

Tokyo Metropolitan University  
Graduate School of Urban Environmental Sciences  
Department of Tourism Science



TOKYO METROPOLITAN  
UNIVERSITY

# ANNUAL REPORT

Department of Tourism Science, Tokyo Metropolitan University





TOKYO METROPOLITAN  
UNIVERSITY

# ANNUAL REPORT 2021



Tokyo Metropolitan University  
Graduate School of Urban Environmental Sciences  
Department of Tourism Science

## 1 Research Staff

---

## 2 Research Summary

- 02 2-1. Environmental Management Unit
  - 05 2-2. Regional and Urban Planning Unit
  - 11 2-3. Behavioral and Management Sciences Unit
- 

## 3 Research Result

- 16 3-1. Environmental Management Unit
  - 18 3-2. Regional and Urban Planning Unit
  - 20 3-3. Behavioral and Management Sciences Unit
- 

## 7 Awards, etc.

- 22 7-1. Environmental Management Unit
  - 7-2. Regional and Urban Planning Unit
  - 7-3. Behavioral and Management Sciences Unit
-

# 01 Research Staff



## Environmental Management Unit



### Shinya NUMATA

Professor

Ph.D. (Tokyo Metropolitan University)

Tropical Biology, Urban Ecology, Protected Area Management



### Takaaki NIHEI

Professor

University of Tsukuba

Geography



### Takeshi OSAWA

Associate Professor

Ph.D (Kobe university)

Biodiversity Informatics, Conservation Science, Ecosystem management



### Etsuro TAKAGI

Assistant Professor

Ph.D. (Agriculture)The University of Tokyo

Forest zoology, Population ecology, Natural history



### Yuki SAKAMOTO

Assistant Professor

Ph.D (Univeristy of Tsukuba)

Human Geography, Cultural Geography



### Ai SUZUKI

Research AssistantProfessor

Conservation biology

## Regional and Urban Planning Unit



### Tetsuo SHIMIZU

Professor

Ph.D. (Civil Engineering),  
Tokyo Institute of Technology

Tourism Policy and Planning, Transport Studies



### Susumu KAWAHARA

Professor

Ph.D (Engineerring) Waseda University

Urban Design and Planning , Community-based Tourism , Destination Management , Public-Private Partnership



### Yu OKAMURA

Associate Professor

Dr. of Engineering  
(The University of Tokyo)

Urban Design, Conservation Planning,  
Community-Based Tourism and Town Planning



### Mitsuhiro NODA

Assistant Professor

Ph.D • WASEDA University

Rural Planning • Urban & Regional Design •  
Community-based Tourism Development



### Yuki OHIRA

Assistant Professor

Ph.D (Engineering), Kobe University

Infrastructure Planning, Transport Studies



### Norie HIRATA

Research AssistantProfessor

Ph.D (Tourism Science),  
Tokyo Metropolitan Univeristy

Place branding, Regional Planning, Space design

## Behavioral and Management Sciences Unit



### Kenro AIHARA

Professor

Ph.D. (Engineering)  
(The University of Tokyo)

Information Engineering, Human-Computer Interaction, Behavioral Science, Cyber-Physical Systems, Crowd-sensing



### Yohei KURATA

Associate Professor

Ph.D. (Spatial Information Science)  
(University of Maine, USA)

Tourism Informatics, Spatial Information Science



### Katsuya HIHARA

Associate Professor

Ph.D. (University of Tsukuba)

Micro-economics, Management,  
Tourism/Transport Policy



### Wu Lingling

Associate Professor

Ph.D  
Hiroshima University

Tourism marketing, integrated tourist behavior modeling, big data analysis in tourism



### Yu OGASAWARA

Assistant Professor

Ph.D  
Hirosaki university

Social systems engineering



### Makiko ASO

Research AssistantProfessor

MA in Tourism(University of the Ryukyus, Japan)

MBA (Graduate School of Management, Kyoto University, Japan)

Service Marketing, Tourism Education, Regional Management

## Biodiversity conservation in urban ecosystems: people's nature experience and attitude towards nature

Numata, S., E. Takagi,

In order to understand effects of ecosystem disservice on urban society, studies on urban dwellers' nature experiences, preference to plants and animals, and tolerance to dis-like animals have been conducted. In FY2020, a paper (Sugiyama et al. 2021 ) was published in Landscape and Urban Planning. In the paper, we

discussed how negative perceptions evoked from outdoor activities influence preferences for later outdoor activities. The results showed that childhood nature experiences decreased levels of disgust sensitivity and fear expectancy later in life.

Disgust sensitivity influenced outdoor activity preferences, whereas fear expectancy did not. The SEM results suggest that childhood nature experiences are a strong predictor of perceptions of outdoor activities. Therefore, I conclude that increasing contact with nature during childhood would be useful for decreasing negative perceptions of nature later on.

## Development of wildlife tourism attraction in Asian tropical rainforests

Numata, S. Takagi, E.

The aim of the project is to develop a tourist attraction program using wildlife (VH: virtual hunting), and to construct management system towards tourism, conservation, and environmental education in ERNP. A camera trap system of wildlife-based tourist attraction "virtual hunting" is developed and implemented in nature and semi-nature area in ENRP under the collaboration between TMU-UTM, JNPC, and JSG. The system involves video-trap-

ping camera, tourists' activity (shooting), archiving, and data delivery as a trophy of the virtual hunting. Tourist guide and education materials are developed to enhance educational effect of VH. The wildlife data obtained by tourists and park managers will be archived, analyzed and utilized for ecologically sustainable park management. In FY2020, we

examined 1) the detection rates, 2) the diel activity patterns of wild mammals using camera traps, and 3) the temporal overlap of diel activity patterns between groups to discuss human impacts on diel activity patterns of wild mammals in Endau Rompin National Park (ERNP), Peninsular Malaysia. The results suggest that human activities could affect the occurrence of wild mammals, diel activity patterns, and interspecific interaction in a tourist area (S. Kobayashi, master thesis).

## Factors affecting submission rate of climbing plan document: A Case of climbers in the Southern Japanese Alps

Numata, S.

The climbing plan document is expected to be useful in Japan when a mountain accident occurs. Basically, some local governments require climbers to submit their plan to climb a specific mountain, but submission of a climbing plan document is voluntary. Therefore, the low submission rate of mountaineering plans is a threat of

safety climbing. In the present study, we examined factors that could influence behavior of climbing plan submission, and discussed concrete measures that could contribute to improvement of submission rate of climbing plan. Our results showed the more

experienced climbers and the level of approval for climbing regulations, the submission rate of climbing plan, and the climbing experience significantly affect the submission rate of the climbing plan for ongoing Southern Alps climbing. (Mei YAMAZAKI, graduation thesis).

## Impacts of COVID-19 Pandemic on Malaysians' Visit to Nature-Based Destinations

Numata, S.

Exposure to nature could bring many benefits to people especially to their physical and mental health especially in the reduction of stress. However, the emergence of the COVID-19 pandemic had pushed the governments from all over the world to implement measures such as lockdowns, quarantines, and prohibitions

for unnecessary travels towards their people. We examined impacts of COVID-19 pandemic on Malaysians' visit to nature-based destinations through analysis of the Google Mobility Reports online survey questionnaire. We found that people in Malaysia generally

showed their interest to visit nature-based destinations and had high risk perceptions towards the virus even after the emergence of COVID-19. Therefore, it is crucial to have good and proper nature-based spaces for people post-pandemic era (Nur Qistina Binti Abd Rashid, master thesis).

### Establishing a methodology for nature-based tourism based on geography

Takaaki Nihei

The above title is my work content (employment condition) at this university. On that theme, studied how to digitize maps in fiscal 2021. When I took over the laboratory of geography at the Department of Tourism Science, Faculty of Urban Environment Sciences, a large amount of paper maps were stored. For example,

topographic maps that cover the whole country, and large-scale planning maps that were used in field surveys. My predecessor used two rooms, and I use one. (From my work experience at three universities, this can be said; the newer the building, the smaller

the room. Once geographers could use large rooms. We need to consider why the old discipline should be taught at university.) In order to use the space effectively and safely, I proceeded with research on the digitization of maps. It is based on open-source technology. I am preparing to publish the concrete method.

### Biodiversity Informatics based on Natural history collection

Dr. Osawa

Natural history collection such as specimen, observation records and data from citizens are one of important resources for several research themes. Integrate these resources,

and conduct research using these we called "Biodiversity Informatics". In this year I predicted the expansion risk of alien invasive

species using data which collected amateurs (Osawa et al. 2022 Man.Biol.Inv.).

### Discovery and evaluation of Ecosystem services

Dr. Osawa

Ecosystem services are defined as several benefits that humans gain from the ecosystems. Some of ecosystem services were already provide several benefits for human. However, there might be much more ecosystem services which has insufficient recognition by human society. To grasp and conduct quantitative evaluation are important for the conservation and sustainable use of ecosystem. In this year I evaluated several ecosystem services from paddy field as semi-natural ecosystem both regulation and supporting services (Osawa et al. 2021 Int. J. Disa.Red; Osawa et al. 2021 Sci.Rep.).



Obtained from <https://maps.gsi.go.jp>

### Management of alien invasive species

Dr. Osawa

There are too many invasive species in Japan and some of these could become alien invasive species which severely affects for regional biodiversity, human health and agricultural products. Management of alien invasive species is important topic for

biodiversity conservation and sustainable use of ecosystem services. Ogasawara (bonin) islands which is one of world natural heritage site have severe problems by alien invasive species. In this

year I evaluate the invasiveness and attractiveness for visitors on *Agave americana* which originate from ornamental plants for use of this species as tourism resource (Onozuka & Osawa 2022 Ecol.Econ).

### Population dynamics of insects and its effects on social-ecological systems including tourism

Etsuro Takagi

Insects are mega-diversity group. Their habitats are around the globe, and they play important roles in many ecosystems. In general, however, insects are not preferred by human. They are rarely tourist attractions.

Insects are ecosystem engineers in many ecosystems. Various insects modify

ecosystems. Recently, an appreciation has been developing of how these ecosystem engineers affect ecosystems ecologically and economically, namely property values, quantity and quality of marketable timber products, landscape aesthetics, recreational

experiences, and tourism appeal. However, to date, limited information is available. Thus, I am focusing on the ecological and economical effects of insects which are ecosystem engineers on ecosystems. One international joint research with the University of Minnesota and another with the University of Tokyo have been published in peer-reviewed journals.

### Constructing Locality through Music Practice

Yuki SAKAMOTO

The development of information technology has made music portable. Consequently, the commercialization of music has been oriented, and music that had been practiced only in specific regions is now being developed on a global scale. This situation has raised the questions of the relationship between music and region,

and of regionality in music.

This research project aims to examine the relationship between music and region, focusing on the process by which musical locality is constructed. This study examines the relationship between music and region as

constructed by music practitioners, rather than as a prior one. The research is being conducted on ambulatory music events held in Japan. This year, it was conducted in Fukushima Prefecture (Sakamoto 2022), Toyama Prefecture, and Nagano Prefecture. In the future, I plan to further the field survey, compare the three cases, and deepen the discussion.

## Studies on Mobility as a Service (MaaS) development strategy in tourist destinations

Tetsuo SHIMIZU and Yuki OHIRA

The following studies aiming at making proposals on MaaS development in tourist destinations were conducted. (1) The recent MaaS experimental projects in Japan were classified by geographical, socio-economic features and service specifications.

Then, success factors and barriers of the projects were extracted by checking the relation between project continuity and project type classification. (2) The supply-demand gap indexes for tourist destinations that express level of

miss-match between demand and supply on transport services and analyze effect of transport policies were proposed. Then, the method on the calculation of zonal indexes using the combination of several big data was developed.

## Studies on impact assessment measures of transport and tourism policies using the combination of big data

Tetsuo SHIMIZU and Yuki OHIRA

The following studies aiming at development of methods on impact assessment of transport and tourism policies using the combination of population flow data, credit card transaction data, destination search data and SNS text data were conducted. (1) The Causal Impact based analytical

framework for estimation of economic loss in accommodation industry in tourist destinations affected by policy measures during COVID-19 outbreak was proposed. (2) The method for identifying preference, needs, dissatisfaction and problems by Chinese tourists from text data in online

restaurant review sites was developed supported by Latent Dirichlet Allocation Model framework. (3) The method on impact assessment of bicycle policies by local governments using route search data was developed.

## Studies for understanding railway service factors for tourism promotion

Tetsuo SHIMIZU and Yuki OHIRA

The following studies aiming at sustainable railway service provision associated with tourism promotion in regions were conducted. (1) The change of inter-city travel demand patterns along high speed railway routes that have recently started their operation such as Tohoku, Hokuriku

and Kyushu areas was analyzed using the Intercity Travel Survey Data conducted by Ministry of Land, Infrastructure, Transport and Tourism, Japan. (2) The requirements of special rail transport services for tourists were extracted by the intensive case studies. Then, the monetary values of

service factors such as interior, exterior, and others in those railway routes were estimated through conjoint analysis framework.

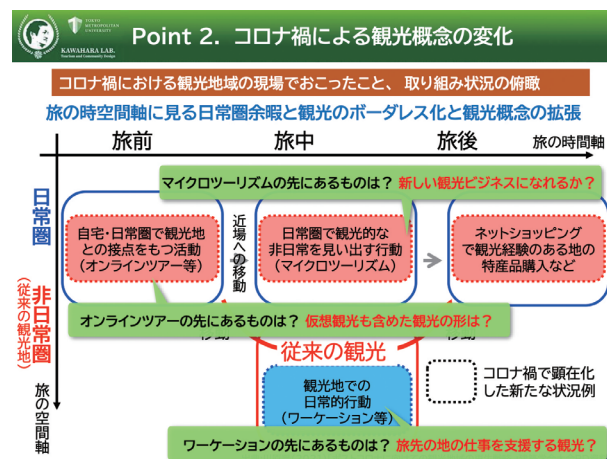
## A Study on Systematization of Planning Techniques for Sustainable Destinations

Susumu KAWAHARA and Yu OKAMURA

We worked on a planning theory that integrate both tangible (e.g., preservation and improvement of urban space and environment) and intangible plans (e.g., plans for tourism programs and contents creation.) to develop more sophisticated sustainable destination, especially due to the recent targets of tourism planning in Japan are biased towards intangible programs.

Our detail methods are

- to learn and reflect sightseeing behaviors and tourism resources in geographical /





# 02 Research Summary

spatial environment

- to develop environmental improvement, utilize the private sites and the public sites together
- to realize a vision based on social experiments
- to support all the method above by

organizational design, process design, and monitoring

In FY2021, while building on the concept of Planning Techniques for Sustainable Destinations that our subcommittee has been discussing, we discussed the restructuring of the regional revitalization

concept, taking into consideration the tourism trends caused by the COVID-19 pandemic. At the annual conference of the Architectural Institute of Japan, we organized a panel discussion titled "the Post-COVID-19 Regeneration Strategies for Tourism Regions"

## Tourism and Regional Development through Collaboration of Businesses from Upstream to Downstream of Satoyama-Based Manufacturing

Susumu KAWAHARA and Norie Hirata

Tokigawa Town in Saitama Prefecture is a town with manufacturing industries, culture, and craftsmen based in satoyama, such as forestry and Japanese paper. This project aims to create tourism contents for people who share the values of living in harmony with nature, using these resources to enjoy DIY experiences while experiencing the story of manufacturing from upstream (material production) to downstream (product production). Through this project, we aim to promote multifaceted regional development through business collaboration with craftsmen, experts in tourism and urban development, and government agencies, with whom we have had little contact in the past.

In FY2021, we created a "Mountain Blessings Phenology Calendar in Tokigawa" based on the existing "Craftsmen's Pictorial Book" of interviews with craftsmen, mostly immigrants, and interviews conducted in the Kawahara Lab with "locals" who have

been involved in forestry in the region for generations. This calendar is unique in that it organizes the local resources of the satoyama as a chronicle, focusing on the people who are involved in them, as well as the various stories related to these local resources, from upstream to downstream, in terms of manufacturing and food. In addition, continuing from last year, Kawahara Lab conducted a willingness-to-pay survey to verify the projects of tourism events and workshops created by Tokigawa Network members. Our article, which drew on the findings of this survey, was published in a guidebook that is the result of a project conducted by the Japan Tourism Agency to promote cooperation among businesses in the region. The title of the article is "How can business verification methods be used to achieve business objectives and refine tourism products?"

Tokigawa Network: Tourism to Taste

Satoyama Monozukuri from Upstream to Downstream! HP  
<http://tokigawa-kyoshitsu.jp>



## Development of Eco-study Tours as a Method of Managing the Historical Environment in Collaboration with the Local Community around the Imperial Tomb in Hue, Vietnam

Susumu KAWAHARA

The tomb of the emperors of the Nguyen Dynasty, the last dynasty of Vietnam, has been recognized as a component of the UNESCO World Heritage Site "Complex of Hue Monuments". Our research team has shown that not only the buildings, but also the surrounding natural environment, villages, and rice paddies were uniquely designed and planned to suit the climate of Vietnam, based on the Chinese concept of feng shui.

However, the damage caused by the Vietnam War, the recent changes in agriculture and forestry, and the development of spaces for tourism purposes by capital outside the region are destroying the landscape and water utilization system.

Therefore, in order to share the original planning concept of the imperial mausoleum with villagers and government officials, as well as to preserve the

historical environment of the imperial mausoleum and utilize it appropriately for tourism, we, the Japanese research team, have been experimenting with eco-study tours since 2017.

A local tour company was established in FY2020. Furthermore, in order to keep the movement going in The COVID-19 pandemic, we challenged the "hybrid tour" which is a local tour and an online tour which is broadcasted live at the same time. We tried



to create value unique to the hybrid tour by combining live video from the air using a drone, and by presenting and explaining various materials using zoom screen sharing for online participants.

As a result, we were able to confirm many positive opinions about the affinity and usefulness of the hybrid tour with ecotourism-based tours for understanding the environmental value of the region.

In the next step, we will refine the hybrid tour while being aware of the significance of the online tour that is experienced before and after the current tour, and confirm its usefulness.



図 環境理解用に作成したドローン撮影360度画像ウェブコンテンツ

fig. 360° image web content photographed by a drone for environmental understanding

Created by Nguyen Quang Huy (Hue University of Science)

## Development of a New Method for Regional Interpretive Exhibition and Education Using a Projection Mapping Model System

Susumu KAWAHARA and Yu Okamura, Mitsuru Noda

In recent years, projector mapping model systems (P+MM), which can project a variety of thematic maps onto models using a projector, have been introduced in museums. The images projected by the P+MM can be freely created on a PC, so it should be possible to use the system in a variety of ways. However, the current state of use in many places is that the projected contents are not updated very often, and the system is only used for one-way explanatory displays.

Therefore, we are collaborating with a manufacturer to develop a P+MM that can be used for real-time writing and projection on the models, and for many people to create and bring in their own content for projection, and we are researching new

ways to use the system as an explanatory exhibition tool that can also be used by private sector guides, and as an educational tool.

In FY2020, we tried a method of projecting and discussing thematic maps created by students in the tourism planning and design exercise of the Tourism Science Department.

In FY2021, students from our department and I created a projection work, "Sake and snacks made with Hachioji ingredients," as exhibition content for the Hachioji Museum, in collaboration with the Hachioji City Hall.

The projection work is characterized by the fact that it uses "food," which people are easily interested in, as an entry point



to express the resources and stories that make up Hachioji's Japanese Heritage. We also proposed a workshop method that local producers could use this exhibition work for their sales promotion.

## Concept and Practice of the Ota Creative Town

Yu Okamura

Ota Ward is a city where manufacturing that boasts world-class technology and affluent and enjoyable life overlap. In April 2017, led by universities (Tokyo Metropolitan University, Yokohama National University), tourism associations, local industries, etc., with the aim of realizing the future image of a "creative town" that fosters sustainable

value for the region itself. Established Ota Creative Town Center. We are developing various projects using this as a platform. In FY2021, the "Ota Open Factory," which is held every year for a limited period of time and opens all factories to the public, was implemented in the form of a tour. Meanwhile, the project was adopted for

the Japan Tourism Agency's "Demonstration Project for Promoting Regional Cooperation through the Refinement of Regional Tourism Resources," and the content of the targeted tours was devised, guides were trained, and so on.

### Establishment of Walking Trail Projects in a Suburban Area and its Planning Theory

Yu Okamura

In this study, the "walking path project (= maintenance and setting of walking paths and holding of town walking events)" is a push factor created by changes in the lifestyles of the citizens who take a walk, such as health, recreation, and mobility, and the suburbs. Based on the hypothesis that it consists of pull factors that lead to the formation of the environment expected by the local side that accepts visitors, such as recreational area development, conservation

and utilization of natural and cultural resources, community formation, etc. Research (elucidation of era divisions and characteristics of each era), secondly, case studies of walking path projects in specific areas, and thirdly, planning proposals, practices, and evaluations of "living experience-based walking paths" are listed as research subjects. There is. In FY2021, we contributed papers on the Tokyo Metropolitan Government's walking

path projects implemented in the past and an urban vision that integrates new and existing walking paths in Hanno City, Saitama Prefecture, in conjunction with the construction of a residential complex. In Chigasaki City, Kanagawa Prefecture, we proposed a footpath along the Koide River, a first-class river. The project was supported by Grant-in-Aid for Scientific Research (C).

### Strategies for the revitalization of tourist areas for post-Corona

Yu Okamura and Kawahara

Although domestic tourism areas are facing an unprecedented crisis due to the spread of the new corona after the spring of 2020, micro tourism focusing on attracting visitors from nearby areas, workcations that avoid three-crowded places and utilize remote work to take leisure time while working, virtual tourism using ICT technology, etc. Trial and error continues. Meanwhile, from summer to winter of the same year, the number of domestic travelers nationwide began to return due to successful travel promotion policies. This series of developments reaffirmed not only the importance of tourism as an industry that supports local communities, but also the significance of tourism (i.e., leisure activities

in non-daily living areas) for consumers. The "Subcommittee on Sustainable Tourist Attraction Formation" of the Architectural Institute of Japan (AIJ) has been conducting research on the detailing and implementation of "regional tourism planning," which aims to integrate urban and regional planning and tourism projects from the perspective of public-private partnership theory, regional management theory, policy theory, and others. The pandemic of the new corona virus occurred just as the debate on the sustainability of tourism areas, including the SDGs, was gaining momentum. A panel discussion was held at the annual conference of the Architectural Institute of

Japan to discuss the revitalization of tourism areas with/post Corona from the standpoint of planning studies, and the following issues were discussed: (1) what is actually happening in tourism areas while taking a bird's eye view of the efforts of tourism areas in the Corona disaster, (2) what has been done in tourism areas before the Corona and what has happened in the past, and how to improve tourism areas in the post-Corona period. (3) What is the relationship between the current efforts in the "recovery phase" and the future vision of the tourism region, and how to reconstruct the concept of tourism in the post-Corona period, etc. They discussed what is needed as a revitalization strategy.

### construction of depopulated area based on the redefinition of "nonresident populations"

Dr.NODA

"Nonresident Populations" has been emphasized in policy, but it has not been clearly defined. The aim of this research is Redefinition of "Nonresident Populations", and Construction of depopulated area. Specifically, in the research, 1) Hearing survey through participation in community development, and 2) Modeling of the related population will be carried out. On that basis, we will derive a planning theory

for depopulated areas based on the redefinition of "Nonresident Populations". In FY 2021, we provided support for Community Design in the several regions (TAKEHARA Village (Sumoto city, Hyogo Prefecture) , KONOTANI Village (Ino city, Kochi Prefecture)) described below. In addition, the meaning of "Nonresident Populations", which has been interpreted in various ways, has been organized.

These research results are published as books (Rural Design Research Review 2022、Tsukuba-shobo、2022.04) . In the next fiscal year, we plan to analyze the framework of "Nonresident Populations" from the perspective of time-series accumulation and build a new model.

### Study of travel purpose types of inbound tourists to Japan based on visited spots combination pattern

Dr. Ohira

The number of international visitors to Japan had increased drastically before the COVID-19 outbreak. In order to promote the tourism industry, it is essential to accurately grasp the preferences and needs of inbound tourists.

The purpose of this study is to identify tourism preferences or travel purpose types of inbound tourists from some data of visited places combination patterns of foreign tourists to Japan. This study utilizes

the guide log data including information about spots (museums, theatres, restaurants, temples, shrines, souvenir shops, ...etc.) that inbound tourists visited and propose a method to investigate travel purpose types of tourists. The data were recorded by well-experienced volunteer interpreter guides who provide guide services mainly around Tokyo metropolitan area. Before the guide trips are taken place, the volunteer guides

contact the tourists many times by email to listen to their favor and interest of sightseeing in Japan, and develop guide plans. By applying correspondence analysis to the database of combinations of spots of those past visitors, we induce travel purpose types of them. As results, about 4,200 samples of visitors are categorized into several sightseeing purpose types.

### Study on factors for mode choice to suburban recreation areas

Drs. Ohira and Shimizu

In many suburban areas in Japan, it is an important issue to maintain the level of services of public transportations. This study aims to examine whether and how regional planning on tourism and recreation has influences on visitors' transport mode choice to those areas.

We conducted a stated preference questionnaire survey to investigate factors on visitor's transport mode choice to an suburban recreation area located 30-50km from city center, where a natural walking path is developed. It is analysed how attributes of respondents such as car

ownership and usage, frequency and fees of local public transportation in the area, setting of the start and end points of the walking path, and activities which can be enjoyed after walking affect their choice of transport mode.

### Transition of travel patterns by inbound tourists in Japan considering order of visiting prefectures

Drs. Ohira and Shimizu

In this study, travel patterns of foreign visitors in Japan were typified by considering the order of their visiting destinations, and the changes in the patterns were examined. We used a clustering method based on the sequence alignment method as a typification method considering the order. This is a hierarchical clustering method that expresses the touring behavior of foreign visitors to Japan

as character strings, and uses an index that reflects the distance in space to the concept of editing distance associated with editing operations as a dissimilarity index. By applying this method to Foreign-Flow Data, we were able to check the changes in the circulation patterns and the availability of international flights, and confirmed that the circulation patterns changed in accordance with the

changes in the availability of flights. Koreans mainly visit single prefectures, a trend that has become more pronounced with the launch of LCC flights. For Taiwanese and Hong Kong visitors, a tendency to concentrate on the prefecture where the airport is located as well as neighboring prefectures was confirmed in some cases as a result of the launch and increase of flights.

### Attention-based contextual multi-view graph convolutional networks for short-term population prediction

Drs. Ohira and Shimizu

Short-term future population prediction is a crucial problem in urban computing. Accurate future population prediction can provide rich insights for urban planners or developers. However, predicting the future population is a challenging task due to its

complex spatiotemporal dependencies. We propose a novel deep learning model called Attention-based Contextual Multi-View Graph Convolutional Networks (ACMV-GCNs). We first construct multiple graphs based on urban environmental

information, and then ACMV-GCNs captures spatial correlations from various views with graph convolutional networks. Further, we add an attention module to consider the contextual situations when leveraging urban environmental information for future

population prediction. Using statistics population count data collected through mobile phones, we demonstrate that our

proposed model outperforms baseline methods. In addition, by visualizing weights calculated by an attention module, we

show that our model learns an efficient way to utilize urban environment information without any prior knowledge.

### The development of human resources for implementing the tourism policy plan for sustainable tourism development

Dr.HIRATA

As a premise of this research, there is a need to practice both regional economic management and regional resource management in cooperation for sustainable tourism community development. To promote tourism and town development through public-private collaboration that achieves regional revitalization in each area, with many actors such as local governments and local businesses, it was hypothesized that local governments in the region would need human resources for tourism policy-making who know to make appropriate policy plans and measures consistent with these policies and projects. First, based on this hypothesis, we surveyed and organized the knowledge and skills needed by key persons in the community involved in community development and community resource management.



Next, the Isumi region was selected as a case study where regional resource surveys and public awareness of regional resources to local residents have been practically developed by regional resource management personnel. We then organized and analyzed the sharing within the region of techniques for preserving, restoring, and

utilizing local resources. We made an oral presentation at a conference. Eventually, research is being carried out toward the proposal of an educational program for tourism policy-making practitioners. This research was supported by JSPS KAKENHI Grant-in-Aid for Young Scientists.

### Significance of Introducing a Survey on the Amount of the Willingness-to-pay survey in the Project Evaluation Questionnaire for Tourism Content Creation Projects

Drs.HIRATA and KAWAHARA

Tokigawa Town in Saitama Prefecture has a satoyama-based manufacturing industry, culture, and artisans in forestry and Japanese paper. The project provided support for the creation of tourism content and the refinement of tourism resources for people who share the values of living in harmony with nature, and who enjoy DIY experiences while experiencing the story of manufacturing from upstream (raw materials) to downstream (material processing/consumption). Through this project, we aim to link to multifaceted regional development through business collaboration with craftspeople from various industries, experts in tourism and city planning, and government officials, with whom we have had little contact until now. In FY2021, we conducted eight types of hands-on manufacturing workshops on site

as part of the Japan Tourism Agency's "Demonstration Project to Promote Regional Cooperation through the Refinement of Regional Tourism Resources". Cooperation among forestry, lumber, furniture, kumiko and washi craftsmen, matching coordinators, designers, local

trading companies, government agencies, universities, and others is being realized. In this project, we organized and analyzed the significance of introducing a small-group willingness-to-pay survey by designing and implementing a questionnaire for participants in the resource refinement support and experience workshop.





## Research on advanced flow grasping methods base on collecting data from reserved spots and its analysis

Kenro Aihara

This research is being promoted with the aim of realizing "microscopic flow grasping" that realizes inflow and outflow to the target area and grasping the flow within the region by aggregating the movements of each individual. The purpose of this study is to propose and realize a methodology for recording, collection, analysis of moving vehicles

that recognized by using detectors installed at multiple points in the city in order to grasp the flow of automobiles. The system consists of a network camera, a processing PC, and network equipment for data transfer, and recognition results on the edge are aggregated in the cloud in real time. In FY2022, with the cooperation of two

local municipalities, these prototype systems were installed at multiple public locations and trials were conducted. Measurements were carried out in continuous operation for several months, and problems such as operational stability, accuracy, and installation were extracted.

## Research on the needs and applicability of web-conference-based online tours

Yohei Kurata, Miki Suzuki, Zhu Yiwen, Kennichiro Hori, Ibuki Yoshida, and, Masana Tanifuji

We investigated the needs, social significance, preferred destinations, of web-conference-based online tours which rapidly become popular in Japan under Corona Pandemic, from text mining on online reviews written by HIS online tour participants. We also seeked

business feasibility of on-demand on-the-spot travel telecast in which the requester can see the current situation of the destination where the requester cannot visit, typically due to a health problem, we also found that

its agent often has a chance to visit an unexpected valuable destination.

## Analysis of region-specific travel frisks by detecting geo-tagged tweets telling a failure story

Yohei Kurata, and, Ibuki Yoshida

We applied a failure story classifier generated by machine learning (BERT) to a huge amount of geo-tagged tweets, and demonstrated the possibility to extract region-soecific travel risks, taking Shizuoka and Hokkaido as examples. As a result, the typical risk that the view of

Mt. Fuji will be damaged by clouds in Shizuoka, the typical risk that the soup curry becomes too spicy in Hokkaido, and the typical risk that an automobile keyhole freezes in winter are extracted, by this we demonstrated such risk

information (important lessons for travelers) can be systematically obtained from geo-tagged tweets.

## Motivations and impediments to senior travel

Yohei Kurata and Miki Suzuki

According to Pearce (1988)'s Travel Career Ladder Theory, the more travel experience a person gains, the higher this motivation grows toward self-actualization. From our survey on elderly students in TMU, it became clear that the opposite is true in reality, that

higher-order motivations are more important actually for young travelers, and lower-order desires such as health and safety increase for elderly travelers.

## Research about Risk Sharing Contracts in the Fields of Tourism and Transport

HIHARA Katsuya

Some relationships between entities in different industries, such as the relationship between airports and airlines, have complex and multifaceted structures in which conflicting relationships and cooperative relationships coexist, are very much interesting from the viewpoints such as contract theory and game theory, etc. In Japan, we have some examples in which regional airports share the risk of route revenue fluctuations with airlines.

Noto-airport Load Factor Guarantee Mechanism (LFGM) Contract (2003-present) is one good precedent. The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) is also considering risk-sharing relationship among airport and airline in deciding the allocations of Haneda Airport slots. Also in many of the concession contracts of the airport, demand fluctuation risk sharing of airport and

airline is taken into consideration (2012-) in deciding landing fee.

This study seeks to extend the analysis to a more general context. In fiscal 2021, from the framework of incomplete contract theory, analysis results are obtained about the optimal content of the risk sharing contract that shares the passenger demand fluctuation risk among the concerned parties by a simple linear payment scheme.

## Development of methods about regional tourism statistics of data fusion with enhanced resolutions

HIHARA Katsuya, SHIMIZU Tetsuo (PI), OGASAWARA Yu, OHIRA Yuki

Regional tourist destinations need to continuously acquire data on tourism phenomena and evaluations, which will lead to appropriate marketing and resource development. For that purpose, It is necessary to propose a methodology for improving tourism statistics and data with enough resolutions that are particularly useful for narrow-area DMO

measures and business planning. In this research, we specialize in total number of overnight stay data, and combine national tourism statistics, private data company stay population distribution data, Wi-Fi-packet sensor data, etc. and develop a method for estimating the total number of overnight guests by attributes in the

tourist area with the spatiotemporal resolution level as fine as possible. In pursuing this, the measures and business needs of DMO will be thoroughly identified, and the index data and estimation method Porto Folio necessary for the evaluation will be presented.

## Research about Factors for the Increase in the Number of Visitors to the Hot Spring Areas

HIHARA Katsuya, OGASAWARA Yu

Hot spring visits are major factor to tourism demand at large. But the number of accommodation users in the hot spring areas has decreased by 13 million since the bubble period. The number of accommodation facilities also decreased significantly. Various studies have been conducted about the factors causing stagnation in hot spring areas and recommendations for revitalization. Most of the researches are, however, qualitative about strategies of each hot

spring area. The quantitative researches, which investigate factors contributing to the growth of customers using open data with the possibility to compare among hot spring areas, are very limited.

This research attempts a new quantitative analysis of the factors leading to the growth of bathers and guests in 85 hot-spring location municipalities nationwide that have not been analyzed sufficiently due to data

constraints, by utilizing originally estimated data. In addition to familiar factors, like access to the areas, such factors as related to the number of foreign tourists to Japan are taken into accounts. By these analyses, effective measures and factors for attracting more hot spring customers at the municipality level are expected to be clarified. Supporting researchers: MEDAI Nagi, OKAMOTO Naoyuki



## Study of Expenditure Behavior of Foreign Visitors in Nature-based Destination

HIHARA Katsuya, NUMATA Shinya

Nature-based tourism, which is about visiting natural resources such as mountains and coasts, is becoming more and more popular. The researches on the differences in consumption behavior at destinations depending on the status of foreign tourists (whether they are foreign tourists or long-term residents in Japan)

are very limited overseas, and those in Japan are even further scarce. In order to bridge this research gap, we survey those foreign tourists who visit Mt. Takao on a day trip about their consumption details and patterns as well as their demographics and visiting group status. Quantitative analysis is

conducted about the differences between subgroups. The result is expected to clarify the impact of long-term stays on consumer behavior and the categorization of purchasing patterns between subgroups. Cooperating students: Hasan Zakaria

## Research about private lodging service (Airbnb and others)

HIHARA Katsuya

This research focuses on private lodging services, such as Airbnb, among sharing economy. The web-based platform economy, such as Airbnb, brought about the revolutionary changes to the world, not just in trip arranging services, but also lodging service, real estate rental business. This research studies about numerous preceding academic literatures of the impact of Airbnb on the world from various disciplines, from management, economics, sociology, information sciences and combine the

study results in Japan. By this study, the impact of Airbnb on tourists, hosts of private lodging service, tourism industries, residents in regions, local communities are extracted and aligned, and comparative studies are executed about the methods of evaluations. The study sheds lights on housing space sharing business, which has been steadily on the rise before the pandemic. With all these studies combined and digested in this single study, it is expected for the new challenges facing

such housing space sharing services to be outlined for the future researches. Collaborating researcher: YARA Emie

## A study of determinants that affect the intention to participate in online tours and the role of constraints under COVID-19 pandemic

Wu Lingling

To overcome the challenges presented by COVID-19, the tourism sector has introduced online tours to the market, in which tour guides introduce destinations via video conferencing tools. This study aims to investigate the factors influencing people's behavioral intentions to consume this new product. For this study, we conducted a web-based questionnaire survey in Japan in December 2020. The data analysis results confirm that positive emotions and telepresence positively influence people's intention to participate in online tours. Additionally, we identified that travel constraints did not directly influence participation intention. Alternatively, they have an

indirect influence through interactions with other factors. Specifically, structural constraints caused by external factors, such as lack of time, amplified the effect of authenticity, but attenuated the effect of telepresence. In addition, interpersonal constraints, such as incompatibility of schedules with companions, were found to increase the effect of telepresence, but weaken the effect of authenticity. Furthermore, the analysis results suggested that while daily travel constraints indicated a significant mediation influence on tourists' participation intention, COVID-19 constraints indicated no significant

influence for either direct or indirect effects. The findings of this study are beneficial in designing online travel experiences that can benefit tourists under travel constraints in the future. (Coauthored by Nagi Medai)

## Analysis of the impact of non-compulsory measures on human mobility in Japan during the COVID-19 pandemic

Wu Lingling, Shimizu Tetsuo

To curb the spread of the COVID-19 pandemic, countries around the world have imposed restrictions on their population. This study quantitatively assessed the impact of non-compulsory measures on human mobility in Japan during the COVID-19 pandemic, through the analysis of large-scale anonymized mobile-phone data. The non-negative matrix factorization (NMF) method was used to analyze mobile statistics data from the Tokyo area. The results confirmed the suitability of the NMF method

for extracting behavior patterns from aggregated mobile statistics data. Data analysis results indicated that although non-pharmaceutical interventions (NPIs) measures adopted by the Japanese government are non-compulsory and rely largely on requests for voluntary self-restriction, they are effective in reducing population mobility and motivating people to practice social distancing. In addition, the current study compared the mobility change in three cities (i.e.,

Tokyo, Osaka, and Hiroshima), and discussed their similarity and difference in behavior pattern changes during the pandemic. It is expected that the analytical tool proposed in this study can be used to monitor mobility changes in real-time during the pandemic, as well as the long-term evolution of population mobility patterns in the post-pandemic phase.

## Revenue management based on nested demand structure

Yu Ogasawara

We can find two products in which one product must be purchased in order to buy the other, or in which the value of the product cannot be demonstrated without the other product. These products can be seen not only in traditional industrial products such as a camera and its special lens or a game console and its game software, but also in services in the tourism and entertain-

ment industries, such as a ferry ticket to an island and a rental car service on the island, or an admission ticket to an amusement park and a restaurant service in the amusement park. We defined the product structure as a nested demand structure and considered a revenue management problem to optimize the price and number of bundles of the two products under the

demand structure. This study shows the optimal price and optimal number of bundle products, and conditions for the existence of these optimal solutions. Moreover, numerical examples are shown to observe the behavior of these optimal solutions.

## Creativity in Service Processes - Service Quality Perceptions of Service Employees in Service Encounters -

Makiko Aso

This is a continuing study as a service marketing study. This year's study captures the creativity of the service process driven by service employees' service quality cognitive actions by informing the various events that occur in service employees' interactions with customers. Previous studies have classified customer response levels in stages according to the customer's relationship level as the relationship deepens, as indicated by Holmlund's (1996) model. However, this model is not

clear on the relationship between the customer's perceived level of service quality and the relationship. Therefore, this study interviewed employees who actually provided the service and investigated the sales process and customer interactions, where the service is practiced, and found that for each new service provision, interactions are tailored to the customer's perceived service quality level, and therefore, the customer relationship level is It was revealed that changes

were being made. It was also confirmed that service employees perceive them in their interactions with customers and make them part of the sales process.

## Research on tourism education and regional revitalization by linking regional resources

Makiko Aso

This is a continuing study as a tourism education linking local resources. This year, we began research on "island study abroad" in Chiburi Village, which has a population of only 600 people. In the first year, the research was conducted

mainly through documents and literature in order to obtain an overall picture of the region, and online communication with research collaborators was conducted due to the Corona bruise.

## A Study of Practitioner Teachers' Tourism Education and Employability of University Students

Makiko Aso

This research was initiated this year. The background of this research is that faculty members with practical experience (practitioner faculty members) often teach tourism to students as a practical learning-oriented study to meet the demands of society, and various studies have been conducted to make this education more effective. Education that is valuable to both faculty and students, taking into account their knowledge,

backgrounds, needs, etc., has not been examined. Based on the hypothesis that "the quality of service in higher education influences the contribution to professional goals (use value) in terms of value in learning," this study conducted an interview/questionnaire survey to extract elements of the student image (employability) sought by the tourism industry, and analyzed the results to determine the most

appropriate. The goal is to understand what education is. The approach focuses on value co-creation of educational services and aims to extend the concept of value co-creation in education. The survey is being conducted with the cooperation of major airlines. A pilot study is currently underway, and a full study will be conducted in the future.

## Shinya NUMATA

### Presentation

Eguchi, A., Numata, S. Climatic factors affecting annual durian production in Peninsular Malaysia. International Congress of Biometeorology (online). Sep. 2021.

- 沼田 真也 人間と自然生態系ツーリズム 公開フォーラム「人間生態系をデザインする: さまざまなセクターの協働」 日本生態学会 保全生態学研究 編集委員会 オンライン開催 2021年9月
- Numata, S. & A. Suzuki. Why tourism in PAs? Bridging ecological research and tourism. f SATREPS-PUBS Workshop (Kuching and online style). Nov. 2021.
- 江口碧、陸川早紀、赤石旺之、倪榮霞、大久保翔太、那珂知美、山崎芽生、齊藤凌太、山根裕美、鈴木愛、沼田真也 バズる野生動物動画の条件とは? 日本生態学会第69回 オンライン 2021年3月

### Articles, Books • Reports

- Sugiyama, N., T. Hosaka, E. Takagi, S. Numata. (2021) How do childhood nature experiences and negative emotions towards nature influence preferences for outdoor activity among young adults? *Landscape and Urban Planning*. 205: <https://doi.org/10.1016/j.landurbplan.2020.103971>
- Zakaria, H. M., K. Hihara, S. Numata. (2021) Expenditure patterns of foreign resident visitors and foreign tourist visitors at a day-trip nature-based destination. *Tourism and Hospitality*. 2: 277-287. <https://doi.org/10.3390/tourhosp2020017>
- Hossain, M. I., S. Numata. (2021) Effects of land-related policies on deforestation in a protected area: the case study of

Rema-Kalenga Wildlife Sanctuary, Bangladesh. *Conservation*. 1: 168-181. <https://doi.org/10.3390/conservation1030014>

- Zakaria, H. M., K. Hihara, S. Numata. (2021) Expenditure-based segmentation of foreign visitors in a nature reserve in Tokyo, Japan. *Journal of Tourism, Hospitality, and Culinary Arts*. 13: 1-14.
- Hossain, M. I., S. Numata, U. Saika. (2021) Stakeholder perceptions of protected area management: The case of the Rema-Kalenga Wildlife Sanctuary in Bangladesh. *Bangladesh Journal of Environmental Research*. 12: 75-96.
- Ab Lah, N. Z., Z. Yusop, M. Hashim, S. Numata, J. M. Salim. (2021) Predicting the distribution of *Melaleuca cajuputi* (Gelang) using Habitat Suitability Index. *Forests*. 12, 1449. <https://doi.org/10.3390/f12111449>
- Jacobs, M. H., S. Dubois, T. Hosaka, V. Ladanovic, H. F. Mohamad Muslim, K. K. Miller, S. Numata, E. Ranaweera, T. M. Straka, M. A. Weston, Z. A. Zainal Abidin. (2022) Exploring cultural differences in wildlife value orientations using student samples in seven nations. *Biodiversity and Conservation*. <https://doi.org/10.1007/s10531-022-02361-5>
- Numata, S., K. Yamaguchi, M. Shimizu, G. Sakurai, A. Morimoto, N. Alias, N. Z. Noor Azman, T. Hosaka, A. Satake (in press) Impacts of climate change on reproductive phenology in tropical rainforests of Southeast Asia. *Communications Biology*.

## Takaaki NIHEI

### Articles, Books • Reports

#### ■ Articles and books

- Mollah, T., Mohammad, N., Tashin, M., Hasan, M. R. and Nihei, T. (2021): SWOT analysis for local NGOs: a geo-spatial analysis evidence from rural Bangladesh. *The Jahangirnagar Review*, 43, 179-194.
- Nihei, T. 2021. Book review: "Changing nature and people's life in the Pamir: towards sustainable mountain society" by Watanabe, T. and Shirasaka, S. *Geographical Space*, 14, 150-152. (Written in Japanese)
- Teikoku Shoin editorial board (2021): *Geography series: new figures of Japan (7): Hokkaido region*. Tokyo: Teikoku Shoin. (Written in Japanese)
- Teikoku Shoin editorial board (2021): *Social studies: geography of junior high school: the world and Japan: teaching textbook*. Tokyo: Teikoku Shoin. (Written in Japanese)
- High school textbook. (Inspected by the Ministry of Education, Culture, Sports, Science and Technology, Japan)
- Junior high school textbook. (Inspected by the Ministry of Education, Culture, Sports, Science and Technology, Japan)

#### ■ Research project acquisition status

- Geographical study on the establishment of endogenous regional development (continued).
- Systematizing the methodology of human geography in the discipline of nature-based tourism science (not accepted).
- Establishment of environmentally advanced "Tokyo" based on the extension of green space after Corona (not accepted).

#### ■ Social contributions

- Secretary, Editorial Board, Hokkaido Geographical Society
- Councilor, Japan Association on Geographical Space
- Member, Editorial Board, Japan Association on Geographical Space
- Member, Academic Award Selection Committee, Japan Association on Geographical Space
- Representative, Human Geographical Society of Japan
- Representative, Association of Japanese Geographers
- Member, Academic Award Selection Committee
- Referee for a postdoctoral application which is being made to the Irish Research Council

## Takeshi OSAWA

### Articles, Books • Reports

(peer reviewed article)

1.Osawa T, Nishida T, Oka T (2021) Potential of mitigating floodwater damage to residential areas using paddy fields in water storage zones. *International Journal of Disaster Risk*

Reduction 62: 102410.

2.Yamasaki K, Tabuchi K, Takahashi A, Osawa T, Yoshioka A, Ishigooka Y, Sudo S, Takada M (2021) Intraspecific variations in life history traits of two pecky rice bug species from Japan:

mapping emergence dates and number of annual generations. *Ecology and Evolution* 11: 16936-16950.

3. Osawa T, Tsunoda H, Shimada T, Miwa M (2022) Establishment of an expansion-predicting model for invasive alien cerambycid beetle *Aromia bungii* based on a virtual ecology approach. *Management of Biological Invasions* 13.

4. Doi H, Osawa T, Tsutsumida N (2022) Assessing the potential repercussions of the COVID-19 pandemic on global SDG attainment. *Discover Sustainability* 3.

5. Onozuka M, Osawa T (2022) Utilization potential of alien plants in nature-based tourism sites: A case study on *Agave americana* (century plant) in the Ogasawara Islands. *Ecological*

*Economics* 195:107362.

(peer reviewed book chapters)

1. Osawa T, Nishida T, Oka T (2022) Paddy fields as green infrastructure: their ecosystem services and threatening drivers. In *Green Infrastructure: evaluation, implementation and governance* (Nakamura F. eds), Springer.

2. Osawa T, Nishida T (2022) Toward social infrastructure: typological idea for evaluating implementation potential of green infrastructure. In *Green Infrastructure: evaluation, implementation and governance* (Nakamura F. eds), Springer.

## Etsuro TAKAGI

### Articles, Books • Reports

• Zhu, X.-J., Zhang, S.-N., Watanabe, K., Kawakami, K., Kubota, N., Takagi, E., Tanahashi, M., Wen, X.-J., & Kubota, K. (2022) Diverse Heat Tolerance of the Yeast Symbionts of *Platycerus* Stag Beetles in Japan. *Frontiers in Microbiology*, 12, 793592.

• Smith, Z.M., Chase, K.D., Takagi, E., Kees, A.M. & Aukema, B.H. (2021) Colonization and reproduction of potential competitors with mountain pine beetle in baited logs of a new host for mountain pine beetle, jack pine. *Forest Ecology and Management*, 497, 119455.

## Yuki SAKAMOTO

### Articles, Books • Reports

Sakamoto Y (2022) Construcing Locality through Music Practice: "Doing Folklore" in Kawamata. *Geographical Review of Japan Series A* 95(2): 101-122.

### Tetsuo SHIMIZU

#### Presentation

Nguyen, V. T. and Shimizu, T.: Sample size and population total estimation of count data: Application in tourism statistics, TOURMAN 2021, Online, May 2021.

Nguyen, V. T. and Shimizu, T.: Covid-19 pandemic and policy responses: Economic impacts from perspectives of the tourism industry, TOURMAN 2021, Online, May 2021.

PHAM, D. H., Shimizu, T. and Nguyen, V. T.: Analysis of transport supply-demand gaps in rural tourism areas, 14th International Conference of Eastern Asia Society for Transportation Studies, Online, September 2021.

Kubota, Y., Ohira, Y. and Shimizu, T.: Attention-based Contextual Multi-View Graph Convolutional Networks for Short-term Population Prediction, UrbComp2021, Online, November 2021. Three presentations by Japanese in academic conferences

#### Articles, Books • Reports

Pham, H. D., Shimizu, T. and Nguyen, T. V.: A Literature Review

### Susumu KAWAHARA

#### Presentation

●Ebisawa Yui, Kawahara Susumu, Hirata Norie, "A Comparison of the Efforts of Great Descendants and the Government in Preserving, Inheriting, and Utilizing Historical and Cultural Resources for Tourism —Focusing on the museum run by the descendants of the Shinsengumi in Hino, Tokyo—", Journal of Japan Institute of Tourism Research, The Tourism Studies, 2021.12/vol.33/Special Issue PP.75-84 (in Japanese)

●Ishii Moemi, Kawahara Susumu, "Challenges in inheritance of public bath and capturing new demand, including recreation -Focusing on cases where non-relatives succeeded the business-", Journal of Japan Institute of Tourism Research, The Tourism Studies, 2021.12/vol.33/Special Issue PP.85-94 (in Japanese)

●AOKI Takuya, KAWAHARA Susumu, "Tourism trends and issues of "Nekojima" as tourist-led content and the actual situation of the islanders and the government~ Toward appropriate remote island promotion utilizing the "Nekojima phenomenon", Summaries of technical papers of annual meeting (selected summary), 2021.09, Architectural Institute of Japan (in Japanese)

●YAMADA Hiroki, TANAKA Shigeo, KAWAHARA Susumu, SATOH Shigeru "Deciphering of Feng-Shui principle in Gia Long tomb and its territory by the analysis of the illustration of Gia Long tomb - A study of urban transformation, in HUE-VIETNAM, Part 25-", Summaries of technical papers of annual meeting, 2021.09, Architectural Institute of Japan (in Japanese)

●NAKANISHI Miyuu, KAWAHARA Susumu, YAMADA Hiroki, TANAKA Shigeo, SATOH Shigeru "The formation of villages and the transformation of cultural landscape in the periphery of Minh Mang tomb - A study of urban transformation, in HUE-VIETNAM, Part 26", Summaries of technical papers of annual meeting, 2021.09, Architectural Institute of Japan (in Japanese)

●SATOH Shigeru, NAKANISHI Miyuu, KAWAHARA Susumu, TANAKA Shigeo, YAMADA Hiroki, "Deciphering of composition

on Interactions Between Stakeholders Though Accessibility Indicators Under Mobility as a Service Context, International Journal of Intelligent Transportation Systems Research, Vol.19, pp.468-476, 2021, <https://doi.org/10.1007/s13177-021-00257-2>

Nguyen, V. T., Shimizu, T., Kurihara, T. and Choi, S. : Accommodation statistics: the current issues and an innovation, Current Issues in Tourism, <https://doi.org/10.1080/13683500.2021.1978951>

Kubota, Y., Ohira, Y. and Shimizu, T.: Attention-based Contextual Multi-View Graph Convolutional Networks for Short-term Population Prediction, Accepted papers for UrbComp2021, 2021.

Tiku, O. , Shimizu, T. and Hartono, D.: Tourism's income distribution in West Papua Province, Annals of Tourism Research Empirical Insights, Vol.3, No.1, 2022., <https://doi.org/10.1016/j.annale.2022.100038>

Three non-reviewed papers, one book chapter, and two invited articles on commercial journals written in Japanese

of Minh Mang tomb by the analysis of the illustration of Minh Mang tomb, and the world view of the first and second emperors - A study of urban transformation, in HUE-VIETNAM, Part 27", Summaries of technical papers of annual meeting, 2021.09, Architectural Institute of Japan (in Japanese)

●HAZAMA Tatsuyuki, EBISAWA Yui, KAWAHARA Susumu, YAMADA Hiroki, TANAKA Shigeo, SATOH Shigeru, "The Affinity with Ecotourism in the Combination of Gia Long Emperor Tomb Eco-study Tour and the Online Tour - A study of urban transformation, in HUE-VIETNAM, Part 28", Summaries of technical papers of annual meeting, 2021.09, Architectural Institute of Japan (in Japanese)

#### Articles, Books • Reports

●Ebisawa Yui, Kawahara Susumu, Hirata Norie, "A Comparison of the Efforts of Great Descendants and the Government in Preserving, Inheriting, and Utilizing Historical and Cultural Resources for Tourism —Focusing on the museum run by the descendants of the Shinsengumi in Hino, Tokyo—", Journal of Japan Institute of Tourism Research, The Tourism Studies, 2021.12/vol.33/Special Issue PP.75-84 (in Japanese)

●Ishii Moemi, Kawahara Susumu, "Challenges in inheritance of public bath and capturing new demand, including recreation -Focusing on cases where non-relatives succeeded the business-", Journal of Japan Institute of Tourism Research, The Tourism Studies, 2021.12/vol.33/Special Issue PP.85-94 (in Japanese)

●AOKI Takuya, KAWAHARA Susumu, "Tourism trends and issues of "Nekojima" as tourist-led content and the actual situation of the islanders and the government~ Toward appropriate remote island promotion utilizing the "Nekojima phenomenon", Summaries of technical papers of annual meeting (selected summary), 2021.09, Architectural Institute of Japan (in Japanese)



### Mitsuru NODA

#### Articles, Books • Reports

Yukihiko SAITO • Mitsuru NODA: Individual Oriented Intension and Community Oriented Intension of Immigrants, PD Reference Book of Architectural Institute of Japan, pp.25-26, 2021.09 (In Japanese)  
Mitsuru NODA • Yukihiko SAITO: A Tentative Assumption on the

Reconsideration of Outside Supporters - Part 2: From View-points of Relationship between human resources and the region and its background, PD Reference Book of Architectural Institute of Japan, pp.45-46, 2021.09 (In Japanese)

### Yuki OHIRA

#### Presentation

Kubota, Y., Ohira, Y., Shimizu, T., Attention-based contextual multi-view graph convolutional networks for short-term population prediction, 99th IPSJ SIG Mobile computing and smart society system, Online, May 2021 (in Japanese).  
Temmoku, T., Shimizu, T., Ohira, Y., Analysis of transition of travel patterns including order of visiting destinations by foreign tourists in Japan -focusing on the impact of international flights to regional airports-, The 63rd Conference of Infrastructure Planning and Management, Japan Society of Civil Engineers, Online, June 2021 (in Japanese).  
Okazaki, M., Ohira, Y., Fukuyama, K., Kuwano, M., Ishii, A., Study of travel purpose types of inbound tourists to Japan based on visited spots combination pattern, 21st International Conference on Group Decision and Negotiation (GDN2021), Online, June 2021.  
Katagiri, Y., Yokokura, E., Shimizu, T., Ohira, Y., A study on factors

for mode choice to suburban recreation areas, Annual Conference on Traffic Engineering, Online, August 2021 (in Japanese).

#### Articles, Books • Reports

Peer-reviewed Articles  
Kubota, Y., Ohira, Y. and Shimizu, T., Attention-based Contextual Multi-View Graph Convolutional Networks for Short-term Population Prediction, Accepted papers for UrbComp2021, 2021.  
Fukuyama, K., Aoki, T., Ohira, Y., Measuring Compactness of Residence in Japanese Local Living-Sphere by Road Time-Distance, Journal of the City Planning Institute of Japan, Vol.56, No.3, 2021.

### Norie HIRATA

#### Presentation

Hirata, N. and Horiguchi, T., Proposition of a bottom-up eco-museum in the Isumi area: Part3 Regional sharing of technologies for preservation, restoration, and utilization of local resources, Abstracts of Academic Lectures, Architectural Institute of Japan, On-line, September 2021.

Ebisawa Y., Kawahara S. and Norie H., A Comparison of the Efforts of Great Descendants and the Government in Preserving, Inheriting, and Utilizing Historical and Cultural Resources for Tourism—Focusing on the museum run by the descendants of the Shinsengumi in Hino, Tokyo—, On-line, 4-5, December 2021

Tourism Research The Tourism Studys/2021.12/Vol.33/Special Issue:75-84. (in Japanese: Publication decision)  
論文(査読無)

Hirata, N. and Horiguchi, T. 2021, Proposition of a bottom-up eco-museum in the Isumi area: Part 3 Regional sharing of technologies for preservation, restoration, and utilization of local resources. Abstracts of Academic Lectures (Education) 13014, Architectural Institute of Japan: 27-28. (in Japanese)

#### 図書 • 報告書

Hirata, N. 2022. Report on the Japan Tourism Agency's Project Evaluation Questionnaire for the "Project for Creating DIY Experience Contents through Upstream to Downstream Business Collaboration of Satoyama-based Manufacturing" (in Japanese)

#### Articles, Books • Reports

##### 論文(査読付)

Ebisawa Y., Kawahara S. and Hirata N., 2021. A Comparison of the Efforts of Great Descendants and the Government in Preserving, Inheriting, and Utilizing Historical and Cultural Resources for Tourism—Focusing on the museum run by the descendants of the Shinsengumi in Hino, Tokyo— Journal of Japan Institute of

**Kenro AIHARA****Presentation**

Kenro Aihara, Understanding Intra-Regional Flow of Vehicles Using Automatic License Plate Recognition, Distributed, Ambient and Pervasive Interactions, June 2022

**Articles,Books• Reports**

Shoji, Y., Aihara, K., Ohshima, H., Kando, N., Shiraishi, K., Nakashima, Y., Yamamoto, T., and Yamamoto Y. (2022): Ostensive Search Model-Oriented Museum Guide Application and Pre- and Post Learning Support System Using Its Log Data, Journal of Information Processing Society of Japan, 63(3), pp.364-377. (in Japanese)

**Yohei KURATA****Presentation**

Kennichiro Hori, Ibuki Yoshida, Miki Suzuki, Zhu Yiwen, Yohei Kurata(2022):Emergence and rapid popularization of paid web-conferencing-application-based tours in Japan: an analysis of their business potential. in Jason L. Stienmetz, Bertra Ferrer-Rosell, David Massimo(eds.) ENTER2022, eTourism Conference, online, February 2022.

**Articles,Books• Reports**

Kennichiro Hori, Ibuki Yoshida, Miki Suzuki, Zhu Yiwen, Yohei Kurata(2022):Emergence and rapid popularization of paid web-conferencing-application-based tours in Japan: an analysis of their business potential. in Jason L. Stienmetz, Bertra Ferrer-Rosell, David Massimo(eds.) ENTER2022, eTourism Conference, online, February 2022 査読有 .  
倉田陽平(2021) :「だれでもガイド!」を地理総合に活用しよう .地理月報 563号 ,pp.14-17,査読無 .

**Katsuya HIHARA****Presentation**

- Hihara, K., "Airport/Airline as a Platformer (AaaP) ? - Its Potential with Network Externalities -"ATRS(2021.8 Sydney Austraria, on-line),
- Hihara, K., , "Analysis of Platformer Economy with Network Externalities - A Pathway to Sharing Economy," Japan Society of Transport Econoics (2021.10• Keio University, on-line),
- Hihara, K., , "Analysis of Platformer Economy with Network Externalities - Theoretical Pathway to Sharing Economy, INFORMS," (2021.11• Anaheim California, USA, on-line),
- Hihara, K., , "Analysis of Platformer Economy with Network Externalities - Pathway to Sharing Economy," Applied Regional Science Conference (2021.11• University of Saga, on-line)
- Miyasaka, N., and Hihara, K., "Sharing Economy as a Means to Solve Regional Issues — An Analysis of Sharing Economy in Japan based on Data Survey and Modelling the Market Structures —," Proceedings of the 36th National Conference of Japan Institute of Tourism Research (2021.12, Rikkyo University, on-line), pp.105-110.
- Medai, N., Okamoto, N., Ogasawara, Y., Hihara, K., "Quantitative Analysis for Factors Affecting Demand in Japanese Major Hot Springs," Proceedings of the 36th National Conference of Japan Institute of Tourism Research (2021.12, Rikkyo University, on-line), pp. 89-93. (in Japanese)

**Articles,Books• Reports**

- Hihara, K. 2022. "The Recent Development of Climate Change Mitigation in Aviation Sector".  
In: Chen et al. (ed) Handbook of Climate Change Mitigation and Adaptation 3rd ed., Springer, Switzerland, P 489-523. Editors Wei-Yin Chen, Maximilian Lackner, (available on line: 2022. 3. 30).
- Zakaria, H., Numata, S., and Hihara, K., 2021, Expenditure Based Segmentation of Foreign Visitors in Nature-based Destination, Journal of Tourism, Hospitality and Culinary Arts, 13-1. 1-4.
- Zakaria, H., Numata, S., and Hihara, K., 2021, Expenditure Patterns of Foreign Resident Visitors and Foreign Tourist Visitors at a Day-Trip Nature-Based Destination, Tourism and Hospitality, 2. 277-287.
- Miyasaka, N., and Hihara, K., Sharing Economy as a Means to Solve Regional Issues – An Analysis of Sharing Economy in Japan based on Data Survey and Modelling the Market Structures, Proceedings of the 36th National Conference of Japan Academic Society of Tourism (2021.12) pp105-110.
- Medai, N., Okamoto, N., Ogasawara, Y., and Hihara, K., Quantitative analysis for factors affecting demand in Jpanese major hot springs, Proceedings of the 36th National Conference of Japan Academic Society of Tourism (2021.12) pp89-93.
- Miyasaka, N. and Hihara, K., Characteristics of Introducing Sharing Economy to Solve Regional Issues - An Analysis of Sharing Economy in Japan based on Actual Conditions and Market Components, International Journal of Trourism Science (2021).

## Wu Lingling

### Articles,Books• Reports

Nagi Medai, Lingling Wu. (2022). A study of determinants that affect the intention to participate in online tours and the role of constraints under COVID-19 pandemic. Current Issues in Tourism (in press).

## Yu OGASAWARA

### Presentation

Ogasawara, Y., and Nakamura, S., Directional efficiency under considering genetic information associated with BMI, Workshop of Healthcare of Operations Research, Feb. 2022.

Ogasawara, Y., New seasonal measurement with stability and clustering seasonal patterns: a case study in Japan from 2011 to 2019, Conference on Japan Institute of Tourism Research, Dec. 2021

Medai, N., Okamoto, N., Ogasawara, Y., and Hihara, K., Factors contributing to tourism demand in Japanese major hot springs, Conference on Japan Institute of Tourism Research, Dec. 2021

Ogasawara, Y., and Sato, K., Revenue management under nested demand structure, RIMS Workshop New Developments on Mathematical Decision Making Under Uncertainty, Dec. 2021

### Articles,Books• Reports

#### Articles:

Ogasawara, Y., and Sato, K. (in press), Revenue management under nested demand structure, RIMS kokyuroku.

#### Books:

Kishimoto, K.,and Ogasawara, Y. 2022, Mathematics of Elections, Voting, and Public Choice: Oyama T. (Ed.) (Chapter 4 Methods for Determining Party Policy Coordinates from Election Vote Counts and Examples of Their Applications), Kyoritsu publisher, Mar. 2022

## Makiko ASO

### Presentation

Aso,M.Creativity in Service Processes- Service Quality Perceptions of Service Employees in Service Encounters - , Japan Marketing Academy Conference2020,In online,October 2021.

# 07 Awards and Honors



## 7-1. Environmental Management Unit

name	title
Yuki SAKAMOTO	Paper Award ,The Association of Japanese Geographers, March, 2022.

## 7-2. Regional and Urban Planning Unit

name	title
Tetsuo SHIMIZU	The 47th Kotsu Tosho Award by "Kunpu-sha, Restructuring mobility services in regions (Chiiki mobility no sai-koushiku)", March 2022.
Susumu KAWAHARA	CITY LANDSCAPE AWARD by Ministry of Land, Infrastructure, Transport and Tourism in 2021, outstanding performance award, Award-winning item: Regeneration of hot springs area [Nagato Yumoto Onsen sightseeing town development project], Kawahara participated in the project as a designer, June 2021
Mitsuru NODA	Leading Scientist of the Faculty of Urban Environmental Sciences, Tokyo Metropolitan University, 2022.01
Yuki OHIRA	Excellent paper of 99th IPSJ SIG Mobile computing and smart society system, Awarded paper title:Attention-based contextual multi-view graph convolutional networks for short-term population prediction (in Japanese), May 2021.





TOKYO METROPOLITAN UNIVERSITY

TMU



令和3年度（2021年度）東京都立大学 都市環境学部 自然・文化ツーリズムコース/観光科学科、都市環境科学研究科 観光科学域 学位記授与式  
2022/03/23



TOKYO  
METROPOLITAN  
UNIVERSITY



観光を科学する  
TOURISM  
SCIENCE

Tokyo Metropolitan University  
Graduate School of Urban Environmental Sciences  
Department of Tourism Science

## 2021 ANNUAL REPORT

<http://www.comp.tmu.ac.jp/tourism/>

Edit and publish  
2022.04.01

Tokyo Metropolitan University  
Graduate School of Urban Environmental Sciences  
Department of Tourism Science

1-1 Minami-Osawa, Hachioji-shi, Tokyo, 192-0397, Japan

Tel: +81 42 677 2664

Fax: +81 42 677 2665

Email: [e\\_t@tmu.ac.jp](mailto:e_t@tmu.ac.jp)

<http://www.comp.tmu.ac.jp/tourism/>