The University of Hong Kong  
Department of Geography  

Proposed Topics for  
Directed Project (GEOG4002/4) / Honours Dissertation (GEOG4003) 2022-2023  

This document includes:  

1. proposed topics and their descriptions by all teachers  
2. research areas of our teachers  
   (there are 20 teachers, including two Postdocs and three new appointment teachers)  

You may also refer to our departmental website: https://www.geog.hku.hk/full-time-academic-staff for more information about teachers.  

You may:  

1. take a look at proposed topics and their descriptions  
2. contact your potential supervisor to request further discussion/meeting if his/her topic is suitable for you (You may do some preparation first and thereafter contact your potential supervisor)  

If you can’t find any topic you want to explore OR you want to create your own research project:  

1. take a look at the research areas of teachers  
2. contact your potential supervisor if his/her research interest seems to fit your ideal project  
   (You are strongly advised to do some preparation first, and then contact your potential supervisor)  

For other details and procedures, please feel free to consult:  

   (https://www.geog.hku.hk/_files/ugd/21d32f_e668e0203eee41299b552de52c9adfe9.pdf)  
2. Capstone course coordinator, Dr Ben A GERLOFS, bgerlofs@hku.hk  
3. General office of the Department of Geography, geogug@hku.hk, Room 10.23, 10/F, JCT, Centennial Campus
Proposed topics for
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Dr. Patrick ADLER (adler@hku.hk)

Research areas:
- Economic Geography
- Cultural Geography
- Linear Regression
- Survey
- Interviews

Proposed topics:
1. The Creator Economy Ecosystem
   The goal of this project is to understand, on a global basis, how platform-based creation is organized. While creators themselves are the most visible actors in creation, their success depends on interactions with each other, publicity and marketing apparatuses, platform owners, advertisers, and fans. This exploratory study will survey the ‘life’ of creator content prior to and after its publication, as a way of understanding how value is generated in the sector.

2. Hong Kong NFT Market: Curation and Valuation
   This project will investigate determinants of prices of NFTs among Hong Kong buyers. It will involve identifying appropriate datasets, conducting statistical analyses, and interviewing participants in the NFT market.

3. The Diffusion of Economic Development Practices
   Economic Development policy unfolds in a social setting where mimicry and bandwagon effects are possible. A given policy can be adopted because it makes sense on its merits, but the determination of good policy might also be influenced by social pressures acting upon policymakers. This project recruits the methods of innovation diffusion analysis to study how policies spread across time and space. A focus will be on policymaking in the United States and Asia, but collaborators will be free to choose their own setting for the research. Similarly, they can use quantitative, ethnographic or mixed-methods approaches in their work.

4. Local Occupational Structure and Green Job Formation
   The transition to greener forms of energy production can be result in job displacement or formation. As an example, economies involved in coal energy production stand to lose jobs during this transition while those with potential for wind power resources stand to win. This project contemplates the extent to which a labor market’s existing occupational structure (i.e. it skill base, skill level, age dynamics) make it more or less likely to add green jobs. This is a quantitative study that will involve an analysis of US labor market data.
Dr. Wesley ATTEWELL (wlha@hku.hk; new staff in the academic year 2022-2023)

Research areas:
- The Infrastructures of Transpacific Empires
- The Vietnam War in Hong Kong
- Diasporic (sub)urbanisms
- The Logistical Life of Global Asia

Proposed topics:
1. The Infrastructures of Transpacific Empires
   Recent work in geography, Asian diaspora studies, and other related fields has started to think relationally across the multiple spaces, times, and scales of US, British, and Japanese empire-building in Asia and the Pacific. This project extends this literature by foregrounding the infrastructural – and by extension, the geographical – dimensions of these various imperial projects. It asks: how did US, British, and Japanese imperialists use infrastructure as a way of extending and securing their hegemony over transpacific space? If infrastructures can be understood expansively as the networked systems that build, sustain, and order life, then what role has infrastructure – in both its obvious (transportation networks, utility projects, military bases) and less obvious (intimacy, care chains, labour recruitment) forms – played in the imperial management of bodies, populations, and circulations? And more generally, how might attending to infrastructure’s entanglements with empire help us move beyond narrowly technical understanding of the term towards one that emphasizes its contradictory, contentious, and political nature?

2. The Vietnam War in Hong Kong
   This project aims to better understand how the Vietnam War shaped the geographies of everyday life in Hong Kong. During the war, Hong Kong served the US military-industrial complex as a “rest and recuperation” site, as well as a strategic source of essential services to the broader war effort. When Saigon fell to the National Liberation Front in 1975, Hong Kong also became a key node in a broader infrastructure of Vietnamese refugee transit. What can Hong Kong’s connections to the American invasion and occupation of Vietnam tell us about its entanglements with broader transpacific geographies of power, violence, and resistance? And how are these historical geographies felt as an inheritance in the present moment?

3. Diasporic (sub)urbanisms.
   Geographers have long studied the connections between migration and urbanization across Asia and the Pacific Rim. This project considers the explicitly suburban dimensions of these processes. Drawing inspiration from scholars such as Karen Tongson and Laura Madokoro, we will consider how diasporic migration flows within Asia - as well as to settler states such as Canada, the United States, and Australia - have produced new suburban forms. We will ask: to what extent are these new suburban geographies shaped by and entangled with the everyday work of transpacific empire, racial capitalism, and settler militarism? To what extent have they also served as terrains of decolonization, demilitarization, and abolition? Here, we will pay specific attention to diasporic suburbia as a locus of political activism and community organizing.
4. The Logistical Life of Global Asia

The Asia-Pacific region has long served as a key logistical node in the global supply chains that sustain late racial capitalism. The outsourcing revolution of the 1970s and 1980s offshored industrial production from North America and Europe to Asia. This globalization of the “social factory,” as Deb Cowen puts it, significantly reconfigured the geographies of commodity circulation and, by extension, helped further revolutionize the everyday work of capitalist logistics. More recently, China has sought to transcend its late 20th century role as the “factory of the world” through its “Belt and Road Initiative,” which champions transnational infrastructural development projects as a means of linking Asia, the Middle East, and Africa through a so-called “New Silk Road.” This project explores how these and other spectacular logistical undertakings touch down and become grounded in the spaces of the intimate and the everyday. How do families, households, and communities across Asia and the Pacific experience logistics as a conduit of power, violence, and uneven development? What happens when such globalized fantasies of smooth flow, efficient circulation, and on-demand delivery brush up and grate against what Charmaine Chua calls “their concrete materialities and social relations”? And given the centrality of global supply chains to the expanded reproduction of capitalist relations, both in Asia and elsewhere, how might they be reclaimed and repurposed into terrains of resistance and radical social transformation?
Dr. Yanjia CAO (yanjiac@terpmail.umd.edu; new staff in the academic year 2022-2023)

Research areas:
- Hong Kong SAR or sub-Saharan Africa
- Statistical approaches
- Spatial analysis
- Health care coverage
- Disease distribution

Proposed topics:
1. **Space-time pattern of COVID-19 in Hong Kong**
   We are reaching the end of the COVID-19 pandemic now. It is a good time to do a retrospective research and look back how COVID-19 evolved over space and time in Hong Kong. When and where were the hotspots of COVID-19 and how these hot-spots are associated with local neighborhood characteristics.

2. **Evaluating COVID-19 vaccine coverage in Hong Kong**
   As COVID-19 hit hard in Hong Kong recently, it is important to investigate the vaccine coverage and access in Hong Kong. The objective is to identify the coverage of COVID-19 vaccine stations and evaluate the accessibility and population/patient coverage.

3. **Greenspace coverage and access in Hong Kong**
   Greenspace has been associated with many health outcomes, for example, obesity, depression and lung cancer. The objective of this research is to evaluate the coverage of greenspace in Hong Kong and how accessibility are these green spaces. Health implications will be discussed in the project as well.

4. **Space-time prevalence of HIV in sub-Saharan Africa**
   HIV has long been a serious disease in Africa and has impacted the overall health situation in the region. The objective is to investigate the spatial and temporal pattern of HIV prevalence in this tropical area and provide future directions for HIV intervention for the countries.
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Prof. Wendy Y. CHEN (wychen@hku.hk)

Research areas:
• Urban China
• Urban green and blue infrastructure
• Social survey
• Environmental management

Proposed topics:
1. Urban greening in Chinese cities
   Using statistical data to check the spatial and temporal pattern of urban greening in Chinese cities.

2. CSR in Hong Kong
   Using social survey to associate Hong Kong residents’ perception and expectation of CSR.

5. Urban river restoration in Hong Kong
   Using social survey to investigate Hong Kong residents’ expectation of river restoration.

6. Health benefits of urban parks
   Using a social survey with a set of psychological indicators to explore what natural elements could provide health benefits for park users.
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Dr. Ben A. GERLOFS (bgerlofs@hku.hk)

Research areas:
- Urban Change/Culture/Politics
- Ethnography
- Visual Methods
- Gentrification
- Media and Perception

Proposed topics:
1. Understanding Hong Kong’s Place in Cinema
   This project would systematically explore Hong Kong’s contemporary and/or historical cinematic portrayal, focusing on a specific genre, time period, and/or production category (among other possible variables). The project would examine the city’s various appearances as setting (a place where certain things happen or are possible) and/or character (the city as protagonist/antagonist, the city that evolves, adapts, provides, seduces, kills, haunts, etc.) in film, along with its analytically apparent normative treatment (derision, laud, curiosity, etc.) by the auteurs in question. The project’s dual objectives would be to better understand both perceptions of Hong Kong and how real and fictive urban geography can serve artistic and narrative purposes. Project specifics to be elaborated in collaboration with Dr. Gerlofs.

2. Humor, Laughter, and Comedy in Contemporary Hong Kong
   This project would use interviews and participant and/or passive observation at live comedy events and/or recorded episodes to explore the geographies of humor and laughter in contemporary Hong Kong. Particular research foci may include: humor and laughter as coping strategy; the spatiality and territoriality of humor in Hong Kong; the impact of COVID-19 and/or associated government policy on the economies and experiences of live comedy; differential experiences of humor and laughter at live comedy events in Hong Kong. Project specifics to be elaborated in collaboration with Dr. Gerlofs.

3. Making Geography Matter: Understanding Efforts to Enhance the Relevance of Geographical Scholarship across the Anglophone World
   This project would use a variety of methods to explore efforts to enhance the relevance of geographical scholarship across the Anglophone world. Such methods could include systematic review, textual and narrative analysis, semi-structured interviews, survey instruments, (etc.), drawing inspiration from the landmark study of Staeheli and Mitchell (2005), “The Complex Politics of Relevance in Geography”. Project specifics to be elaborated in collaboration with Dr. Gerlofs.

4. Pets or Protein: Understanding ‘Lively Commodities’ in Hong Kong
   This project would examine how Hongkongers’ relationships with animals, from those we live with as companions to those that end up on our dinner plates. Project specifics to be elaborated in collaboration with Dr. Gerlofs.
Dr. Benjamin IAQUINTO (iaquinto@hku.hk)

Research areas:
- Tourism
- Household sustainability
- Cultural dimensions of climate change
- Practice theory, mobilities theory, cultural geography theories
- Qualitative methods (eg. interviews, participant observation, ethnography)

Proposed topics:
1. **Is Hong Kong’s tourism industry doomed?**
   Tourism is an official pillar industry of Hong Kong’s economy but COVID-19 along with the associated travel restrictions and quarantine requirements have had a massive negative impact on the industry. This study will assess the viability of a locally based Hong Kong tourism industry by assessing the travel preferences of Hong Kong residents.

2. **A practice approach to household sustainability in Hong Kong**
   Studies on household sustainability have usually been based in Western contexts. In Hong Kong, where dwellings are smaller and the climate considerably warmer, options for reducing water and energy use are seemingly constrained. This study will assess everyday domestic practices to understand the potential for resource reduction in Hong Kong households.

3. **Hong Kong mobilities: the experiences of moving**
   Hong Kong has one of the most efficient and safest public transport systems in the world. But since the pandemic, the crowded spaces of Hong Kong’s MTR present a clear threat of contagion. The purpose of this study is to understand how experiences of riding the MTR have changed since the outbreak of COVID-19, and what this means for urban living.

4. **Student’s own topic**
   To discuss with teacher.
Dr. Peter K KOH (peterkoh@hku.hk)

Research areas:
- Health geography
- Cultural geography
- Economic geography
- Geography of Hong Kong
- Geography of South Korea

Proposed topics:

1. **Lifestyle changes after covid-19**
   Covid-19 has posed various social challenges to Hong Kong. Researchers are eager to examine the potential and/or noticeable changes in lifestyle before and after covid-19. This project aims to identify the foreseeable changes in lifestyle among Hong Kongers and examine their processes. Types of lifestyles (e.g., food intake habits, physical activity, daily commute/travel patterns) and the population (e.g., youth, young adults, adults, the older population, etc.) of the study are open. Both qualitative and quantitative approaches are welcome.

2. **Korean-wave (K-wave) and its impact on the world**
   Korean wave or K-wave is a term broadly covering all the types of pop culture and entertainment industry from South Korea. K-wave has gained more popularity in Hong Kong and worldwide during the past decades. This project will explore the historical, cultural, and socioeconomic background of the success of the K-wave and discuss its impact on the other parts of the world from diverse perspectives. This year’s work will focus on (1) examining how the K-wave has emerged and established as a postindustrial development strategy since the 1990s; or (2) exploring the similar/different aspects of “soft-power” in the global context. Common approaches to this theme may be qualitative approaches like a literature review, data analytic approaches, such as text analysis and topic modeling, can also apply to this topic.

3. **Access to everyday necessities in Hong Kong**
   This study will explore various aspects of “access” to daily needs in Hong Kong. While the accessibility to basic services and facilities in everyday life (e.g., food, recreation, school, healthcare, etc.) has been extensively studied in the western countries’ context, few studies have been performed in the East Asian context. This directed project aims to investigate the complexities of access to everyday necessities using multiple angles and perspectives (e.g., time, geography, resources, etc.) in Hong Kong. Quantitative/GIS approaches are recommended, but qualitative methods (e.g., review, questionnaires) are also acceptable.

4. **Systems science and population health**
   Since population health involves complex, dynamic interactions between multiple individual and environmental factors, “systems thinking”—a conceptual framework stressing the relationships and connections between constituent parts of a system rather than the parts themselves—has gained more attention among researchers, especially in public health, logistics, transportation, and food
sciences. This project aims to learn relevant modelling techniques of systems science (e.g., system dynamics, agent-based model, etc.) for a topic of population health. For example, the exposure level to air pollutants can be examined by an individual’s daily travel patterns to identify the vulnerable areas of air pollution and chronic respiratory diseases using a systems science method. This project requires an intermediate level of knowledge in statistics or GIS.
Dr. Nicky Y F LAM (yunlam@hku.hk)

Research areas:

- Urban Climate
- Environmental Monitoring and Policy
- STEM Education
- Air Pollution

Proposed topics:

1. Development of GIS-based education program for secondary students
   The student will conduct a GIS-based citizen science project with secondary students. The student will design and teach high-school students to use Arc-GIS to do map digitization.

2. Investigation of temperature patterns in the local school environment
   The student will conduct a measurement campaign using our newly developed low-cost environmental sensors to investigate temperature variability in secondary schools.

3. Survey of NOx pollution on outdoor sports facilities
   The student will conduct a field measurement campaign using a DOAS instrument to survey outdoor air quality.

4. Investigation of geospatial and seasonal influence on diurnal pattern of air pollution
   The student will collect hourly air quality data from Asia networks and analysis the diurnal pattern of air pollution.
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Dr. Yongsung LEE (yongsung@hku.hk)

Research areas:
- Travel behavior/shared mobility services/autonomous vehicles/information and communication technology (ICT)/perceptions and preferences/gentrification/smart cities
- The United States/Hong Kong/Seoul, South Korea
- Statistical programming & analysis/GIS
- Survey design
- Passively collected mobility data & machine learning

Proposed topics:
1. Visits to places of interest (POI) during the COVID-19 pandemic
   This project looks at residents’ visits to various types of places of interest (POI) in the United States as local infections, deaths, and control/prevention measures change over time during the pandemic. Interested students will work on data manipulation, statistical analysis, and spatial analysis to document changes in the patterns of such visits, in relation to the severity of local infections, in the U.S. since the beginning of the pandemic (in the late February 2020).

2. Use of shared mobility services during the COVID-19 pandemic
   This project looks at use patterns of ridehailing services (e.g., Uber/Lyft/Didi Chuxing/Grab) and shared bikes and electric scooters in major cities in the United States during the pandemic. Interested students will work on data manipulation, statistical analysis, and spatial analysis to document changes in the patterns, in relation to the fluctuation of local pandemic situations.

3. Changes in perceptions on and preferences towards information and communication technology (ICT) during the COVID-19 pandemic
   This project looks at changes in perceptions on and preferences towards information and communication technology (ICT) among panel survey respondents in Hong Kong during the COVID-19 pandemic. Interested students will work on data manipulation, statistical analysis, and spatial analysis to document these changes and identify underlying factors leading to more positive/negative views on ICT and expected use in the long term.

4. Young adults’ residential location choice for 2010-2020
   This project looks at (changes in) young adults’ residential location choice in the United States for 2010-2020. Interested students will work on data manipulation, statistical analysis, and spatial analysis to document their choice (and relative changes to the preceding decade) and discuss implications to the future of major cities in the U.S.
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Dr. Jinbao LI (jinbao@hku.hk)

Research areas:
- Climate Change
- Paleoclimate
- Drought
- Water Studies
- Forest Ecology

Proposed topics:

1. **Long-term climate change on the eastern Tibetan Plateau derived from tree-ring records**
   Climate conditions on the Tibetan Plateau (TP) affect not only regional populations and ecosystems, but also water resources availability in most of Asia. Understanding climate change on the TP is vital to improve our knowledge of regional to global climate. In this project, student will employ tree-rings to reconstruct climate change on the eastern TP over the past few centuries. With the reconstruction the student will examine the occurrence of extreme climate events on the eastern TP at interannual to centennial timescales, and identify their associations with large-scale climate forcing originating from the tropical Pacific and Indian oceans.

2. **Divergent tree growth response to climate change between conifers and broadleaf trees on the eastern Tibetan Plateau**
   Global forest ecosystems have been profoundly impacted by anthropogenic climate change. Understanding how different tree species respond to changing climate improves terrestrial carbon estimation and forest management. Conifers and broadleaf trees have distinct traits, but existing tree-ring studies in East Asia, especially on the Tibetan Plateau, have been heavily emphasized on conifers despite that about 95% plant species are broadleaf. This project will investigate species-specific climate-growth relationship of co-existing conifers and broadleaf trees, identify their differential growth responses, and evaluate species vulnerability to climate extremes. This project will improve our understanding of the impacts of rapid climate change on the mixed forests with rich biodiversity and ecosystem functions on the Tibetan Plateau.

3. **Deciphering natural and human contributions to the upper Yangtze river flow variability**
   This project will employ hydrometric records to investigate temporal changes in seasonal and annual flow of the upper Yangtze River since the late nineteenth century. Student will explore and identify long-term trend and extreme flood events, and unravel the key human and climatic factors that underlie the upper Yangtze river flow variability. The findings should improve our understanding and management of water resources in the Yangtze River basin under the joint impacts of human disruptions and climate change.

4. **Tree growth and resilience to extreme drought on the Tibetan Plateau**
   Severe droughts are becoming more frequent under global warming, especially in regions like the Tibetan Plateau. Severe droughts have the potential to reduce tree growth or even trigger tree mortality. Therefore, forests on the Tibetan Plateau may become more vulnerable to severe drought
under global warming. In this project, student will explore tree growth anomalies after major
droughts on the eastern Tibetan Plateau over the past few decades, and assess what factors control
tree growth reduction and recovery in terms of age (young versus old), species (junipers versus fir),
and physical environments (altitude, slope bearing, etc). The findings should improve our
understanding and prediction of forest resilience and vulnerability under global warming in this
remote but crucial region.
Dr. Junran (Jimmy) LI (lijr@hku.hk; new staff in the academic year 2022-2023)

Research areas:
- Eco-geomorphology and ecosystem dynamics
- Dust, fine atmospheric particles, and human health
- GIS and spatial analysis
- Renewable energy (wind, solar etc.) and environment

Proposed topics:
1. Microplastic in Hong Kong urban environments
   Microplastics represent plastic particles smaller than 20 micrometers. Microplastics have become a significant environment concern due to their wide existence and broad health impacts. Microplastics are most prominent in urban areas including landfills, beaches, freshwater systems, soil, aerosol, wastewater treatment plants, face masks. The objective of this study is to quantify the occurrence, distribution, quality/quantity, and sources of microplastics in representative areas (e.g., parks, residential areas, rives, beaches etc.) in order to provide critical information for the management and mitigation of microplastics in Hong Kong and other similar urban environments.

2. Poor air quality in the Greater Bay area
   The Greater Bay area suffers from poor air quality periodically. The occurrence, magnitude, and mechanism of these events are not well studied. This project will investigate, using both on-site monitoring, and archived records, the poor air quality events in the Greater Bay area. The goal is to identify the primary air pollutants and to examine the mechanism of the occurrence of the poor air quality events.

3. Oil and gas well pads restoration in southwestern US
   The development and application of unconventional methods in the mid-2000’s to exploit known, but previously inaccessible reserves of oil and gas, triggered a shale revolution and a growth in oil and gas production in the United States and other countries. One of the largest sources of disturbance attributed to both conventional and unconventional production activity is the construction of well pads. Recovery of oil or gas pads is slow and marked by varying success. The overarching aim of this study is to develop a method of determining where restoration efforts of oil and gas well pads should be prioritized in the Permian Basin, in western Texas and southeastern New Mexico.

4. Is there valley fever (Coccidioidomycosis) in China?
   Valley fever, also called coccidioidomycosis, is an infection caused by the fungus *Coccidioides*, which is known to live in the soil in the southwestern United States and parts of Mexico and Central and South America. People can get Valley fever by breathing in the microscopic fungal spores from the air, although most people who breathe in the spores don’t get sick. In 2019 alone, more than 18,000 of Valley fever cases were reported in the US with approximately 200 coccidioidomycosis-associated deaths each year in recent years. Disturbance of large amounts of soil and dust storms are known to be related to Valley fever outbreaks. Despite similar soil and
climatic conditions in multiple hot deserts like southwestern US, Valley fever has been largely overlooked in China. The goal of this study is to collect and analyze soil samples from locations in China to test the hypothesis that *Coccidioides* also occurs in China.
Dr. Yunjing LI (yjli2510@hku.hk)

Research areas:
- Renewable energy development
- HK & Greater Bay Area
- Multi-level climate governance
- Urban farm
- Survey, interview, digital analytics

Proposed topics:
1. Identifying prosumers in Hong Kong’s energy transition
   With the rapid development and declining costs of small-scale energy generation technologies, individuals can play both as energy producers and consumers, or ‘prosumer,’ in the energy system. This change is expected not only to promote the development of renewable energies (RE) but also ensure an inclusive and just clean energy transition. In Hong Kong, the Government has earmarked $2 billion to implement various RE projects at premises such as government buildings, venues and community facilities. The Government has also implemented facilitation measures including suitably relaxing the installation restrictions on the rooftops of New Territories Exempted Houses (commonly known as village houses) and launching Solar Harvest to install solar PV panels for eligible social organizations and actors.
   This study intends to investigate the participants in these rooftop solar PV projects. Questions to be answered include who are they? What are their social and economic characteristics? What drives their decisions? How do they benefit from the projects? On-site surveys and government documents review will be conducted for this project.

2. Climate regionalism: Locating HK’s carbon neutrality goal in the Greater Bay Area
   In its newly released Climate Action Plan 2050, Hong Kong sets a goal to achieve net zero carbon emissions by the mid-21st century, which is ten years earlier than the national target. However, this ambitious goal can be hardly achieved independently considering HK’s deep embeddedness in the Greater Bay Area, especially its heavy dependence on the imports of electricity, water and food from other places in the region. Multiple plans and initiatives, such as 粵港澳大湾区气象发展变化 (2020-2035), have been drafted to address the emerging climate crisis at the GBA scale. The organizational and institutional foundations of the proposed action have, however, rarely been fully examined.
   This study aims to explore the interrelationship between HK and GBA’s climate mitigation governance. In particular, the researcher will identify the key regional actors and institutions that shape HK’s carbon reduction target-setting and strategies, investigate inter-city competition and/or collaboration in carbon reduction activities (e.g. public transit, renewable energy, water conservation, etc.), and assess the opportunity and challenge for HK’s carbon neutrality promise at the GBA regional scale.
3. Exploring the role of transnational climate networks in HK’s climate governance

Transnational municipal networks (TMNs) are playing a crucial role in global climate governance through promoting learning across different cities and up-scaling innovative solutions to climate change. Since Hong Kong became a member of C40 in 2007, it has become an integral part of the growing TMNs in the world. So far, it is still unclear how the participation in these TMNs influences HK’s climate policymaking and strategic planning. Does membership of TMNs matter for HK’s climate action? If yes, in what ways and through what channels?

This study aims to answer this question by investigating the role of TMNs in HK. After identifying the TMNs that have HK as a member, the researcher will examine their operation and activities with particular attention to issues including (1) the resources they provide, (2) the coalitions they form with local actors, (3) the main achievements, and (4) the constraints and challenges they face. Research method will mainly include survey and semi-structured interviews with related TMNs actors and their local collaborators.

4. Urban farm and climate justice: Assessing the access to rooftop farms in Hong Kong

Urban farm is increasingly recognized as a strategy for sustainable and resilient city with various benefits such as food security, carbon and stormwater sink, clean air, recreational space, public health, and so on. In recent years, Hong Kong has witnessed rapid expansion of urban farming activities across the city, especially at the scale of building rooftop. However, little is known about who have access to this new type of green space and in what ways they can benefit from it. Is rooftop farm a premium ‘eco-enclave’ for social privilege or a public space that contributes to a more inclusive and sustainable city?

This study will start with an inventory of existing rooftop farms in HK, including their location, size, ownership and product categories. Then attention is drawn to the operation of the farms, with a focus on the beneficiaries (e.g. employees, owners, urban food bank, visitors) of their operation. Questions to be asked include, but not exclusive to, who are benefitting from urban farms and what kinds of benefits are being generated? What are the demographic and socio-economic characteristics of these beneficiaries? What are their motivations in participating in urban farming and how do they participate? Lastly, the answers of these questions will be contextualized into the framework of climate justice to explore the equity issue in HK’s urban farming.
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Prof. George C S LIN (gcslin@hku.hk)

Research area:
- Urban China

Proposed topics:
1. Redevelopment of “villages-in-the city” in Shanghai, 2010-2020
   To identify the pattern and process of urban redevelopment in Shanghai through a comparative study of two cases, one relatively successful and the other controversial or less successful. The purpose is to understand mechanism, success or failure, of urban redevelopment in Shanghai.

2. Redevelopment of “villages-in-the city” in Shenzhen, 2010-2020
   To identify the pattern and process of urban redevelopment in Shenzhen through a comparative study of two cases, one relatively successful and the other controversial or less successful. The purpose is to understand mechanism, success or failure, of urban redevelopment in Shenzhen.

3. A critical assessment of the promotion of a low-carbon city in Shenzhen, 2010-2020
   To investigate the recent practice of low-carbon urban development in Shenzhen of southern China and critically evaluate its political consideration behind and positive/negative effects.

4. A critical assessment of the promotion of a low-carbon city in Shenyang, 2010-2020
   To investigate the recent practice of low-carbon urban development in Shenyang of Northeastern China and critically evaluate its political consideration behind and positive/negative effects.
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Dr. Yinyi LIN (yinyilin@hku.hk)

Research areas:
- Urban China
- Climate change
- Sustainability
- Remote Sensing
- Urban Resilience

Proposed topics:

1. **Hong Kong’s reclamation and its socioenvironmental impacts in recent decades**
   Hong Kong reclaims the land from the ocean to expand the limited supply of usable land. Major land reclamation projects such as Kai Tak Airport extension, New International Airport construction, Hong Kong-Zhuhai-Macau Bridge, and Lantau Tomorrow Vision have been implemented in the recent and coming decades. As of 2013, the reclamation land occupies 7% of Hong Kong’s land, accommodates 27% of the population, and covers 70% of the commercial activities, which brings significant socio-economic and environmental consequences. The reclamation work boosts the economy while degrades the coastal biodiversity and marine ecosystem. This project aims to comprehensively quantify the land reclamation area, extent, and socioenvironmental impacts in Hong Kong, which further serve as the policy evidence for urban planning in coastal areas.

2. **Satellite-based urban renewal analysis in Hong Kong**
   Urban renewal works as a strategy to restore city function, including improving the living status and physical environment for the highly urbanized area. Urban renewal in Hong Kong usually includes building reconstruction and greening process which generally happens in the old towns. It can be reflected as short-term land cover changes in the satellite observations, e.g., urban built up-bare land-green space or urban built up-bare land-urban built up. Remote sensing satellite data provide large-scale, efficient, and frequent measurement to monitor urban renewal types, extent, and magnitude. This project will leverage the state-of-the-art remote sensing techniques to detect urban renewal changes in Hong Kong, which can support the urban redevelopment policy making and improve urban planning efficiency.

3. **Nature-based solutions to urban heat island**
   Urban heat island indicates that the temperature of urban area is significantly higher than the nearby rural area in metropolitan cities. Highly urbanized cities are comprised of dense urban impervious buildings, roads, and infrastructure, which absorb and re-emit more heat than the natural land covers. Besides, the heat also comes from high energy consumption from cars and industrial production. Urban heat island will worsen the air and water quality and further poses stress to the human health and the ecosystem. Nature-based solutions including urban green/blue space protection and maintenance can mitigate the urban heat and provide comfort to citizens. This project aims to investigate the quantitative relationship between the green/blue space and urban
heat island, and further evaluate the nature-based solutions’ capacity to ease the urban heat island impacts.

4. **Human exposure to flooding under climate changes**

Climate change and urbanization intensify the severity, duration and frequency of urban flooding hazards, exposure and vulnerability. Climate change comes along with intensive and extreme climate events of heavy precipitation. The rapid urbanization process leads to rapid urban land cover expansion and human concentration; on one hand, the urban surfaces become impermeable, and the runoff tends to accumulate; on the other hand, urban population surge will increase the exposure to flooding events. Human exposure to urban flooding is related to urban living facing urban flood hazards. In flood-prone areas, the human health and assets are usually adversely affected by urban floods. This project aims to analyze the interactions of human exposure to urban flooding, climate change and urban land cover, and further support the urban flood vulnerability assessment and mitigation.
The University of Hong Kong  
Department of Geography

Proposed Topics for  
Directed Project (GEOG4002/4) / Honours Dissertation (GEOG4003) 2022-2023

Prof. Becky P Y LOO (bpyloo@hku.hk)

Research areas:
- Sustainable transportation
- Road safety
- Walking and cycling
- Surveys
- Spatial analysis and behavioural modelling

Proposed topics:
1. Geography of fire risk in Hong Kong  
   A spatial analysis of fire risk in Hong Kong (students must have good GIS skills).

2. Cycling education and training: Opportunities and constraints  
   A systematic review of cycling education and training worldwide, followed by an analysis of the opportunities and constraints in Hong Kong.

3. Mobility challenges of people with disabilities  
   Examining mobility challenges of people with disabilities from the perspective of transport equity.

4. Challenges of promoting electric vehicles in Hong Kong  
   A study on the infrastructural support necessary for full electric mobility in Hong Kong
The University of Hong Kong  
Department of Geography

Proposed Topics for  
Directed Project (GEOG4002/4) / Honours Dissertation (GEOG4003) 2022-2023

Dr. Junxi QIAN (jxqian@hku.hk)

Research areas:
- Social and cultural geography
- Urban geography
- Cultural economic geography
- Ethnographic methods
- Mixed quantitative and qualitative methods

Proposed topics:
1. Culture-led urban development in globalizing Asia
   This topic investigates the ways in which cultural heritages, spaces and ambiences are used as driving forces of spatial development and capital accumulation in the city, and how cultural value is translated to economic value and assets.

2. Rural revitalization at Asia’s metropolitan fringes
   This topic investigates the strategies and models of rural revitalization in a context of urban expansion, encroachment into rural lands, decline of rural economy, and disintegration of traditional communal relations. Special attention will be paid to issues of rural community building and environmental sustainability.

3. Cultural economy in the high-tech industries
   This topic investigates how the cultural circuits of consumer cultures feed back into the production side to stimulate new technological innovation in the high-tech sectors.
Dr. Lishan RAN (lsran@hku.hk)

Research areas:
- Climate change; Quantitative analysis
- Water resources management; Quantitative analysis
- Hydrology; climate change; Quantitative analysis
- Sustainable development; Quantitative analysis

Proposed topics:
1. **Typhoon hazards and management in the Pearl River Delta**
   The Pearl River Delta (PRD), including Guangdong (Guangzhou), Hong Kong and Macau, is extremely vulnerable to typhoon hazards. The project aims to investigate and analyze spatial and temporal changes of typhoon hazards in the PRD and investigate the differences in terms of disaster management between the three cities. Implications for future risk management will also be examined.

2. **Spatial and temporal patterns of water quality in Hong Kong**
   Water quality is one of the most important factors in a healthy ecosystem and society. Clean water supports a diversity of plants and wildlife. Due to the combined impacts of natural environment and human activity, water quality is characterized by significant spatial and temporal variability. Based on data retrieved from literature and/or government reports, this project aims to holistically evaluate the spatial and temporal patterns of water quality in Hong Kong’s natural water bodies (i.e., streams, rivers, ponds, etc.) and provide potential solutions to future water management.

3. **Response of streamflow discharge in the Dongjiang River basin to climate change and human activity**
   Climate change and human activity are two primary factors in influencing streamflow discharge in global rivers. However, how these factors have affected the flow dynamics in the Dongjiang River basins remain largely unknown. By using quantitative statistics (e.g., double cumulative curve method), this project aims to differentiate the impact of climatic factors (precipitation and temperature) and human activities (land use change and dams) on flow discharge in the Dongjiang River basin. Also, future trends will be predicted based on climatic and hydrological records.

4. **Assessing waste management and sustainability in Hong Kong**
   Hong Kong generates several different types of waste, such as municipal solid waste, food waste, construction waste, chemical waste, waste cooking oils, etc. Each has its own requirements for handling. The project aims to examine current challenges in waste reduction and management in Hong Kong and provide possible solutions for a sustainable future.
Dr. Frank VAN DER WOUDEN (fvdw@hku.hk)

Research areas:
• Economic development
• Collaboration
• Innovation
• Technological change
• Entrepreneurship

Proposed topics:
1. Innovation in Hong Kong
   What does the innovative landscape of Hong Kong look like and how has this evolved over time? Hong Kong used to be a key innovative player, but seems to have lost some of its competitive edge with the emergence of China as a global innovative power. Is Hong Kong still innovative? In what field does the region specialize? Where are the innovative agents in Hong Kong located? Do we see changes in the geographical location of innovative agents in Hong Kong, as the city is expanding and, perhaps, is focusing on different technologies? In this project we explore patent documents to answer these questions. Affinity with big-data is required.

2. Collaboration among scholars
   Collaboration is rapidly becoming the norm for scholarship. In most academic fields, co-authorship is becoming the norm. Some scholars have argued this has to do with the increasing complexity of contemporary knowledge. It has become so complex, a single scholar doesn’t have the resources (skills?) required to produce it. What patterns do we observe when examining collaboration on academic papers? Are people more likely to collaborate when they are close in geographical space? What do we know about collaboration among Hong Kong scholars? Lots of fun questions can be answered here. Affinity with big-data is required.

3. Entrepreneurship and regional development
   Entrepreneurship is seen as one of the drivers of economic growth. Successful entrepreneurs are able to generate firms that, in turn, generate new jobs, markets, capital and industries. However, empirical evidence has shown that not every region is ‘entrepreneurial-friendly’. How entrepreneurial is Hong Kong? In what fields do we see successful entrepreneurship? What are the roles of ‘spin-off’ processes in this? What is the geography of entrepreneurship in Hong Kong? Has this changed over time?

4. The role of FinTech in the Hong Kong economy
   This dissertation focuses on the emergence of the FinTech industry in Hong Kong. Very little is known on this novel industry, while it has the potential to shake-up large parts of the financial sector in Hong Kong. How big is the FinTech industry in Hong Kong? Did it replace existing jobs in financial sector? On what kind of skills do FinTech jobs rely, and are they available in Hong Kong? Where do FinTech firms settle in Hong Kong? Do they cluster in space, just like the ‘old’ financial services sector? Or do they value different location factors?
Dr. Zhenci XU (xuzhenci@hku.hk)

Research areas:
- Sustainable Development Goals
- Ecosystem service
- Environmental footprint
- Coupled human and natural system

Proposed topics:

1. **Impacts of human intervention on SDG 6 (clean water and sanitation): systematic review**
   Sustainable Development Goals 6 (SDG 6) is clean water and sanitation which has been committed by 193 countries. But a systematic synthesis like systematic review or meta-analysis about human interventions on achieving SDG 6 is still lacking. Addressing this gap can provide useful information for policy-makers to improve efficiency of management and governance to achieve SDG 6.

2. **Impacts of human intervention on SDG 7 (affordable and clean energy): systematic review**
   Sustainable Development Goals 7 (SDG 7) is affordable and clean energy which has been committed by 193 countries. But a systematic synthesis like systematic review or meta-analysis about human interventions on achieving SDG 7 is still lacking. Addressing this gap can provide useful information for policy-makers to improve efficiency of management and governance to achieve SDG 7.

3. **Impacts of human intervention on SDG 14 (life below water): systematic review**
   Sustainable Development Goals 14 (SDG 14) is life below water which has been committed by 193 countries. But a systematic synthesis like systematic review or meta-analysis about human interventions on achieving SDG 14 is still lacking. Addressing this gap can provide useful information for policy-makers to improve efficiency of management and governance to achieve SDG 14.

4. **Impacts of human intervention on achieving SDG 2 (no hunger): systematic review**
   Hunger issue is one global challenge which raises worldwide attention. Sustainable Development Goals 2 (SDG 2) is no hunger which has been committed by 193 countries. But a systematic synthesis like systematic review or meta-analysis about human interventions on achieving SDG 2 is still lacking. Addressing this gap can provide useful information for policy-makers to improve efficiency of management and governance to achieve SDG 2.
Proposed Topics for
Directed Project (GEOG4002/4) / Honours Dissertation (GEOG4003) 2022-2023

Dr. Steven HS ZHANG (zanghs@hku.hk)

Research areas:
• Remote sensing
• Geographic information system
• Urban sustainability
• Urban resilience
• Mangroves and wetlands

Proposed topics:
1. Impacts of urbanization on mangrove ecosystem
   Mangroves are a group of trees and shrubs that grow in the coastal intertidal zone. Mangrove ecosystem is one of the most productive ecosystems. Mangrove forests stabilize the coastline from damaging storms and floods. They maintain water quality and provide resources for humans. However, there has been an alarming decline in mangrove forests worldwide since the 1980s. Urbanization is found to be a major factor behind mangrove loss mainly due to the conversion of mangrove forests to urban construction. Most coastal cities have experienced rapid urbanization process. Some existing studies have indicated that there has been negative impact of urbanization on mangrove forests. However, many countries made effort to establish protected areas and environmental protection policies. The environmental awareness is also positively related to the level of urbanization and urban development. The relationship between urbanization and mangroves tends to be harmonious. It is essential to understand the complex interaction between urbanization and mangrove system. The proposed study aims to 1) understand the impacts of urbanization on mangrove ecosystem during different periods; 2) Identify the mechanism of interaction between urbanization and mangrove ecosystem; 3) explore whether urbanization accelerate mangrove loss or promote mangrove protection.

2. Impacts of sea level rise in Hong Kong and beyond
   Entering 21 century, global climate change has become a tough problem. It brings us a series of anomalies, such as global warming, ocean warming, extreme events, glacier retreat, and sea-level rise. The rapid growth of the sea-level in the past several decades has resulted in some environmental and ecological effects, including the loss of many marshes and wetlands, inundation of deltas, erosion of beaches, and the change of salinity. Rising sea levels will also have an impact on human society, such as the migration of some flooded areas, and coastal property loss. These impacts are making coastal zone become more vulnerable. Sea-level rise is projected to be continuous, which may keep bring pressure to the coastal environment, ecosystem, and residents. Tidal height measurements based on tide gauges are one of the direct observations that provide information about long-term changes in mean sea level. High-precision satellite altimetry started from the launch of ERS-1 in 1991. Based on the satellite altimetry measurements since 1993, the sea level has risen for 3.4 millimeters per year. The proposed study aims to investigate and understand the characteristics of sea level changes and its impacts in Hong Kong and beyond.
3. Land use/land cover changes in Hong Kong using remote sensing and GIS
In urban areas, land use/land cover changes reflect the underlying natural and social processes in urban growth, thus providing essential information for urban environment monitoring, planning, and designing, and are especially useful for the study of phenomena, such as urban transport and urban heat island effects. To provide reliable data for urban planning and management, it is imperative to recognize the distribution and characteristics of urban land use/land cover automatically and accurately. Remote sensing imagery with various resolutions and flexible acquisition modes can provide us with synoptic views of the earth’s surface. The high spatial and high spectral resolution images make urban land discrimination possible. Furthermore, with geographic information system (GIS), the land use/land cover changes can be further analyzed, investigated, and understood along different spatial and temporal dimensions and scales. This proposed study aims to investigate the land use/land cover changes in Hong Kong along the past decades using remote sensing and GIS technologies.

4. Seeing large scale urban expansion from the space
The world has witnessed unprecedented urbanization process within the recent decades. According to the UN Department of Economic and Social Affairs (UN DESA), the urban area only accounts for approximately 1% of the global land cover but hosts the 55% population by 2018, which is expected to increase to 68% by 2050. Anthropogenic activities lead to intensive transformation from natural lands to urban lands, which brings along with various ecological and environmental impacts like biodiversity, habitat and carbon storage loss globally, and urban heat island and non-point source pollution locally. The 2030 agenda Sustainable development goals 11 illustrated the importance of safe, resilient and sustainable cities and human settlements, which urges for the sustainable urban monitoring. With the large-scale, fast and timeliness ability, remote sensing techniques can be an efficient tool for “seeing” the urban expansion from the space. Multisource spaceborne remote sensing techniques including optical remote sensing, synthetic aperture radar (SAR) and nighttime light data will be leveraged for: (1). monitoring the locations, magnitudes and rates of urban expansion; (2). assessing its cause and impacts mechanism. Advances in urban remote sensing can give new insights to the eco-friendly, sustainable, and resilient urban development.