2022 NATPA Young Scholar Program

Saturday, July 23rd, 2:30-5:45 pm

Moderatos: Hsing-Hua Sylvia Lin 林杏樺 & Sih-Ting Cai 蔡思亭

Oral/ Video	Presentation Field	English Name	Hanji Name	Presentation Title
Oral Session I **2:30-3:45p**	Politics/law	Tsung-Chi Wu	吳宗錡	Revolution of Our Times: Today's Hong Kong, Tomorrow's Taiwan 時代革命－今日香港，明日台灣
	Politics/law	Margaret Yun-Pu Tu	杜芸璞 Nikal Kabala'an	Who is/can be an Indigenous Taiwanese? The Status Act for Taiwan Indigenous Peoples and the ROC Constitutional Court
	Political/law	Kai-En, Teh (Joshua)	鄭凱恩	Issue Ownership and Legislator Choice: The Case Study of U.S Beef and Pork Imports
	Economics	Jeffrey Kuo	郭哲瑋	A Precarious but Inseparable Triangle: CGE Analysis of Economic Impact on the U.S. and China if Taiwan Joins RCEP
	Horticultural Sciences	Sheng-Yang Li	李昇陽	Huanglongbing Control Project in Belize and My Doctoral Research in Citrus Phenology
3:45-4:00p	**Break**			
Oral Session II **4:00-5:30p**	Epidemiology	Hai-Wei Liang	梁海薇	Potential Pathways of Phthalates Toxicity in Placenta: a Scientific Insight for Public Health Threat of Phthalates in Taiwan
	Biomedical	Duane Juang	莊堵安	Point of care diagnostics. Opportunities for Taiwan's healthcare and biotech industry
	Media Study	Grace Ying	應修平	From Printing to Recording: Continuities and Discontinuities between United Press and the Voice of Taiwan 從油印到錄音：媒介轉換中的「台灣之音」
	Education	Mike Yuchuan Shen	沈育全	A Comparison of Teach For America and Teach For Taiwan-A Case Study of Implementation in Rural Taiwan
	Literature	Yu-Ning Chen	陳昱甯	Reading Textiles and Empire in Colonial Taiwan
	Anthropology	Pin-Yi Li	李品儀	The Uniqueness of Taiwan's National Museums
5:30-5:45p	**Introduction of Video Presenters**			
Video Session **6:00-6:50p** Videos will be played during the dinner banquet	Environmental	Mu-Hua Chien	簡睦樺	Specialized Measurement Equipment for Observation of Local Circulation in Taiwan Under Climate Change
	Environmental	Chi-Jui Chen	陳麒瑞	Simulate Weather Extreme in Climate Model
	Materials Science	Chia-Pao Lee	李嘉寶	Three-Dimensional Atom Probe Tomograph and its Development in Taiwan
	Computer Science	Yi-Wei Chen	陳伊瑋	Automated Machine Learning with Constraints and Imperfect Data
	Biomedical	Chia Chun Liu	劉珈君	台灣再生醫學與視網膜幹細胞治療的展望
	Biomedical	Eric Shiao	蕭季威	以穿戴裝置數據預測創傷性脊髓損傷病患之行走能力復元機率
	Biomedical	Kai-Lin You	游鎧璘	A Scoping Review of Work-Related Studies in Nurses Diagnosed with Cancer
	Biomedical	Tzu-Wei Kuo	郭子維	Correlative mapping of neuronal function with morphology using Brainbow and expansion microscopy

Revolution of Our Times: Today's Hong Kong, Tomorrow's Taiwan

時代革命－今日香港，明日台灣

Tsung-Chi Wu 吳宗錡

Department of Physics and Astronomy, Rutgers University

Abstract: Revolution of Our Times is a recent documentary that covered Hong Kong's protestors as they fought for freedom and democracy in Hong Kong. "Today's Hong Kong, Tomorrow's Taiwan" has been an important phrase in Taiwan that has motivated many Taiwanese to pursue freedom and democracy in order to prevent Taiwan from being occupied and controlled by The Chinese Communist Party. In this talk, I will share what I have learned from Taiwanese and Hongkongers in the New York City metro area as I coordinated an event to watch Revolution of Our Times and discuss the future of Taiwan and Hong Kong. I will discuss how the Taiwanese can advance the democracy and resilience of Taiwan by standing on the shoulders of Hongkongers.

Bio: Mr. Tsung-Chi Wu is currently an experimental physicist pursuing a Ph.D. in the field of quantum materials at Rutgers University in New Jersey. His career goal is to become a professor who can promote Taiwanese cultures and democracy. Born in Taiwan as a first-generation high school (also college and doctoral) student, Tsung-Chi purposes to realize educational equity in Taiwan by promoting diversity, inclusion, and mental health. Moreover, as the president of Rutgers Taiwan Study Association, he has coordinated more than ten events to discuss Taiwanese cultural and political issues and serve the local Taiwanese community in New Jersey. Tsung-Chi's motivation in attending the NATPA 2022 conference is to share his experience and build a long-term relationship with NATPA and other Taiwanese scholars. Please visit Tsung-Chi's personal website at https://physics.rutgers.edu/~tsungchiwu and contact him if you would like to know more about him, discuss with him, or make friends with him!

Who is/can be an Indigenous Taiwanese? The Status Act for Taiwan Indigenous Peoples and the ROC Constitutional Court

Margaret Yun-Pu Tu 杜芸璞 (Nikal Kabala'an 阿美族名)

School of Law, University of Washington

Abstract: Like "Is Taiwan Chinese?" in Melissa Brown, "Becoming Japanese" in Leo Ching, and "Becoming Taiwanese" in Evan Dawley, the whole historical context of colonial Taiwan makes the issue of identity formation an active research domain in the field of Taiwan Studies. One of the contemporary issues in indigenous Taiwan is the status of indigenous peoples—the ultimate question of who is/can be an Indigenous Taiwanese?

Intending to make Taiwan a more inclusive nation, this research adopts the theory of reflexive ethnography in addressing the journey of Indigenous Taiwanese in their identity recognition and the social movements provoked by these critical contemporary issues.

Bio: Margaret is pursuing her Ph.D. in Law at the University of Washington (UW). She belongs to the Pangcah (Amis) and Sakizaya indigenous communities in Taiwan and is named "Nikal Kabala'an." In the field of indigenous legal education, she uses qualitative research methods to study higher education policy in Taiwan. In 2021, She has invited as a guest lecturer in the "Seminar on Contemporary Indigenous Cultural Rights" at National Chengchi University; the "Protection Act for the Traditional Intellectual Creations of Indigenous Peoples" at National Dong Hwa University; and the "Indigenous Peoples' Intellectual Property Law" in Soochow University, Taiwan. In 2022, she guest lecturer in the "Made in Taiwan: Arts and Culture of Contemporary Taiwan" and "Taiwan Indigenous Cultures" two courses offered by the UW Taiwan Studies Program on the Seattle campus.

Prior to the UW Ph.D. program, she conducted research in artificial intelligence and data-related regulations in the Research Center for Information Technology Innovation, Academia Sinica, Taiwan. She also worked as a Legal Researcher in the Innovation & Intellectual Property Center, Science & Technology Law Institute, and served as a Professional Manager in the Council of Indigenous Peoples in Taiwan.

Issue Ownership and Legislator Choice: The Case Study of U.S Beef and Pork Imports

Kai-En Teh (Joshua) 鄭凱恩

Department of Political Science, Tunghai University

Abstract: When it comes to U.S. beef and pork imports issues, it is troublesome that every term of presidencies in Taiwan manage to promote its international status. Since the incumbent Tsai Administration lifted a ban on U.S. beef and pork imports in late August 2020, heated discussions have arisen from every corner, especially in the lawmaking sphere. This study explores the speech stances of import-related policies and debates in the Legislative Yuan, to measure the preferences. In adopting the theories of issue ownership, I argue that the ruling party legislators attempt to promote their issue-handling reputation on U.S.-Taiwan-based foreign affairs issues, especially beef, and pork imports issues. They sought a deeper relationship with the U.S. government. On the other hand, the supported standpoint reversed after the party alternation. I investigate the related speeches during Ma and Tsai administrations via unsupervised text analysis. I let Python generate three-topic 'partisan competition' terms which KMT and DPP would use during the debate sessions and test the causal effects derived from the theories. Import-related speeches can be found on 12 different occasions. This study shows the salient evidence that the perspectival dyad is robust on the imports, and the two administrations both tend to express a positive position. This is an alternative approach to examining the classical theory of congressional study.

Bio: Kai-En, Teh (Joshua) is a graduate student at Tunghai University. He was born in Malaysia and raised in Taiwan. He received his BA degree in Political Science from Tunghai University as well. His thesis advisor Prof. Albert Shih-Yi, Chiu, enlightened him on quantitative methods, especially on applied data science with R and Python when he was a sophomore in university. His research interests are congressional study, American politics, and quantitative methods. He currently works as Prof. Chiu's Teaching and Research Assistant. He devotes all his energy to sharing the importance of applied statistics with the students. He participates in Prof. Chiu's latest Ministry of Science and Technology (MOST) project with the professor's fellow assistants. They are delving into supervised learning on analyzing legislative speech. He received two intramural scholarships before attending graduate school. He presented his work two times at Soochow University's International Conference on Parliamentary Studies—Taiwan's one and only congressional study seminar. He recently does not only focus on optimizing the bias-prone unsupervised learning methods for Natural Language Processing (NLP) but attempts to apply supervised methods in his ongoing master's degree thesis. During his free time, he likes to jog around the campus, study R and Python codes, and watch Japanese and American anime.

A Precarious but Inseparable Triangle: CGE Analysis of Economic Impact on the U.S. and China if Taiwan Joins RCEP

Jeffrey Kuo 郭哲瑋

Department of Economics, George Washington University

Abstract: This article studies the economic impact on the United States and China if Taiwan joins an existing regional trade agreement in Asia Pacific regions, the Regional Cooperation Economic Partnership (RCEP). We utilize the Compatible General Equilibrium based on the latest version of the Global Trade Project Analysis Database, GTAP 10, and separate the United States, China, and Taiwan in the aggregation scenario. We then simulate the experimental policy shock using the RunGTAP program. We simulate the economic outcomes counterfactually and analyze the impacts on China and the U.S. if Taiwan was invited to join RCEP, which is currently excluded for unknown reasons.

Bio: Jeffrey Kuo is an Economics Ph.D. candidate at George Washington University. He receives an M.A. degree in Economics from Maxwell School of Citizenship and Public Affairs at Syracuse University and a BS/MS Honors Degree in International Business and Trade from National Chengchi University. Before starting his journey to pursue a graduate degree in the U.S., he was a research assistant at the Institute of Economics, Academia Sinica. Jeffrey's academic fields cover International Economics, International Business, Econometrics, and Political Economy. He is specifically interested in economic integration theory and empirics, the economic and political impacts of preferential trade agreements, and the policy coordination between countries. In his dissertation, he uses the CGE model and GTAP database to simulate the counterfactual outcomes of joining the potential trade agreements and the DiD method to analyze the political impact of the preferential trade agreement and open-border policies between China and Taiwan. He has also published a paper using the nonparametric approach, propensity score matching, to analyze the effects of applying self-regulation carbon pricing among the MNEs.

Huanglongbing Control Project in Belize and My Doctoral Research in Citrus Phenology

Sheng-Yang Li 李昇陽

Horticultural Sciences, University of Florida

Abstract: In 2013, ICDF-Taiwan, a non-government organization, started a regional agricultural project in Central America. This agricultural project was focused on managing a devastating citrus disease, Huanglongbing (HLB). Belize is the smallest country, also the only English-speaking one in the Central America region. I was assigned by ICDF-Taiwan to Belize, and executed this project with another NGO, 'Organismo Internacional Regional de Sanidad Agropecuaria' (OIRSA) to mitigate HLB threat to the citrus industry. Until 2017, we had accomplished two main goals in helping the local citrus industry to manage their groves and the production system. The two main accomplishments were to facilitate their local authority to execute the healthy plant production system properly and transfer integrated pest management practices to the local small farmers. Those accomplishments did inspire me, leading to my current citrus study in the UF/IFAS Citrus Research and Education Center in Florida. Citrus flush phenology is a study, focusing on the onset and cessation of vegetative shoot growth with time. In citrus groves, production and pest management are impacted by flush phenology. Understanding flush phenology can improve the prediction of the onset of a new flush. Such understanding can help improve both grove and pest management.

Bio: Sheng-Yang Li was born in Taipei. Following his passion for plant science, he started his bachelor's degree and master's degree in Horticulture Science at the National Taiwan University. Upon completing his master's in 2011, he was certified as a national horticulture specialist and then joined Taiwan technical mission in El Salvador as an assistant technician. In August 2013, he was a horticultural specialist in the International Cooperate and Development Fund (ICDF- Taiwan) and was sent to Belize, to implement a regional agriculture project, 'Strengthening the control of Huanglongbing (HLB) and the implementation of integrated pest management (IPM) in citrus'. After accomplishing the project with the Belizean citrus community at the end of 2016, he found his passion in citrus ecophysiology. He started his doctoral study, focusing on citrus flush phenology and carbohydrate translocation at the University of Florida- Citrus Research and Education Center (CREC) in Lake Alfred. During his research in CREC, he received an honor, the 2021 ASHS travel award, and published two journal papers. Sheng-Yang received his Ph.D. from the University of Florida in May 2022.

Potential Pathways of Phthalates Toxicity in Placenta: A Scientific Insight for Public Health Threat of Phthalates in Taiwan

Hai-Wei Liang 梁海薇

Epidemiology, University of Pittsburgh

Abstract: Phthalates are a group of synthetic chemicals (byproducts of petroleum) applied widely in industry and consumer products, in pharmaceuticals, medical devices, food packaging, vinyl flooring, and personal care products. In 2011, di(2-ethylhexyl) phthalate (DEHP) and di-iso-nonyl phthalate (DiNP) were found to be illegally added to foodstuffs by the food industry in Taiwan. Though many regulations and policies have been made after the scandal, phthalate exposure has raised serious concerns for reproductive health (i.e., pregnancy outcomes, fetal development, fertility, etc.) due to its endocrine-disrupting properties. By virtue of the placenta position between the maternal environment and the fetus, phthalates can cross the placental barrier in different ways to continuously expose to the fetus during pregnancy. Recent studies have found endocrine disruptors can affect the placenta tissue, which can cause irregular essential hormone secretion and abnormal placenta development. It is still unknown what is the pathway of phthalate toxicity in the placenta tissue and how it is related to pregnant women and fetal health. By using the first trimester 3D placental and fetal organoid models, we can understand the underlying pathway of phthalate exposure in the placental tissue by observing the structure of villi and the RNA expression of selected candidates of essential functions in the placenta. This research can provide more scientific insights on the risk of phthalate exposure in pregnant women and their children. The research findings will also inform the design of future interventions to mitigate the exposure to phthalate among the susceptible population in Taiwan.

Bio: Hai-Wei received a B.S in Nutrition from Taipei Medical University, Taiwan, and an M.S in Environmental and Occupational Health from National Yang-Ming University, Taiwan. She is currently a Ph.D. student in the Graduate School of Public Health at the University of Pittsburgh.

Her research interests targeted how environmental pollutants exposure (endocrine disruptors, specifically) alters pregnant women and infant health by incorporating epidemiology data and bench work results. Her recent work in the laboratory has developed an in vitro 3D placental organoid model to examine chemical exposures on placental function. Her career goal is to become an independent researcher that could apply innovative lab approaches to answer questions from epidemiology research.

Point of care diagnostics. Opportunities for Taiwan's healthcare and biotech industry

Duane Juang 莊堵安

Pathology and Laboratory Medicine, University of Wisconsin-Madison

Abstract: The COVID-19 pandemic has exposed the challenges in scaling quantitative PCR (qPCR)-based diagnostic technologies for large-scale infectious disease testing. These challenges include the lengthy, complex nature of qPCR assays, the requirement of costly instrumentation, infrastructure, and personnel, and reagent and consumable shortages stemming from supply chain constraints. These barriers in technology and cost have also resulted in large disparities in access to COVID tests between high-income countries and low- and middle-income countries.

My research over the past few years has primarily focused on developing in vitro assays aimed at point-of-care diagnostics. These assays are designed to be simple to operate, performed on-site or at home (as opposed to a central testing laboratory), have a rapid turnaround (results within hours), are highly accurate, and are much lower cost, with the overarching goal of "democratizing diagnostics", i.e., making medical diagnostics more accessible to everyone.

Taiwan's outstanding public health and economic performance during the COVID-19 pandemic has not only showcased the effectiveness of Taiwan's public health response and medical system but also brought international awareness to the importance of Taiwan's manufacturing capabilities in a modern digital world. These strengths in medicine and manufacturing mean Taiwan is well-positioned to play an essential role in developing next-generation point-of-care diagnostic technologies, in line with the future trends in precision medicine, decentralized diagnostics, and telemedicine.

In this presentation, I plan on discussing how Taiwan's medical expertise and advanced manufacturing capabilities in electronics and plastics may give us an edge in developing next-generation point-of-care diagnostic technologies. I will also share some of my personal academic endeavors that are relevant to this topic. These include 1) a simple, rapid, accurate, and low-cost nucleic acid amplification test (NAAT) for COVID-19 called the Oil Immersed Lossless Total Analysis System (OIL-TAS), and 2) an electrical immunoassay technology called the Proton-ELISA, developed in collaboration with Taiwan Semiconductor Manufacturing Company (TSMC).

Bio: Duane Juang is a first-year postdoctoral researcher at the Department of Pathology and Laboratory Medicine at the University of Wisconsin-Madison. He received his bachelor's degree from the Department of Life Science at National Tsing Hua University, and his Ph.D. from the Department of Biomedical Engineering at the University of Wisconsin-Madison. His primary research focus is on the development of devices and assays for medical diagnostics and biomedical research, with a focus on microfluidic technologies. Throughout his academic training, he has authored 15 journal articles (5 first author), and 7 patent applications. Duane previously served as the president of the Student Association of Taiwan (SAT) at the University of Wisconsin-Madison from 2019 to 2020.

From Printing to Recording: How Media Change Shapes the Ethnic Identity for Taiwanese Americans 從油印到錄音：媒介轉換中的臺美人族群認同擴散

Grace Ying 應修平

Taiwan Social Research and Cultural Studies, National Yang Ming Chiao Tung University

Abstract: Founded by Morgan and Eileen Chang in New York, the Voice of Taiwan (台灣之音, VOT) served as a broadcast station for the Taiwanese American community from 1977 to 1982. With answering machines as the communication media, the VOT first broadcast local community news and messages. In the wake of the Tangwai (outside the party) movement, the station started to broadcast political news regarding Taiwan's democracy movement. It witnessed several crucial incidents in history, including the human rights declaration from the Presbyterian Church in Taiwan, the break in diplomatic relations between Washington and Taipei, the Formosa Incident, and the Chen Wen-cheng Incident. The VOT managed to break through time and space limitations using pre-recorded tapes, allowing overseas Taiwanese people to receive information more easily. These tapes are not only valuable historical materials but also key witnesses to Taiwan's democracy. Prior to the establishment of the VOT, Morgan and Eileen Chang launched a journal for Taiwan Union Christian Church in New York in 1973 and worked as chief editors till 1976. During this time, they started a column called "Breakthrough Day," (出頭天專欄) which was dedicated to following news and reports on Taiwan's self-determination and human rights status. In March of 1974, the journal was officially named Taiwan Christian United Press of North America (海外基督徒聯合通訊) and became a church news platform for Taiwanese Americans in several cities ever since.

This study lays emphasis on the handwritten and printed Taiwan Christian United Press of North America from 1973 to 1979 and the recordings from the VOT. First, I will start by briefly introducing these two types of media, including their target audience and forms of communication, and showcase how the same issue can be presented through different types of media in Taiwan's context. Then, I will analyze the technical transition from printing to recording and examine how the VOT utilized answering machines and its media specificity to reach more audiences and eventually construct a broadcast network through voice-based communication. Back in the 1970s, when information spread slowly, overseas Taiwanese Americans managed to organize demonstrations, petitions, and protest marches in various cities against all odds to support Taiwan's democracy and human rights. It is evident that communication media played a crucial part. In addition, I believe that Taiwanese Americans were building their self-identity piece by piece as they engaged in these actions. Finally, with the content from the VOT in 1979, I will analyze how this form of media depicted Taiwanese Americans as agency in support of Taiwan's democracy movement and eventually shaped the ethnic identity of Taiwanese Americans.

Bio: 應修平（Grace Ying）碩士畢業於國立臺灣師範大學表演藝術研究所劇場及創作組，現就讀國立陽明交通大學社會與文化研究所博士班，研究興趣爲媒介理論、聲音研究、臺美人媒介史以及族群認同等。2015年開始擔任劇場製作人及編劇至今，2020年以北美「台灣之音」歷史創作紀錄劇場《抵抗的義務—The Voice of Taiwan》並至臺北、臺南、彰化等地演出。

A Comparison of Teach for America and Teach for Taiwan-

A Case Study of Implementation in Rural Taiwan

Mike Yuchuan Shen 沈育全

Education Policy, Organization and Leadership, University of Illinois Urbana-Champaign

Abstract: To solve the education issues of under-served populations, the most common solutions are traditional governmental policies, budgetary and charitable contributions. However, the empowerment initiative could be a new player between the two sides to create innovative solutions. I employed the example of Teach For America to bring the mindset of social entrepreneurship in education across the Pacific to Taiwan. Teach For Taiwan is a relatively new non-profit organization since 2013, which was established by a group of younger generation who share the same vision to provide schooling to under-served populations. This organization has gradually become more influential and recognized not only by the government but also by the private sectors and the public. It is worthwhile to investigate and analyze its social impact in its early stage. I also argue that the result would be a significant reference for related educational research about rural Taiwan in the future.

Social entrepreneurship has become one of the innovative ways to provide an alternative for the public to solve social issues all over the world. These concepts of social enterprise and social entrepreneurship are relatively mature in the US context. However, they are emerging concepts in the Asia-Pacific region. The significance of the study is to discuss social entrepreneurship as an initiative and its applicability to education in rural schools and communities in Taiwan. In this study, I focused on these key research questions. What are the challenges and opportunities to bring an educational model developed in the US to another social context? Is Teach For America, with its social entrepreneurship perspective, a suitable model for Taiwan? How does it differ from the existing system? How did the social entrepreneurship model of Teach For Taiwan adjust and adapt to local educational environments in Taiwan? By focusing on the intersectionality of local contexts, culture, and conditions, this study investigated whether the model of social entrepreneurship in education can solve the education problems, especially teacher shortage, in under-served and rural Taiwanese communities.

Bio: Mike Yuchuan Shen is a Ph.D. candidate for Global Studies in Education and outreach coordinator at the Center for East Asian and Pacific Studies at the University of Illinois Urbana-Champaign. He received his MS in Global Affairs at New York University, and his research interests focus on international education, education entrepreneurship, and Teach For Taiwan. As a multicultural international affairs, education, and business professional, he also held an MBA degree and studied abroad at the University of Helsinki in Finland, which focused on developing intercultural competence. Before joining the University of Illinois, he previously served as an international adviser at the United Nations in New York and director of student and academic affairs at private and public schools in Tokyo and Taiwan.

Reading Textiles and Empire in Colonial Taiwan

Yu-Ning Chen 陳昱甯

East Asian Languages and Cultures, Washington University in St. Louis

Abstract: This presentation centers on the various roles played by the textile known as muslin in colonial Taiwan (1895-1945). Muslin is a fabric that has a long history of use in India and Europe. In the present day, muslin is a fabric used in sofas and babies' clothing, and it is quite distant from clothing styles that might be considered fashionable. Additionally, for most of its history, muslin was a cotton-based fabric. However, in prewar Japan, muslin was not cotton-based, but wool-based. At the time, muslin was first used for military uniforms. In the 1910s, however, muslin became a mainstay of Japanese consumerism and thus was absorbed into Japanese fashion. At the same time, the muslin entered modern Japan's print media ecosystem. Muslin played a strikingly visible role in the textual production of imperial Japan, appearing in texts associated with the economy, social movements, popular culture, literature, and colonialism. In both print media and in department stores, muslin functioned as a symbol of the grandeur of Japanese imperialism on the one hand, and as a representation of the Japanese empire's transnational linkages within capitalist modernity on the other.

As a colony of the Japanese empire, Taiwan tended to adopt many of the fashion trends that were popular in the Japanese home islands. Muslin, however, represented an exception to this rule. In contrast to muslin's popularity within the Japanese home islands and within colonial Korea, the fabric was considerably less popular in the markets and texts of colonial Taiwan. In particular, muslin was less popular than cotton and silk, which were the textiles most often used in Taiwanese traditional clothing. This presentation attempts to delve into some of the reasons for the devaluation of the muslin in colonial Taiwan. Through an analysis of critical writings on muslin on the part of Taiwanese intellectuals in the newspapers of Taiwan's colonial period, this presentation argues that critiques of imperial Japanese fashion had an important role to play in the development of Taiwanese identity.

Bio: Yu-Ning Chen is a Ph.D. candidate in the East Asian Languages and Culture and Comparative Literature departments at Washington University in St. Louis. She is also an adjunct instructor at Randolph Macon College. Her research interests include clothing and textiles in modern literature and culture, textile culture, and East Asian sartorial fashion.

The Uniqueness of Taiwan's National Museums

Pin-Yi Li 李品儀

Department of Anthropology, University of Wisconsin-Madison

Abstract: The goal of my presentation is to provide the audience with a basic yet novel understanding of the most important national museums in Taiwan in terms of our national history, including the National Taiwan Museum (國立臺灣博物館), the National Palace Museum and its Southern Branch (國立故宮博物館和故宮南院), the National Museum of History (國立歷史博物館), the National Museum of Taiwan History (國立臺灣歷史博物館), and the National Museum of Prehistory, Taiwan (國立臺灣史前文化博物館). I will first introduce how the national museums create the imagination of Taiwanese identity by constructing the narratives of Taiwanese history. Further, I will highlight the uniqueness of Taiwan's "museumscape" (in Anthropologist Arjun Appadurai's sense) that values the country's cultural diversity and democratization. Next, I attempt to answer the following questions: Why do these selected Taiwan's national museums matter? In what sense it is necessary and urgent to utilize ethnographic research methods for understanding the diversified and localized museums? How do we evaluate their contributions to Taiwan's nation-building? Potentially, Taiwan's case study is comparable to the neighboring countries, particularly those that either experienced western and Japanese colonialism, or are impacted by the encounter with China. Finally, with the analysis of how the Japanese and Chinese museum collections are situated in the museums and how people's everyday life is historized, I will categorize the models of national museums in Taiwan by observing the certain strategies and techniques applied in the museum settings. In conclusion, the uniqueness of Taiwan's national museums lies in their diverse characteristics and the approaches to different parts of historical narratives.

Bio: Pin-Yi Li is a Ph.D. student in the Department of Anthropology at the University of Wisconsin-Madison with a scholarship of government sponsorship for overseas study from Taiwan's Ministry of Education. Her current dissertation project title is "National Museums in Taiwan: Negotiating the Taiwanese Identity." Her broad research interests intersect with museum anthropology, postcoloniality, and national identity, with the geographical area focus on East and Southeast Asia. Prior to coming to UW-Madison, she completed her BAs in Anthropology and in Chinese Literature, and her MA in Anthropology, both at National Taiwan University. In her leisure time, she enjoys traveling, cooking, painting, reading, and not surprisingly, visiting museums.

Specialized Measurement Equipment for Observation of Local Circulation in Taiwan Under Climate Change

Mu-Hua Chien 簡睦樺

Applied Mathematics, New York University

Abstract: Extreme weather events change our lives, and Taiwan has suffered from drought and superstorms for years. Our understanding of the evolution of these extreme weathers remains limited. Traditional observation can track the long-term evolution, but the evolution of weather systems under climate change requires more data to reconstruct. Sounding is valuable data that can provide vertical information about the atmosphere, and climatologists learn the global circulation based on the data provided by the sounding. The Storm-Tracker was developed at the department of atmospheric sciences, NTU, and it can be applied to collect the full view of the local weather system due to its affordable cost. For example, the interaction of topography and winter monsoon in I-Lan is better resolved by involving Storm-Tracker in the short-term and high-frequent observation. The progress on the complicated science question highly relies on the development of affordable made-in-Taiwan equipment. The advance in Storm-Tracker can be integrated into cooperation with other observations worldwide and help people better prepare for climate change.

Bio: I am a Ph.D. candidate at the Courant Institute of Mathematical Sciences, New York University, working on climatology problems. My research applies applied mathematical ideas, including numerical simulation, to understand our Earth's climate system. Besides academia, I am a Taiwanese activist fighting for Taiwanese independence and have been involved in the Taiwanese community since 2017.

Simulate Weather Extreme in Climate Model

Chi-Jui Chen 陳麒瑞

Atmospheric Sciences, Texas A&M University

Abstract: Climate Change is the biggest natural disaster for humans in this century. As a result of climate change, more frequent and more intense extreme weather threatens human security, such as cold spells, heat waves, droughts, and floods. With the potentially large impact on economics, politics, and society, there are efforts being put into these issues. In the Scientific part, we use physical models and historical observation data to project future climate. However, even the climate models widely used by the community have only one degree (~100 km) resolution. The climate projection, like global temperature, discrepancies of models do not improve much with time in decades. Further, the extreme weather in the future climate state has even larger uncertainty. With the 100 km - resolution, we are unable to simulate hurricanes and thunderstorms. The lack of model resolution combined with wrong climate states won't give us the right aspect of the frequency and intensity of these extreme events. In this talk, I'll show how we apply initialized ensemble method combined with the Regional Refinement Mesh technique to DOE's state-of-art climate models to better simulate climate states and extreme weather in them.

Bio: Chi-Jui Chen is a Ph.D. student at Atmospheric Sciences, Texas A&M University. Before this, he received a bachelor's degree in Physics from National Taiwan University. His research interest includes climate sciences and weather extreme. Specifically, he studied tropical cyclones in West Pacific, East Asian Monsoon, US east coast snowstorm, and the 2021 Pacific North West heat wave.

Three-Dimensional Atom Probe Tomograph and its Development in Taiwan

Chia-Pao Lee 李嘉寶

Materials Science and Engineering, Northwestern University

Abstract: 3D Atom Probe Tomography (APT) is currently one of the most powerful materials characterization technologies despite its young history, as it provides three-dimensional composition mapping with single-atom sensitivity, which is the highest available spatial resolution for chemical analysis among major microscopy techniques such as (S)TEM and SIMS. This advances the accuracy of materials science research and could deepen our understanding of precipitations reactions, interphases features, solute-atom clustering phenomenon, short-/long-term order of materials, and crystallographic defects. The technique has been applied to various disciplines, such as metallurgy, semiconductors process design, energy materials, and even, geology and biology investigation.

Taiwanese scholars have played significant roles since the premature development of APT including polishing the theory of field evaporation as well as instrument building of the early pulsed-laser atom probe in the 1980-90s. Today, Taiwanese scholars around the globe continue to contribute to the frontiers of this technology with publication in prestigious journals such as *Science*. While there are Taiwanese talents in the field, there are gaps in the investment in the equipment in Taiwan, slowing the research progress. So far, there has not yet been any active APT instrument for academic institutes in Taiwan while there are plenty in East Asia, including Japan, China, and Korea.

Despite the limitation, researchers in Taiwan are building a new study community of APT technology with theoretical lectures on college campuses, industrial talks, and international cooperation to keep track of the latest developments. In 2018, the first Taiwan Workshop on Atom Probe Tomography was held with speakers around the world and some returning Taiwanese scholars after studying abroad. Also, the APT research community has consistently advocated for installing the APT equipment in universities and Academia Sinica.

In this presentation, the historic evolution of APT, the fundamental principles of the instruments, and the applications will be introduced. The contribution of pioneering Taiwanese scholars will also be highlighted. Then the recent development of the APT community in Taiwan and the forefront research conducted by overseas Taiwanese scholars will be discussed.

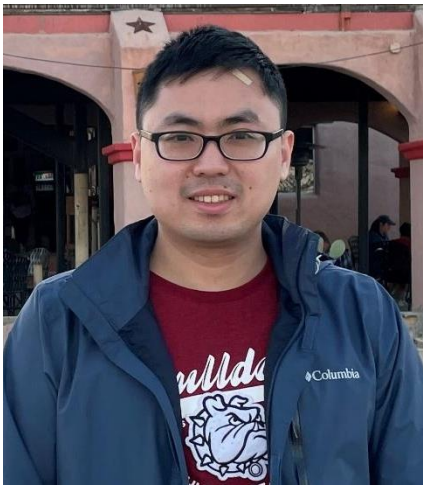
Bio: Graduated from National Taiwan University in 2017 with a Bachelor of Science in Materials Science and Engineering and Bachelor of Arts in Political Science (International Relations division), Chia-Pao Lee is currently a Ph.D. candidate in Material Science & Engineering, at Northwestern University. His research focuses on metallic structural materials, especially the microstructure of steels and the corresponding performance. Besides academic research, he is passionate about public affairs. He served as the former president of Northwestern Taiwanese Student Association and led the first officially recognized Taiwanese group in the Chicago Pride parade 2019 as well as the Midwest US division of “2020 海外青年回臺投票計畫”. He was also the recipient of the Government Scholarship for Overseas Study by the Ministry of Education, and the MOFA Domestic Students Scholarship from the Ministry of Foreign Affairs of Taiwan.

Automated Machine Learning with Constraints and Imperfect Data

Yi-Wei Chen 陳伊瑋

Computer Science and Engineering, Texas A&M University

Abstract: Automated machine learning (AutoML) enables machine learning to find the optimal training configuration for different real-world applications, such as finding hyperparameters and network structures for deep learning. In the presentation, I will discuss an AutoML framework utilized in practical environments: (1) noisy labels (2) model parallel (3) deployment constraints. Specifically, label noise corrupts the labels of training instances. I use the robust loss function in neural architecture search (NAS) to mitigate the biased network structure caused by harsh label noise. Moreover, NAS consumes massive GPU memory. It will restrain NAS from large batch sizes and large search spaces. I will present binary neural architecture search (NASB) with consecutive model parallel (CMP) to tackle the problem of insufficient GPU memory. Finally, deploying machine learning models in the real world requires high model quality and needs to comply with application constraints. The demand motivates hyperparameter optimization (HPO) to tune model configurations under deployment constraints. I propose an Adaptive Constraint Early stopping (ACE) method to measure the constraint checking frequency and early stop ineligible trials. This presentation will use AutoML to summarize the latest progress in machine learning in Taiwan.



Bio: Yi-Wei Chen is a Ph.D. student in Computer Science and Engineering at Texas A&M University. His current research focuses on automated machine learning, neural architecture search, and hyperparameter tuning. He received his B.S. degree in Electrical Engineering in 2012 and M.S. degree in Computer Science and Information Engineering in 2015 from National Taiwan University. He served as President of the Taiwanese Student Association at Texas A&M University from 2020-2021. Currently, he is the event organizer of the Taiwan Study Club in College Station, Texas. Motivated by NATPA 2019, Taiwanese is the major language used in his family.

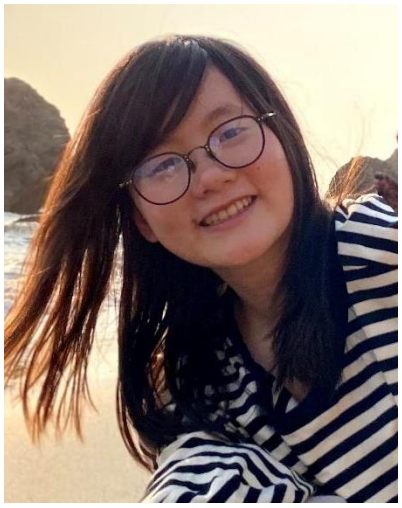
台灣再生醫學與視網膜幹細胞治療的展望

Chia Chun Liu 劉珈君

Ophthalmology, University of Pittsburgh

Abstract: 青光眼，造成人類失明的第二大主因，隨著眼壓的逐漸上升會導致後房中負責傳遞大腦視覺訊號的視網膜節細胞(RGC)不可逆的死亡，也損壞了視神經。我們建立人類胚胎幹細胞分化成的Retinal organoid做爲更接近人類實際細胞環境的模型，可進行各式藥物及篩選，試圖找到能延緩視神經壞死的藥物，幹細胞在培養至90天時有最高的視網膜節細胞表達量，後續經由micro magnetic-bead純化後，可取得95%純度的RGC，經純化後的RGC可植入小鼠眼睛內，希望透過幹細胞再生的特性重建與大腦的視覺刺激連結。我們也繼續透過RNA sequence分析可能促進RGC 分化的基因，期許能加速幹細胞成熟，並有機會作爲基因治療視網膜損傷的關鍵。

21世紀將從藥物治療邁向細胞治療的新紀元，台灣也在2018年開始草擬「特定醫療技術檢查檢驗醫療儀器施行與管理」的草案，即使已經逐步開放自體幹細胞的治療，但在法規上要建立一個能接受異體幹細胞移植的細則還是一件不容易的事。



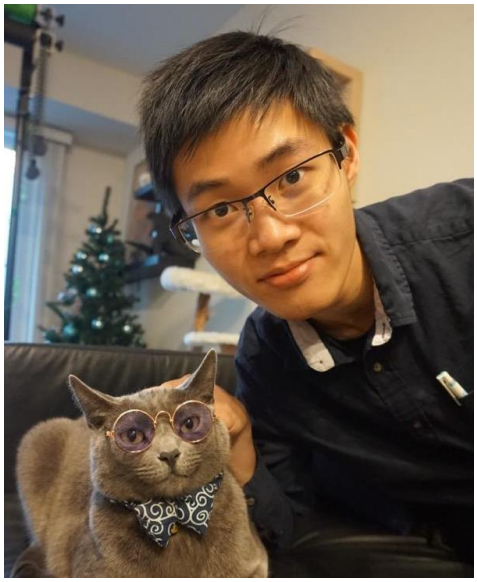
Bio: Grow up in Kaohsiung, an outgoing and easy-going girl, Chia-Chun is a research assistant in University of Pittsburgh, Ophthalmology. Focus on stem cell therapy and retinal ganglion cell development as well as gene and cell replacement therapies for glaucoma and optic neuropathy. She graduated from National Cheng Kung University, where she majored in Medical Laboratory Science and Biotechnology. She also got her master's degree at National Tsing Hua University, where she started to be involved in the retinal field. During her free time, she likes to cook, play table tennis, and basketball, and watch movies or baseball games.

以穿戴裝置數據預測創傷性脊髓損傷病患之行走能力復元機率

Eric Shiao 蕭季威

Bioengineering, University of Pittsburgh

Abstract: 創傷性脊髓損傷常發生於病患受到劇烈物理性衝擊或意外導致脊髓受損，例如車禍或是運動傷害等。此類損傷會造成暫時或永久性的神經功能障礙，並進而影響病患的運動與感知能力。在台灣每年有超過5000例的脊髓損傷案例，而恢復行走能力通常是病患在術後的最大期望。病患術後會在康復中心進行復健運動，物理治療師會依據病患狀況給予不同程度的行走訓練及輔具使用訓練。由於時間有限，若過於著重行走訓練，病患雖能在神經修復性最佳的時期常識恢復行走能力，但會相對壓縮到輔具訓練的時間， 因此病患也必須承擔一但未能恢復行走能力則無法自如使用輔具，反而降低生活品質的風險，反之若著重於輔具訓練則有可能錯失行走訓練的黃金時期。臨床評估量表建立的目的就是輔助物理治療師預測不同病患恢復行走能力的機率，並給予適合的治療行程，但是目前的量表對於損傷分級介於中段並有較大變化性的病患無法提供準確的預測，而這類病患其實是最需要量表進行評估輔助的。同時，目前的量表只預測病患未來是否可能可以行走，但對於可以行走多遠、維持多久等皆無法進行評估。我們的研究引入穿戴裝置於復元評估中，以裝置所量測之加速度數據產生多項特徵值，並導入機器學習模型中進行預測，此模型使我們得以產生更加準確且更爲多元之新式量表。未來可更進一步帶入台灣病患之數據，以產生專供台灣脊髓損傷病患使用之評估方式，利於物理治療師之早期判斷、增加病患復健效率以及節約健保相關支出。



Bio: Eric Shiao is a Ph.D. student in the Bioengineering Department at the University of Pittsburgh. He currently works in the Rehabilitation and Neural Engineering Laboratory (RNEL) on spinal cord injury and machine learning topics. Before coming to the US, Eric’s research focused on medical devices and rehabilitation. He has joined several clinical projects that cooperated with the National Taiwan University Hospital and turned most results into patents. Up to date, he has 12 publications and 8 patents. He is also a NI Certified LabVIEW developer.

A Scoping Review of Work-Related Studies in Nurses Diagnosed with Cancer

Kai-Lin You 游鎧璘

School of Nursing, University of Pittsburgh

Abstract

Background and Significance: The current pandemic along with an aging, retiring workforce magnifies the national nursing shortage. Health systems are acutely focused on nurse retention to meet patient care needs. However, as an understudied population, nurses with cancer may struggle to return to work following a cancer diagnosis. The scope of work-related studies in nurses with cancer is unclear and mapping the key concepts underpinning this field is needed. This study aims to examine and map the work-related concepts and to identify knowledge gaps to inform future work-related studies in nurses with cancer.

Methods: Our research team searched three electronic databases (PubMed, Ovid APA PsycInfo, and EBSCOhost CINAHL) and extracted articles published through April 2022 following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews checklist. Article inclusion criteria included articles with participants who were: (1) adults and registered nurses; (2) priorly diagnosed with invasive cancer; (3) employed primarily in clinical settings; and articles describing work-related issues.

Results: A total of 1402 articles were identified, and eleven articles met the inclusion criteria. Nine of the eleven included articles were qualitative, and two were quantitative. Most study participants were females (293/296, 98.9%) diagnosed with breast cancer (n= 159/296, 53.7%). The sample sizes of participants varied from 1 to 130 (Median= 1, Q1, Q3=1, 25). Identified work-related concepts in nurses with cancer are role adjustment in work, impact of cancer-related symptoms on work, organizational support, coping strategies for work, gaining insights to provide better patient care, workplace spirituality, and quality of work life. The identified articles lacked a theoretical framework with a limited diversity of samples noted.

Clinical Implications: The results illuminate that nurses with cancer have many work-related concerns which prevent them to return to work at full capacity. For future research, we suggest expanding recruitment on diverse groups of nurses with cancer, further investigating levels of cancer-related impacts on work, and developing interventions to support their nursing careers and retention in the healthcare workforce.

Bio: Kai-Lin is a doctoral student at University of Pittsburgh School of Nursing. She received her bachelor's and master's degrees in Nursing at National Taiwan University. Her research interests cover survivorship issues, serious games, and social determinants of health in patients with cancer. She is leading studies to explore return-to-work experience and its barriers and facilitators in nurses with cancer. Kai-Lin is also actively involved in leadership and service to the student and nursing community. She was a president of the Taiwanese Scholars Society at Pitt, serves as a student ambassador in the American Medical Informatics Association, and is a committee member in the Eta Chapter of the Sigma Theta Tau International Honor Society of Nursing.

Correlative mapping of neuronal function with morphology using Brainbow and expansion microscopy

Tzu-Wei Kuo 郭子維

Cell and Developmental Biology, University of Michigan

Abstract: Nowadays, It is still challenging to reconstruct detailed morphological and functional features of large quantities of neurons. Here, we proposed and applied a high-throughput method in primary visual cortex (V1) to tackle this challenge. Technologies such as two-photon microscopy, Brainbow, expansion microscopy with multiplexed immunofluorescence, high-speed light microscope and semi-automated computer algorithm are integrated to generate the correlative images and investigate the potential link of neural activity and morphology.

Bio: Ever since I was a medical student in Taiwan, I have been very curious about how brain works and deeply fascinated with the complexity of nervous system. Aiming to become a top neuroscientist, in 2012, I went to UCSF to study hypothalamic circuit and innate behaviors in my PhD. In 2020, I started my postdoc at University of Michigan to continue develop technologies that solve the neuroscience puzzles. Moving from evergreen San Francisco to snowy but seasonal and sensational Ann Arbor is definitely an interesting experience!