Flexibility, Endurability, and Peace

TAOYAKA Newsletter
Vol. 8 Winter 2017

The First TAOYAKA Program Completion Ceremony: September 20, 2017
The front row from the left: Prof. Okahashi, Prof. Miyatani, Nattacha P., Mattana T., Andhang R. T., & Prof. Kato; The second row: attendees (family members, faculty members, & classmates)

Message from Professional Mentor

TAOYAKA in Nepal

Mr. Ram Prasad Dhital
Executive Director, Alternative Energy Promotion Centre

The Alternative Energy Promotion Centre (AEPC) is a crucial government institution with the objective of developing and promoting renewable or alternative energy technologies in Nepal. Our mission is to enable the transition from traditional to renewable energy by supporting the delivery of cost-effective and sustainable renewable energy across Nepal. We have been partnering with Hiroshima University (HU) in Japan on various research and development activities including social research on solar photovoltaic pumping systems in rural Nepal. When HU initiated the TAOYAKA Program in 2013,

Mr. Ram Prasad Dhital

AEPC was chosen as one of the partner organizations in South Asia to provide onsite trainings to the Program's masters' and PhD students. Being a government organization, our focus has been to

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expand access to energy in rural and remote areas to achieve the government target of providing energy for all residents of Nepal. The cooperation between AEPC and HU's TAOYAKA Program has created an opportunity for students to assess our interventions and recommend improvements of AEPC's service delivery model.

As the chief executive of AEPC, I have been actively involved in three main activities associated with HU's TAOYAKA Program: professional mentorship, support in field studies, and research collaboration. Each year, we accept and supervise one or two student interns at AEPC and its project sites. The students begin their internships by spending a few days in the AEPC central office. They collect relevant information and prepare checklists and questionnaires to conduct field surveys in remote areas. Students are sent to remote parts of the country to assess the impact of renewable energy. At the conclusion of the field work, they return to the AEPC office to prepare reports and make presentations to their supervisors and other AEPC officials. The interns are evaluated based on their performance in the field and in the office. To date, eight HU graduate students have completed internships at AEPC.

We have also been a part of the onsite trainings conducted in Nepal. In March 2017, we were an important part of the onsite training organized by the TAOYAKA Program in collaboration with the University of Texas at Austin (UT Austin) in the US and Tribhuvan University in Nepal. Our support included identifying the field study sites in related subjects. The program included lectures, field study, group discussions, and presentations. On March 13, 2017, I was happy to share AEPC's experiences on Renewable Energy Technologies for Resilient Post Earthquake Reconstruction in Nepal. During the presentation, I learned that some of the students from UT Austin were interested in developing a rural micro-grid with smart metering systems to provide power to the most remote regions of Nepal. This has motivated us to demonstrate the concept of a micro-grid with smart metering systems in rural areas. We are planning to make this the main theme of the upcoming onsite training in Nepal tentatively scheduled for March 2018.

Giving a lecture at the onsite training in March 2017

I happened to visit HU in 2013 to talk about our experiences on solar-based water pumping projects in Nepal. When I shared our public-private partnership (PPP) approach of promoting renewable energy technologies in Nepal, there were many questions from participants about the sustainability of the systems installed in remote and rural areas. In the PPP approach, the public sector creates a conducive environment for the private sector to install and provide after sales service for energy systems. We mobilize beneficiaries during every stage of project cycle to make sure projects are owned by the beneficiaries. The idea is to ensure ownership. We try our best to connect renewable energy technologies and society.

I am very impressed by the TAOYAKA Program philosophy, which believes that a cycle of science and technology led by the culture of the region is the way to create a flexible, enduring, and peaceful society of coexistence. This belief is the basis for collaboration and cooperation between AEPC and the TAOYAKA Program.

Mr. Dhital pictured along with the seminar participants and interns from Hiroshima University, March 22, 2017

AEPC has a good network and outreach in promoting renewable energy technologies in remote and rural areas of Nepal. The TAOYAKA Program has the best students and researchers from all over the world. The cooperation and collaboration between AEPC and the TAOYAKA Program has benefited AEPC. We were able to improve our subsidy policy on community-based water pumping projects based on papers prepared by an HU TAOYAKA Program researcher. Our expectation from the TAOYAKA Program is to continue its campaign to foster international students in three major courses: Cultural Creation Innovators, Technical Creation Innovators, and Social Implementation Innovators.

The TAOYAKA Program may be able to create a wide range of opportunities for students of universities to gain practical knowledge by visiting field sites in the international arena. Furthermore, we anticipate that the TAOYAKA Program will launch more onsite trainings and field work for university students and enhance the use of modern technology for energy and more, allowing the collaboration and cooperation between AEPC and the TAOYAKA Program to become even more integrated in the future.

TAOYAKA Program Completion Ceremony (Convocation)

The First TAOYAKA Program Completion Ceremony: September 20, 2017

The first TAOYAKA Program's Completion Ceremony was held in the Hiroshima University Faculty Club on September 20, 2017, following the Hiroshima University's Fall Semester Degree Conferment.

Four students completed both their graduate school work and the TAOYAKA Program and three were able to attend the ceremony. They were admitted as the first TAOYAKA Program students in October 2014, transferring from Global Environmental Leaders Education Program at Hiroshima University.

From the left: Prof. Okahashi, Prof. Miyatani, Nattacha P., Mattana T., Andhang R. T., & Prof. Kato


Prof. Miyatani giving his congratulatory address

Professor Miyatani, program director, encouraged these students to take an active role in society as global leaders after their graduation. He expressed his respect for their continued efforts and congratulated them for the hard work they put into completing the program.

Message from Program Coordinator:

Hidenori Okahashi, *Professor, Graduate School of Letters, Division of Humanities*

I am very pleased to know that the TAOYAKA Program has produced its first doctoral degree holders this September. I would like to congratulate all four students, who have completed our doctoral program successfully. After entering the graduate school of Hiroshima University, they experienced many hardships, due to changes in their program. However, due to their great efforts, they were all successful in acquiring their degrees.

We are particularly impressed with the onsite team project they conducted in Kita-Hiroshima Town. It was our first trial as the TAOYAKA Program. By using the tomatoes as a symbol, they carried out highly unique projects and made a real contribution to the local community. I believe that this success should encourage all junior students and professors. In the future, I hope they will do their best to remember how it feels to have feelings that they have worked so far. I am very hopeful that they will all achieve success as global leaders.

Finally, I would like to express my deepest gratitude to the professors who have instructed these students.

~TAOYAKA Program Graduates, Fall 2017 (4 studetns)~

Technical Creation Course

Nattacha Paksung

Graduate School of Engineering, Department of Mechanical Science and Engineering, Doctor of Engineering

Having been in TAOYAKA Program for three years, I went through many hardships but it was worth it. The most challenging task was the onsite project where I and my friends had to come up with ideas to solve problems in disadvantaged areas and implement solutions. We not only had to communicate among our diverse team, but we had to learn to negotiate with Japanese locals in a peaceful way and understand their culture. Obtaining a PhD through the TAOYAKA Program is not only about being an expert in one specific field but also being able to acquire skills to effectively contribute to society.

Career after graduation: *Postdoctoral Researcher, Thermal Engineering Laboratory, Hiroshima University*

Mattana Tunchai

Graduate School of Advanced Sciences of Matter, Department of Molecular Biotechnology, Doctor of Philosophy

First, I would like to thank the TAOYAKA Program for offering me a good opportunity to pursue a PhD in this rich disciplinary course of study. While I was taking TAOYAKA Program classes and working on the onsite team project, I learned many lessons and gained experiences outside my expertise which will certainly be useful in my career path. In addition, the TAOYAKA Program financially supported my PhD research and allowed me to participate in interesting academic conferences in and outside of Japan. I consider this three-year experience in the TAOYAKA Program unequaled.

Career after graduation: *Exploring new experience in the field of industrial biotechnology*

Social Implementation Course

David Perez Barbosa

Graduate School for International Development and Cooperation, Program in Development Science, Doctor of Engineering

It is with much joy that we successfully finish our respective doctoral studies. To my friends and former fellow students, I extend my congratulations for your achievements and thank you for this invaluable opportunity of learning from each other along the way! To all our professors, I would like to express our utmost appreciation for everything we learned from you and for the opportunity to be part of this excellent academic community. Hiroshima University made it possible to improve and expand our understanding of the world and its challenges.

Career after graduation: *Postdoctoral Researcher, Mobilities and Urban Policy Lab., Hiroshima University*

Andhang Rakhmat Trihamdani

Graduate School for International Development and Cooperation, Program in Development Science, Doctor of Engineering

I am extremely proud to be the part of the TAOYAKA Program. I have gained knowledge and a lot of experiences from the onsite team project and the multidisciplinary courses in this program. I am also very thankful for the endless support from the professors and staff. To my beloved friends, it has been a great pleasure to work with you. I am very happy for all of you. As you will all go into your next phase of life, I wish you great success. Godspeed!

Career after graduation: *Special Postdoctoral Researcher, Global Career Design Center, Hiroshima University*

Welcome to TAOYAKA Program!

Opening Ceremony: October 03, 2017

The eighth TAOYAKA Program opening ceremony was held on October 3, 2017.

Program members and students warmly welcomed four newly admitted students from Poland, India, the USA, and Myanmar. The program now includes 50 students from 16 countries with various professional, academic, and cultural backgrounds.

TAOYAKA students belong to different graduate schools, as well as to the Program's three courses. Students are required to complete courses, not only in their own graduate schools, but also from among the Program's unique subjects, known as "Multicultural Coexistence Practical Subjects" and "Reverse Innovation Practical Subjects," in order to gain a broad range of knowledge and the skills needed to carry out multidisciplinary research and to solve issues in disadvantaged areas in Japan and/or overseas.

Newly admitted students in the front row

Introduction of New Students

Cultural Creation Course

Szymon Urbanowicz (M1: Graduate School for International Development and Cooperation, Program in Educational Development and Cultural and Regional)

From: Poland

My name is Szymon Urbanowicz. I completed two Bachelor's degrees at the same time back in Poland. One was at the University of Gdansk, in Political Science, and the other was in English with Teaching at Ateneum University. I came back to Hiroshima University after three years as a TAOYAKA student.

In September 2013, I was awarded a JASSO scholarship that allowed me to study at Hiroshima University as an exchange student, and I fell in love with the environment. That time was one of the most active and fruitful periods of my life. I took on a Globalization Support Internship with Dr. Naomi Tsunematsu, in which we collaborated with Higashi Hiroshima and Kure City Halls. Thanks to this professional training, I was offered another internship at the Mazda Motor Corporation Headquarters, which allowed me to grow further as a future employee in Japan. That exchange year was also the time when I met my current academic advisor, Professor Ayami Nakaya.

Hiroshima University is an amazing place to pursue one's studies—the professors, the staff, the city, the atmosphere, and the whole environment—I cannot imagine a better university for continuing my academic career. My current research is devoted to the concept of empowerment in Japanese education. I would like to disseminate the Japanese good practice around the world, introducing the positive and unique aspects of Japanese education in relation to empowering students. Japan is often considered as a country characterized by "examination hell." I want to change that image.

After completing the TAOYAKA program I would like to continue spreading the practice of empowerment, not only in school environments, but also in management or another future career, as empowerment is globally universal. I am also determined to keep on broadening my knowledge of Japanese culture and language.

Technical Creation Course

Sunandan Dutta (D1: Graduate School of Engineering, Program in System Cybernetics)

★Transfer student into the 3rd year of the Program

From: India

I am Sunandan Dutta from India. I received a Bachelor's Degree in Electronics and Communication Engineering from the National Institute of Technology (NIT), Agartala, India in 2015. Initially, I was deeply interested in semiconductor device modelling, which motivated me to study the physics of semiconductor devices and microelectronic circuit design for my Master's degree. My Master's thesis was on Low-power Tunnel Field Effect Transistor (TFET) design, and I received a Master of Technology from the Indian Institute of Engineering Science and Technology (IIEST) Shibpur, India in 2017.

Under the umbrella of the TAOYAKA program, I am planning to work on sensor-based AI robots. I am targeting a walking robot whose dynamics are best controlled by an optimized sensor-architecture. The work requires a proper understanding of the dynamics of walking robots in different working environments. The application of the walking robot aims to help the elderly people working in agriculture. Through the TAOYAKA program, I want to understand the demands of different disadvantaged regions, and so as to be able to design a system-level solution to the problems of such communities, making their lives easier.

After graduating from Hiroshima University under the TAOYAKA Program, I want to join an organization that is working to design and implement sustainable technology for the grass-roots level of the society. All countries share many common problems and have some unique problems. Understanding these and working towards solving them will enable me to work in my own country in future, enabling and empowering each citizen through the Right to Technology.

Social Implementation Course

Diana K. (D1: Graduate School for International Development and Cooperation, Program in Development Science)

★Transfer student into the 3rd year of the Program

From: U.S.A

Before entering the TAOYAKA program, I received my Bachelor of Science degree in LJS, with an emphasis on International Diplomacy. I then went on to complete a Master's degree in Public Affairs/ Executive Masters in Public Leadership at the University of Texas in Austin.

My Master's Capstone research, entitled, "Impact Evaluation of The United Nations Institute for Training and Research (UNITAR) AFP Fellowship Program, Post-Fellowship: Development of a Modified Performance Measurement Model," evaluated the following areas: the post-Fellowship impact of the UNITAR AFP in the areas of continued professional network development among Fellow alumni; the effectiveness of teaching methods; how learning objectives and teaching methods affect the development of leadership competence among Fellow alumni; and the Fellows' post-Fellowship impact within their organizations. My research findings addressed the program's teaching methods, learning objectives, and the Fellowship alumni network. My report proposed a modified performance measurement plan to measure the post- Fellowship impact of Fellows. Recommendations from these Capstone research findings were incorporated into the last cycle of the UNITAR AFP.

My research interests include understanding the process of

consensus building in Middle Eastern cultures, transport-related policies in rural communities, and researching the impact of transportation on the socio-economic development of rural areas in Saudi Arabia and the United Arab Emirates.

After the TAOYAKA Program, I plan on pursing a postdoctoral fellowship with the National Science Foundation (NSF).

Sebal Oo (M1: Graduate School of Engineering, Program in Civil and Environmental Engineering)

From: Myanmer

I am Sebal Oo from Republic of the Union of Myanmar. I received my BA in Civil Engineering at West Yangon Technology University in 2014. After graduation, I immediately started work as an intern at a real estate development company in Yangon. The company subsequently offered me a job as an Assistant Consulting Engineer. I worked there for about three years and was then admitted to the TAOYAKA program.

My research focuses on accessibility issues in disadvantaged areas and the relationship between these issues and long-term migration. I aim to clarify the impact of accessibility on regional migration/emigration, using geographical information data in Japan. In this study, the squared mesh-level information will be focused, and its key feature will be an exploration of longitudinal change in disadvantaged areas. I am also working to identify conditions that decrease emigration and help to retain local industrial activities.

My field of interest is planning, especially in relation to accessibility and appropriate land-use to encourage regional development in disadvantaged areas. This topic is also related to the migration/emigration and population problem. By participating in the TAOYAKA program, I believe that I will acquire more knowledge of this field. My ultimate goal is to become a skilled engineer in the field of planning, where I can use my professional abilities and help to develop disadvantaged regions at the regional and international level. In the future, I hope to become a community leader, contributing actively to the development of disadvantaged areas, including those in my own country.

I believe that the TAOYAKA program will enable me to fulfill my ambitions and achieve my career goals.

Onsite Education

Onsite Course Rotation: Spring 2017

The first level of the onsite education which consists of six classes including a one-day onsite visit

The value of mobility in disadvantaged areas

<2017/06/23~2017/07/21>

One day visit to **Unnan city and Iinan-cho, Shimane** on July 6, 2017

By **Makoto Chikaraishi**, *Associate Professor, Graduate School for International Development and Cooperation*

In a super-aging society, the quality of transportation services is becoming more important than the quantity. Traditionally, the impact of a transportation project has often been evaluated by how much travel time can be saved, converting the saved travel time into a monetary metric based on the wage rate. Such evaluations may be less appropriate in a super-aging society, partly because the majority of the elderly people may spend no time at work.

So far, we do not have a well-established standardized method to evaluate such qualitative aspects of mobility. The objective of the Onsite Course Rotation is first to understand current transportation problems in disadvantaged areas. Its second objective is to consider and propose a new transportation service that may be suitable for disadvantaged areas.

To study the first objective, we visited (1) Nakano district, Unnan city, and (2) Tani Syogakko, Tani district, Iinan-cho, in Shimane on July 6, 2017 (please see the schedule of our one-day trip below).

TAOYAKA members with a staff from Nakano-district in front of Engawa-Ichi

<Schedule>

Time	Activity / Event
7:15	-Leave for Nakano district, Shimane
10:00-11:00	-Visit the “Engawa-Ichi（笑んがわ市）” community gathering in Nakano district -Join the gathering and interview people at the Engawa-Ichi
11:00-11:45	-Receive a lecture on community development at Nakano Community Center
11:45-12:30	-Move to Tani district
12:30-13:15	Receive a lecture on the local organization’s efforts to improve transportation services in Tani district
13:30-14:30	Lunch
14:30-15:00	Visit a community center, “Tani Shogakko”（谷笑学校）
15:00	Leave for Hiroshima University

Nakano District opens an “Engawa-Ichi” on a regular basis, as a place where people can gather every week to have lunch and enjoy conversation.


One of the lunch tables at the “Engawa-Ichi” gathering


A students interviewing at the “Engawa-Ichi”

To make such a gathering successful, transportation to the gathering place is crucial. We interviewed local people who had participated in engawa-ichi to understand their transportation needs (from a user’s perspective). The Tani district is famous for its voluntarily-operated transportation service, although they are currently suffering from a lack of drivers. We attended a lecture about the voluntarily-operated transportation service given by the district chairman in order to understand the operation problems from the operator’s perspective.

To accomplish the second objective, after the onsite visit, students formed groups of 3-4 members to conduct group work, and each group gave a final presentation, (1) summarizing the one-day onsite visit, (2) sharing the results of the group discussion on the value of mobility (and defining the value of mobility), (3) proposing new transportation services for disadvantaged areas, and (4) offering an action agenda for practical implementation of the proposed transportation service.


A lecture at “Tani-Shogakko”


A vehicle used for transport in Tani district

Onsite Training in Japan: Summer 2017

The second stage of the onsite education involving a short stay in Japan and one of the following countries: India, Bangladesh, and Nepal.

Commercialization of emerging technologies for creation of supporting industry to realize sustainable forest resource management in remote island: Dogo island, Oki islands, Shimane prefecture

<2017/08/22~26>

By **Takashi Okamoto**, *Associate Professor, Institute of Advanced Research and Education, Doshisha University &* **Toshiaki Kondo**, *Special-Appointment Associate Professor, Graduate School for International Development and Cooperation, Hiroshima University*

Woodchip fire power plant in 'WOODHILL OKI'

Together with Professor Akira Hayashida (Doshisha University), Professor David J. Eaton (The Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin), and their colleagues, the TAOYAKA program organized a training program entitled, "The commercialization of emerging technologies for the creation of industries to realize sustainable forest resource management in remote islands" in August 2017 on the Oki Islands, Shimane Prefecture. In total, 25 students (10 from Hiroshima University, 7 from Doshisha University, and 8 from the University of Texas at Austin) participated in this training program.

Forestry site

In Japan, forests that were planted after World War II have begun to reach maturity and are ready to harvest. As the Japanese economy grew after WW II, however, labor costs also increased, resulting in rising timber prices. Consequently, domestic timbers have lost their price competitiveness against cheaper imported timbers. Lots of planted trees are now left unharvested since they do not make a profit. In addition, the mountainous regions of Japan are facing serious depopulation and an aging society. All of these things have resulted in a shortage of forestry workers. As a result, forests are left unmaintained in many parts of Japan, including the Oki Islands. Non-managed plantations can cause a number of environmental problems, including landslides, insect infestations, and animal attacks on villages.

For the circular use of forest resources, the role of the wood products industry is indispensable. This industry processes roundwood into wood products and distributes them, while undertaking a forestry management role that produces roundwood and attracts consumers of wood products. Given this situation, the Municipality of the Oki Islands has been promoting a plan called "Midori no Kombinat," which literally means "Green Complex" to create businesses and industries to support the forestry as a business. The main objective of the plan is to create new businesses or industries (i.e. producers of woodchips lignophenol methane as a byproduct) to make use of unused wood biomass, such as waste from a sawmill, wasted logs, wood produced through thinning, and trees damaged by insects and other pests. This plan expects to use local resources effectively to reap economic benefits from a limited amount of resources, ultimately attracting people who will end up maintaining the forest.

Lignophenol plant

The main aim of this course was to learn the concept of the "forest as a man-made resource," not only in the sense that it is a source of income, but also as a foundation of the local environment and community. There were many

ways to understand this concept, but this course particularly emphasized the economic activities needed to achieve sustainable forest management. Once they understood the concept, students were asked to carry out group work relating to the Midori no Kombinat project.

The learning approaches adopted in the training were as follows: (1) A preliminary lecture by professors/ experts; (2) The formulation of group draft reports; (3) Lectures and interactive sessions with experts/practitioners; (4) Field visits, and (5) Group presentations, based on fieldwork scenarios and the revised reports. The detailed training structure was as follows:

【Preliminary lectures (PL)】

Date	Lecture	Instructor	Affiliation
PL 1 (Jun. 09)	Introduction	Assoc. Prof. Takashi Okamoto	Doshisha University
PL 2 (Jun. 16)	Forest as a resources	Assoc. Prof. Toshiaki Kondo	Hiroshima University
PL 3 (Jun. 20)	Basic viewpoints for woody biomass energy towards sustainable future	Prof. Tatsuhiko Sakamoto,	Mie University
PL 4 (Jul. 07)	Global challenges – next boom –	Prof. Nathaniel Agola	Doshisha University
PL 5 (Jul. 14)	Technology, innovation and markets – From scientific theories to commerce & industry –	Prof. Nathaniel Agola	Doshisha University
PL 6 (Jul. 19)	Forest and worship	Prof. David Eaton	University of Texas
PL 7 (Jun. 28)	Local involvement/participation	Prof. David Eaton	University of Texas
PL 8 (Aug. 21)	Opportunities & Challenges of the Japanese Forestry & Woody Biomass	Mr. Hisashi Kajiyama	Bioenergy Research & Investment Inc.

【Onsite Training】

Date	Event	Instructor	Affiliation
DAY 1 (Aug. 22)	**Opening remarks**	Prof. Akira Hayashida	Doshisha University
	Lecture 1: Current situation of Okinoshima and introduction of the Midori no Kombinat project	Mr. Hajime Fujino	Town office of Okinoshima
DAY 2 (Aug. 23)	**Site visit 1:** Lignophenol plant	Mr. Kiyoaki Okada & Mr. Hirohiko Yasui	Fujii Research Institute for Regional Strategy
	Site visit 2: Natural Forest dominated by Japanese cedar *Cryptomeria japonica*		
DAY 3 (Aug. 24)	**Site visit 3:** Woodchip fire power plant in 'WOODHILL OKI'	Mr. Tomoyuki Kushitani	Fujii Research Institute for Regional Strategy
	Site visit 4: Forestry sites (harvesting, thinning, and planting site)	Mr. Katsuyuki Hino	Oki-Dogo Forestry Cooporative
DAY 4 (Aug. 25)	**Final presentation**	Students (5 groups)	Universtiy of Texas, Doshisha University, & Hiroshima University
	Closing remarks	Prof. Akimasa Fujiwara	Hiroshima University

The final team presentation was held on the 25th of August. Instructors gave out the following group work topics, which covered various aspects of the project as a whole: (1) The rationalization of forestry working processes; (2) The feasibility of projects that incorporate woodchip power generation; (3) Public Involvement to achieve a better consensus; (4) Attracting people/money through a positive image of the project; and (5) Proper subsidies/financial support to promote the project. Students started working even before they came to Oki, and worked very hard throughout the period. They gave wonderful presentations at the end of the course.

Natural Forest dominated by Japanese cedar

Group-work

We would like to express our gratitude to the Town Office of Okinoshima, the Fujii Research Institute for Regional Strategy, WOODHILL OKI, and the Oki-Dogo Forestry Cooperative for their support.

1. Internship at the Department of Logistics & Maritime Studies, Hong Kong Polytechnic University: Hong Kong, China

<2017/04/18~2017/06/10>

By **Bing He**
D2, Graduate School for International Development and Cooperation, Program in Development Science
Social Implementation Course

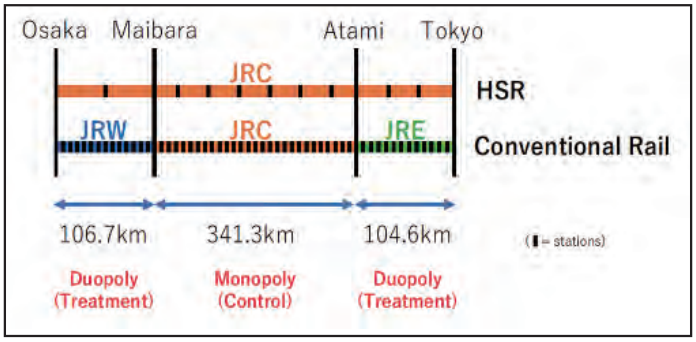
The Hong Kong Polytechnic University

Hong Kong is an important financial center in Asia, as well one of the busiest and most efficient cargo ports in the world. The Hong Kong Polytechnic University (Poly U) is one of the top universities in Hong Kong, with a good logistics major. I was therefore so lucky to receive an internship in its Department of Logistics and Maritime Studies. As I was just in the first year of my Ph.D. program, I was very new to academic research and learned a lot from Dr. Wan (especially critical thinking). Therefore, thanks so much to the TAOYAKA program for supporting my internship application. I am also grateful to the Department of Logistics and Maritime Studies for awarding me the internship.

The Way to the Student Research Lab

At Poly U, I undertake two main types of work. One aspect of my role involves working as an assistant to Dr. Wan on her research project. The project involves analyzing the incentives and welfare implications of collaborations among local governments investing in landside port accessibility. I also work on my own research project (market competition between HSR and conventional railways), while benefitting from Dr. Wan's suggestions. I am collecting data about the time costs and ticket prices for reserved seats and looking at how the balance between reserved and non-reserved seats has changed over the years. I collect data about the frequency of HSR services for each OD, in order to identify the sources of quality improvement. Although my work has some limitations, my ability to find answers to research questions is being strengthened.

Before JR privatization (1987), both HSR and conventional railway services along the whole route were provided by one company. The attached chart shows the provision of HSR and conventional railway lines between Tokyo and Osaka after 1987. In the greater Tokyo (Tokyo to Atami) and greater Osaka (Maibara to Osaka) areas, HSR and conventional railway services are provided by different companies. However, between Atami and Maibara, both railway services are provided by JRC.



HSR and Conventional Rail Service on Tokyo-Osaka Route
Note: JRC-Central Japan Railway Company; JRE-East Japan Railway Company; JRW-West Japan Railway Company.

Acknowledgements
I would like to express very great thanks to my supervisor, Professor Yoshida, to Dr. Wan (my supervisor during the internship), and to my good friends Shuli Liu and Hanxiang Zhang at PolyU for helping me in everyday life during the internship period. This internship has not only broadened my perspective, it has also helped to strengthen my critical thinking.

Main data source: JR Timetables
(1) for the year 1976 and 1986 from Japan Travel Bureau Foundation
(2) for the year 1996 and 2006 from JTB

2. Internship at Kumamoto University: Kumamoto, Japan

<2017/06/05~2017/06/30>

By **Deepak Kumar**
D1, Graduate School of Engineering, Program in System Cybernetics
Technical Creation Course

I did my internship at the Center for Multimedia and Information Technologies, Kumamoto University, under the guidance of Professor Masashi Toda. My problem statement for the internship was to develop a computer vision algorithm that could remove spikes from images of sea urchins and sea cucumbers. I developed a small GUI based on these requirements. Sea urchins are symmetrical and globular, covering several taxonomic groups. By contrast, sea cucumbers, as their name suggests, have soft and cylindrical bodies, which are lengthened, rounded off, occasionally fat in the extremities, and generally without solid appendages. These marine species are abundant in the sea. In Japan, sea urchins are known as "uni" and their roe can retail for as much as $450/kg. However, people generally prefer to buy them without paying for the spikes. Hence, a system is required to calculate the cost of sea urchins and sea cucumbers—without spikes.

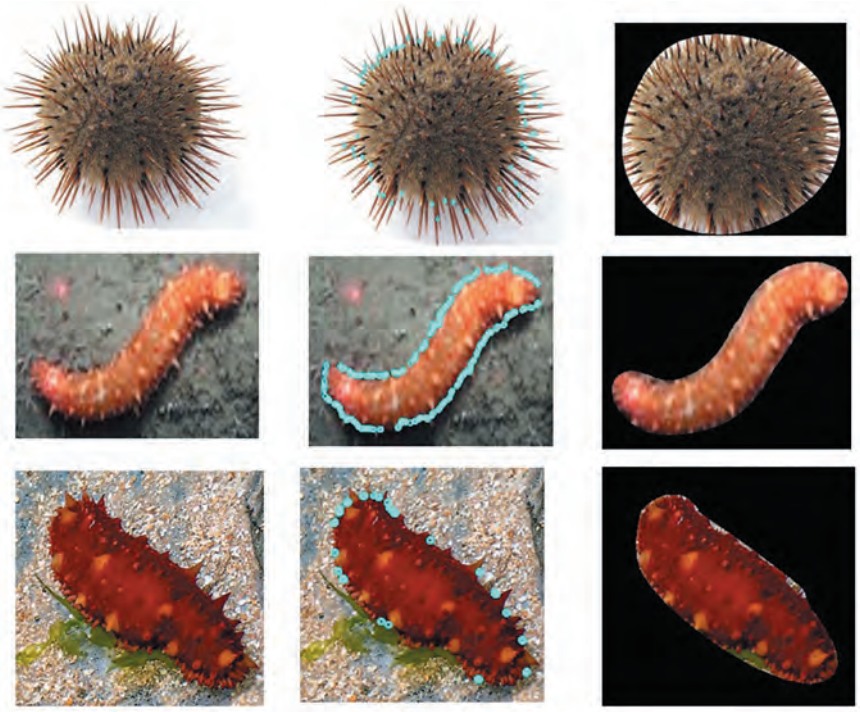
Sea Urchin and Sea Cucumber

Computer vision algorithms were used to solve this problem. Initially, images of the species had to be segmented out from the rest of the background. Grab-cut segmentation was used to perform this task. Grab-cut is a very user-friendly way to perform 2D segmentation of an image. The user inputs what he or she considers to be the foreground, background, and unknown parts of the image that could be foreground or background. The grab-cut process carries out the segmentation, based on user inputs.

Once the segmentation was done, several algorithms were tried and tested to obtain good, accurate results. A combination of curvature points and the Fourier descriptor method obtained the best result. Using canny edge detection and morphological operations, the outer contours were extracted. The curves of the contour were found using mathematical calculations.

The curvature points were then fed into the Fourier descriptor, which identifies all of the frequencies of the curve. In fact, sharper spikes have high frequency values, while less curvy shapes have lower frequencies. Low frequencies were extracted using the Fourier descriptors. Later, an inverse Fourier transform was used to reconstruct the "spike-less" image. The combination of curvature and Fourier-based methods took 0.034 seconds—a very high speed that produced highly accurate results.

I would like to express my gratitude to Professor Masashi Toda of Kumamoto University for guiding me throughout my internship journey. I would also like to thank the students of Kumamoto University for helping me in my day-to-day activities and offering their support.



The Input Image, Concave Curvature and Final Output Image (a Reconstructed Image)

3. Internship at Winnefeld and Raymond Company Ltd.: Nairobi, Kenya

<2017/05/15~2017/06/23>

By **Benjamin K. Blevins**
D2, Graduate School for International Development and Cooperation, Program in Development Science
Social Implementation Course

Myself in the office

During my third year in the TAOYAKA program I began an internship with Winnefeld & Raymond, a development consultancy in Nairobi, Kenya. During the period of my internship, which lasted for 30 days (from 15 May 2017 to 23 June 2017), my work focused on helping to report the results of an education sector analysis.

The host institution had various staff members who were highly skilled in education sector reporting, but lacked the skills taught in my degree program. These skills include statistical analysis, data management, the visualization of data, and econometrics. While I do not claim to be an expert in any of these areas, my colleagues at the host institution had no experience in these fields, which allowed me to be relatively useful.

My job was to take these measurements and provide them to the host institution. I was also able to explain some of the data to other members of the team. While most of the statistics were easy to understand, the charts and tables were confusing for people without any background in statistics. I was able to interpret some of these data and to provide clarity to other members of the team, helping them to better understand what the data were saying.

In other instances, we were able to uncover errors in the data that might have led to mistakes being made in future reporting. In addition, as mentioned above, there were great inconsistencies in the data that described the number of students attending schools. Another problem with the data was that very different baseline figures had been used to estimate the number of children in the population. Unfortunately, I knew of no way to uncover the true baseline population other than to conduct a more professional baseline survey.

However, I was asked to carry out a statistical weighting of the data to provide an estimate for future reports. During this process, I learned how important political sensitivity can be when recalculating statistics. In this case, the number of children in the population could determine the amount of funding received by local governments from United Nations institutions. For this reason, any change in these figures could be very sensitive. Local governments, to secure more funding in future, could also manipulate this information. I could see that it was a great responsibility to ensure that such estimates were as accurate as possible, while remaining aware of political sensitivities and avoiding future exaggerations.

Acknowledgements: I would like to thank Dr. Neven Knezevic for alerting me to the opportunity to join Winnefeld & Raymond, and Mr. Simon Kwira for accepting my internship request, and for guiding me along in my learning experience.

Mr. Raymond Simon Kirwa

4. Internship at Center for Applied Economics Research (CAER): Bangkok, Thailand

<2017/08/01~2017/08/31>

By **Soulixay Hongsakhone**

D2, Graduate School for International Development and Cooperation, Program in Development Science, Social Implementation Course

Myself in front of CAER

As a part of the TAOYAKA Program, I undertook an internship at the Center for Applied Economics Research (CAER) in Faculty of Economics, and at Kasetsart University in Bangkok, Thailand. The main objective of my internship was to explore the lessons and working experience gained from CEAR's research development projects in northeastern Thailand.

CAER is a famous organization, which promotes and develops academic research services in agricultural and applied economics in Thailand. It was established in 1974 by the Faculty of Economics and Business Administration of Kasetsart University, Bangkok. Recently, CAER has moved beyond basic economic and applied economics research to provide seminars and training for various organizations, as well as academic cooperation with internal and external agencies to promote and disseminate research methodologies and outcomes to the public.

During my internship, I was given some assignments by Dr. Kampanat Pensular, the director of CAER. My first task was to understand CEAR's roles and duties in agricultural and applied economic research projects. The second task was to investigate and get to know a farming skills promotion project, which aims to promote the use of mobile technology to improve farming skills in Thailand.

Throughout the internship, I have learned many things about research methodologies and application, CAER's working culture, Thai culture, and have attended many interesting CAER seminars and workshops. The CAER staff members are not only kind and friendly, but very well-organized with a good working culture. They work simultaneously on theoretical frameworks and implementation in actual field work projects.

Their research projects deal with issues and problems facing rural Thailand. They also work closely with stakeholders and organizations to find out solutions. One interesting research project involves human-elephant conflict mitigation schemes in parts of northeastern Thailand, including Phetchaburi, Chanthaburi and Trat province. They can draw a good mechanism and policy to resolve the conflict between humans and wild elephants.

Another interesting and useful CAER case study is mobile technology application to improve farming skills in rural Thailand. Through this assignment, I learned more about how Thai farmers have successfully applied mobile information and telecommunication technologies to enhance their farming skills and agricultural products. I also had a chance to sharpen my skills in a professional working environment by listening to their presentations, and discussing them with supervisors at CAER. The mobile technology application system not only enhances farmers and consumers to keep track of market developments and make the right buying and selling decisions at the right times, it also paves the way for future online marketing or e-commerce. Using mobile technology to improve farming skills in Thailand seems to work effectively because Thai farmers can access useful information on agriculture and farming techniques as well as up-to-date agricultural information on commercial crops, marketing, new farming techniques, and weather.

Photo taken with members at CAER

This internship has been a golden opportunity to learn professional skills and experience the working culture at the great organization, gaining insight into theories and their actual implementation. If I had more time, I could learn and gain even more knowledge to support and enrich my research skills, as well as my future career.

I would sincerely like to thank Dr. Kampanat Pensular giving me useful and valuable ideas to work on and I also would like to give my special thanks to the TAOYAKA Program for providing financial support and accommodation throughout my internship at this great organization.

The Second International Workshop:
REVITALIZATION IN RURAL AREA

August 07, 2017

The 2nd International Workshop "REVITALIZATION IN RURAL AREAS" was held on August 7th, 2017 at Hiroshima University. The purpose of the workshop was to enable doctoral candidates to demonstrate their doctoral thesis progress and to receive assessments, advice, and opinions from attendees, which they could use to advance their research. Four doctoral candidates independently planned the content; they invited three lecturers who were familiar with their research, carried out public relations activities, and hosted the workshop.

Program

Session 1. Keynote lectures

1: Herbs, their molecules, and the liver
By **Dr. Rolf Teschke**, Professor of Medicine, Department of Internal Medicine II, Division of Gastroenterology and Hepatology, Klinikum Hanau, Academic Teaching Hospital of the Medical Faculty of the Goethe University, Germany

2: Developing Fisheries and Aquaculture in Indonesia on Global Climate Change
By **Dr. Ir. Muhammad Iqbal Djawad**, Faculty of Marine Science and Fisheries, Hasanuddin University, Indonesia

3: Biomass utilization and local energy system
By **Dr. Kazuhiro Mochidzuki**, President/ owner ReToCa laboratory LLC, Japan

Session 2. Student Presentation

1: Bioethanol from Rural Agriculture Waste for Alternative Fuel
By **Novi Syaftika**, Technical Creation Course, Graduate School of Engineering

2: Metal Purification Effluent for Better Nori
By **Teguh N. Rohman**, Technical Creation Course, Graduate School of Biosphere Science

3: Functions of Plant Secondary Metabolites and Their Application in Agricultural Development
By **Quan T. Nguyen**, Social Implementation Course, Graduate School for International Development & Cooperation

Presenters, students' academic advisors, and participants

Message from the Team Members

Novi Syaftika, Teguh N. Rohman, & Quan T. Nguyen

The workshop was designed to give students a good experience of hosting international level events. It challenged us to find the connections between diverse research topics and to use these to share our perspectives on each theme. We were eager to have an opportunity to share our research with a broader audience of students and researchers from other disciplines, as this enabled us to spread our message of innovation to a larger audience. It was important to have keynote speakers who were experts in our fields, so that we could learn from them about real implementation, more advanced technology, and also broader perspectives. By presenting our research to people from different backgrounds, we had a chance to practice explaining it in simple ways, to help the audience understand.

From the lecturers, we were able to learn a lot of information about how to implement research findings in the real world. Researchers expect to contribute to society. This is a very important goal, since we should all be responsible for the community in which we live together. The challenge of inventing is that it sometimes requires decades of invention to solve an existing problem in the community. Good communications with the market, the affected community, and people in general are very important, as we must convince them that our inventions are useful, as well improving or modifying our inventions to optimally reflect their needs and preferences.

Another important issue relates to collaboration with government. Researchers may be idealistic but make compromises to develop the best formula or to support and improve government programs. Sometimes government policy is not in accord with our perspective. Then, it is actually our task to find an appropriate approach that can eventually result in consensus. One thing we learned from the lectures was to educate the community and shape our own objectives. Research findings are more beneficial if they can be applied to real life.

For Technical Creation course students, like us, who work in technology creation, it was also important to gain more knowledge of non-technical issues, involving policies, business, and social aspects of problems. The feedback from the keynote speakers was also very valuable for us. This workshop provided important experiences that we believe will be useful for our future work.

Other Remarks

1. **The 104th TAOYAKA Program Seminar** was held as a part of The Year of Japan-India Friendly Exchange

April 25, 2017

Form the left, Mr. Chopra, Prof. Okahashi, Ms. Radhakrishna, Mr. Changsan, and Prof. Tomozawa

The year 2017 is specially acknowledged to be "2017 The Year of Japan-India Friendly Exchange", a product of significant discussions between the two Prime Ministers about the bilateral relationship between Japan and India.

To celebrate the friendship between our countries, the TAOYAKA program hosted a seminar as one of the "*Seminar lectures for Promoting International Peace, Leadership, Compassion, Eternal values and Non-violence based on the Ideology of Mahatma Gandhi in Japan from 16th to 26th April 2017,*" delivered and organized by Ms. Shobhana Radhakrishna, Chief Functionary of the Gandhian Forum for Ethical Corporate Governance.

The seminar entitled "The transformational leadership of Mahatma Gandhi and its relevance in the contemporary world" was held on April 25, 2017 at the Library Hall in the Central Library, Hiroshima University.

The seminar was well-delivered, enabling participants to learn about Gandhi's life and doctrine.

We also warmly welcomed Mr. T. Armstrong Changsan, Consul General at the Consulate General of India, Osaka – Kobe, Japan and Mr. Ravi Chopra, the President of the Ship for World Youth Alumni Association-India, the Discover Japan Club, India, and the Centre for Gandhian Vision and Values, who came to support Ms. Radhakrishna.

Ms. Radhakrishna lecturing at Hiroshima University

2. One of the new TAOYAKA graduates won the Award entitled "Cosmos Editor's Choice" at the **2017 Asia-Pacific 3MT Semi-Finals in Australia**

September 29, 2017

Mattana T. presenting at the 2017 Asia-Pacific 3MT Semi-Finals

One of the first graduates of the TAOTAKA program, Mattana Tunchai, Doctor of Engineering, won the award entitled "Cosmos Editor's Choice" at the 2017 Asia-Pacific Three Minute Thesis (3MT®) Semi-Finals, which was held at the University of Queensland in Brisbane, Australia.

Mattana commented after her presentation, "I got really nervous, as it was such a huge competition in a huge auditorium, but it was a learning opportunity. I've built a new network of young researchers, and this will be an asset."

Please refer to the following link for her whole speech:
<https://vimeo.com/237029091>

She had the opportunity to receive a ticket to Brisbane to present her speech at the 2017 Asia-Pacific 3MT Semi-Finals because she was the winner of the "Global Challenge Award" at the HIRAKU 3 MT Competition 2016, organized by the Home for Innovative Researchers and Academic Knowledge Users (HIRAKU) at Hiroshima University (see her award recipient's interview on p. 13 of the TAOYAKA Newsletter, Vol. 6).

Mattana T. at the 2017 Asia-Pacific 3MT Semi-Finals

3. **TAOYAKA Student Seminar Series 2017** has been organized by the TAOYAKA Student Ambassadors (TSAs)

July 12, 2017 ~ January 25, 2018

Meng Qu (front left) and Rie Usui, (front right, one of the TSAs) delivered a seminar/ workshop at TSSS on Nov. 16, 2017

TAOYAKA Student Ambassadors (TSAs) were created in 2015 in response to strong student demand for representatives, who could act as facilitators and/or mediators on student issues. The first TSAs were Jenny Yamamoto and Benjamin K. Blevins, appointed by Professor Kaneko from the Social Implementation course. In addition to their abovementioned role, they also planned a quarterly social event for TAOYAKA students, staff members, and professors.

The first TSAs worked very well as representatives of the TAOYAKA students; however, they wanted to pass their roles on to the next generation of students at the beginning of the 2017 academic year. New TSAs have been selected from each TAOYAKA course, as follows: Rie Usui (D2, Cultural Creation), Swagata Das (M2, Technical Creation), and Thomas Michael Kloepfer (M2, Social Implementation).

One of the responsibilities of TSAs this year includes organizing and managing the TAOYAKA Student Seminar Series (TSSS), which was initiated during the 2016 academic year. The TSSS aims not only to share students' research ideas and experiences with their colleagues, in particular, those who belong to different courses, but also to help develop a team, consisting of three different TAOYAKA course members, for an Onsite Team Project. As of the end of the academic year 2017, 24 seminars have been provided by students with different research interests. Please see the following schedule:

TSAs 2017 (Swagata & Thomas) discussing their roles at the TAOYAKA Student Information Session on Oct. 03, 2017

The TAOYAKA Student Seminar Series Schedule 2016~2017

Academic Year	No	Date	Presenter	Course*	Title
2016	1	Nov. 30	Jenny Yamamoto	S	Knowing Me, Knowing You: Overcoming differences in the "philosophical worldviews" of the three TAOYAKA courses
			Mattana Tunchai	T	How to tell your research in 3 min.
	2	Dec.14	Benjamin K. Blevins	S	Social Gender Equality and the Gender Gap
			Md M. Imran	C	Cultural Heritage Discourse: Interrogating the Dominating Paradigm of a Safeguarding Program in the Popular Domain of Pundranagar, Bangladesh
	3	Jan. 13	Bing He	S	Does Monopoly Slow Down a Bullet Train?
			Novi Syaftika	T	Fuel your car with rice and wastewater, possible?
	4	Jan. 27	Ryosuke Mori	C	How to enhance community resilience
			Shree K. Maharjan	C	Experts' opinion on climate change policies in Nepal
	5	Feb. 08	Soulixay Hongsakhone	S	Making a Village Input-Output Table (VIOT) from Household Survey data: A case study of a rural village in Ngoi District, Luang Prabang Province, Lao PDR
			Hao T. P. Nguyen	C	The Flexible Adjustments of the Research During the Conducting Process
			Zulhaj M. Aliansyah	T	Visual Modal Analysis: what it is and what it is not
	6	Feb. 15	Alam M. Jahangir	S	A conjoint analysis of consumer preferences on the organic solar module
			Hoang V. Nguyen	C	The research on tourism and poverty alleviation: a positive and critical study
2017	1	Jul. 12	Sneha A. Sharma	T	Design of a Quality Control System based on Soft-Sensors using a Data-Driven PID Technique
			Meng Qu	C	The Aesthetic Experience of Augmented Reality Art
	2	Jul. 26	Thomas M. Kloepfer	S	Hemp: Understanding Production, Policy, and Place
			Kohei Shimasaki	T	Vibration region sensing with a high-speed vision system
	3	Aug. 02	Gajender Thakur	C	Social Security and Welfare: The Role of Social Welfare for the Elderly in Japan
			Ngoc T. B. Nguyen	S	Does the farmers' union "group borrower have any impact on household economic performance in rural areas of Vietnam?
	4	Nov. 16	Rie Usui	C	Are you asking GOOD questions? The interview skills you need to know for successful bottom-up research & projects
			Meng Qu	C	
	5	Dec. 14	Simona Zollet	C	Nurturing sustainable agro-food systems in Japan: the role of new entrant organic farmers
			Sunandan Dutta	T	The development of a sensor-based AI system for walking robots
	6	Jan. 25	Swagata Das	T	Force Hand—An interactive glove enabled with pneumatic artificial muscles
			Toan P. Nguyen	S	Secondary metabolites of Plant: Natural Resource

**note*: C=Cultural Creation Course, T=Technical Creation Course, and S=Social Implementation Course

Upcoming Events

- International Symposium: January 17, 2018
- Onsite Education: India and Nepal, March 2018
- TAOYAKA Seminars: Please check our website and Facebook for details.

Admission Information

Admissions for October 2018 and April 2019 (both general and transfer into the third year admissions) will be open soon in spring 2018. Please check our website for details!

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Flexibility, Endurability, and Peace
TAOYAKA Newsletter Winter 2017
Vol. 8 / Issued in: December 2017
TAOYAKA Program for creating a flexible, enduring, peaceful society, Hiroshima University
Organization of the Leading Graduate Education Program

HIROSHIMA UNIVERSITY

TAOYAKA たおやか