gui Wu, Yi-Yuan Shao (Sep, 2020) Ultrasonic Treatment on Starch Granule Morphology and Physicochemical Properties of High Amylose Maize Starch. *2020 Canada - Taiwan Bilateral Conference on Nutrition, Health, Benefit and Innovative Processing of Whole Grains and Pulses*, Taichung, Taiwan.
- [20] 吳優、詹竣翔、邵貽沅 (2020 年 6 月) 探討超音波處理對半糊化之糯性玉米澱粉物性和消化性的影響。台灣農業化學會第 58 次會員大會。臺北，臺灣。
- [21] 吳優、詹竣翔、邵貽沅 (2020 年 6 月) 探討去支鏈、超音波和回凝處理對澱粉物性和消化性的影響。台灣農業化學會第 58 次會員大會。臺北，臺灣。
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