

Sun, Chuan-Wen and Kao, Chia Chuen, Professors Emeritus of NCKU, receive Freundschaftsmedaille.

NCKU Press Center

German Institute Taipei awarded Freundschaftsmedaille (Friendship Medal) to Prof. Dr.-Ing. Sun, Chuan-Wen, Professor Emeritus, Department of Architecture, National Cheng Kung University, and Prof. Dr.-Ing. Kao, Chia Chuen, Professor Emeritus, Department of Hydraulic and Ocean Engineering, National Cheng Kung University, in the annual meeting of Association of DAAD-Friends in Taiwan R.O.C (Verein der DAAD Freunde in Taiwan R.O.C) on January, 4th, 2020. This award symbolized the appreciation of Germany that both professors dedicate themselves to advance the academic exchange between Taiwan and Germany. Getting their Dr.-Ing (Doktoringenieur) in Germany, Prof. Sun and Prof. Kao expect that there should be more understandings and good contacts between Taiwan and Germany. Both of them make every effort to enhance the exchange between two countries and never change their mind until now. “We won’t ask any payback. Excepting feeling excited, we are more appreciated for being recognized of our effort.

”Prof. Sun, Chuan-Wen got his Dr.-Ing (Doktoringenieur) of Architecture at Universität Stuttgart and Prof. Kao, Chia Chuen got his Dr.-Ing (Doktoringenieur) of Civil Engineering at Gottfried Wilhelm Leibniz Universität Hannover. Both receiving Freundschaftsmedaille, their stories could be dated from 1980s and 1990s.



Prof. Dr.-Ing. Sun, Chuan-Wen, Professor Emeritus, Department of Architecture



Prof. Dr.-Ing. Kao, Chia Chuen, Professor Emeritus, Department of Hydraulic and Ocean Engineering

In 2019, Technische Universität Darmstadt set Asia Office and had visiting German scholars stay on at National Cheng Kung University (NCKU). This is the first time that the outstanding German University has the branch office in Taiwan. This achievement is contributed to the effort of professors who studied abroad in Germany during 1980s and 1990s. Being the contact person for many times, Prof. Sun, Chuan-Wen and other professors of NCKU held receptions for Helmut Boehme, President of Technische Universität Darmstadt, and other faculties when they visited NCKU. During these eight years, they held international conferences and academic workshops and showed the strength and energy of NCKU.

Recollecting those active days, Prof. Sun said delightedly, “those days were so energetic! We welcomed and held hospitable receptions for not only scholars, but also the members of the German Federal Parliament (Abgeordneter des Deutschen Bundestages) and German media. During that time, the German representatives would start their visiting at NCKU and then transferred to Taipei.”



NCKU get highly recognition in promoting Taiwan-Germany exchange

During 1980s and 1990s, there were more than 30 professors who studied abroad in Germany. Most of them felt that Germany has many experiences worth learning. Being the early center of researching Germany-related issues and of promoting the exchange of German-speaking countries, German Center at National Cheng Kung University, established by Prof. Sun and other NCKU professors who studied abroad in Germany in 1997, is a still operating organization, while The Association of DAAD-Friends in Taiwan R.O.C was established in 1999, two years later.

Prof. Sun was the first director of German Center at National Cheng Kung University till 2010, the year of his retirement from NCKU. Prof. Sun also served as the president of The Association of DAAD-Friends in Taiwan R.O.C from 2004 to 2008. During his tenure, Prof. Sun invited Prof. Kao, Chia Chuen to serve as Secretary-General. With closer and enthusiastic cooperation, Prof. Sun and Prof. Kao are the significant contributors to the exchange between Taiwan and Germany.

When it mentioned to the reason why he actively advanced the Taiwan-Germany exchange, Prof. Sun indicated that Taiwan was deeply influenced by America, but tended to neglect experiences, which are also worthy to learn, from Germany and Europe. In addition, during the six years Prof. Sun studied abroad in Germany with scholarship, he received lots of help and got many friendships. Prof. Kao also mentioned that by comparison, Taiwanese is smarter than Germans. However, Germans are more “nit-picking” that they devote full attention to systematic approaches and excel at group cooperation.

Prof. Kao distinctly recalled that the German tend to look serious. Though they don’t have the culture of Karaoke, they have the tradition of beer festival. “The Macanna Beer House at Shengli Road was the regular restaurant of afterparties for us and Germans. We reserved the whole third floor which had the machine of Karaoke. Indeed, Karaoke advanced our friendship.”

NCKU get highly recognition in promoting Taiwan-Germany exchange. Prof. Kao pointed out that National Council on Science Development (now is Ministry of Science and Technology) firstly signed an agreement of exchange of students with Germany, and he was the principal investigator. In order to execute this project, “I took half a year’s sabbatical and flew to Germany many times to discuss every details of this project.” This project is still executed by NCKU until now. In 1997, Prof. Kao held the first “Chinese-German Joint Symposium on Hydraulic and Ocean Engineering,” a biennially conference. In 2002, the symposium included China as participant and was extended to a tripartite conference which held by Taiwan, Germany, and China by turns. In 2018, the ninth Chinese-German Joint Symposium on Hydraulic and Ocean Engineering was held in NCKU. Focusing his research on “Marine Observation Research,” Prof. Kao not only cooperates with German scholars but also participates in the related research project of European Union, which will enhance the visibility of NCKU and Taiwan.

Copyright 2018 National Cheng Kung University

NCKU Introduces Smart Healthcare, Raises Efficiency of Clinical Inspection of the Novel Coronavirus

NCKU Press Center

The second part integrates research results from the NCKU AI Innovation Research Center and the Capstone Plan into the capacity of NCKU smart healthcare to automate medical records. Traditional pen-and-paper inputting of data or orally inquiring of the patient's medical history both increase the infection risk of medical personnel due to proximity with patients. Automating medical records allows personnel to enter medical data such as travel history, work history, contact history, and group history into a tablet and upload them to the medical record system. The personnel can then instantly receive relevant data to make a clinical decision. Tablets are disinfected with rubbing alcohol after each use, reducing the risk of cross-infection and raising efficiency of inspection.



Since the threat of the recent viral proliferation began, NCKU and NCKU Hospital have mobilize healthcare professionals in the fight against the virus

The third part introduces AI-assisted detection of inflammation in the lungs. The AI-assisted system for reading chest radiographs to find inflammation in the lungs was developed by the AI team and information team of NCKU Hospital. The hospital's inflammation image data is also incorporated in the system. Currently, the data has been used to assist in the screening of 152 images suspected of presenting the novel coronavirus. The system can provide a sensitivity and accuracy of as high as 80% and 90%, respectively.

The three-part inspection system also incorporates the latest epidemiological developments provided daily by the CDC, such as expansion of quarantined areas. The result is the Smart Healthcare Clinical Decision Support System, which is built into the inspection station computer system, where it relieves some of the personnel's pressure in making clinical decisions when responding to the virus. The entire process—from entering the station to the doctor's decision of whether to report for hospital quarantine or at-home inspection—is shortened from 2.5 hours to just 30 minutes.

Monitoring and prediction are a very important part of the process of preventing the further spread of the virus. Thus, the interdisciplinary team at NCKU and tech company AMobile Intelligent have collaborated in the development of the smart-monitoring wristband. The wristband can continuously monitor the wearer's body temperature and heart rate; before a fever occurs, a rise will manifest in the wearer's shell temperature, which will be detected by the wristband and the wearer can be alerted of the coming fever. Closely monitoring the trend of changes in body temperature and providing timely alerts for abnormalities, the wristband can alert the wearer to take early and appropriate action. Currently, 130 healthcare personnel at NCKU Hospital have volunteered to wear the wristbands. NCKU students who are under at-home quarantine and suspected cases of coronavirus and their families have also donned the wristbands for continuous monitoring of body temperature.



The interdisciplinary team at NCKU uses a "smart-monitoring wristband" to help implement at-home quarantine policy

Responding to this pandemic, the NCKU Hospital, the College of Medicine, College of Electrical Engineering and Computer Science, College of Sciences, and School of Management have formed an interdisciplinary, cross-departmental, cross-group team which incorporates medical resources and uses science and professional knowledge in the fight against the virus. The automated medical record system was developed by an information engineering team led by Clinical Medicine Research Center director Ping-Yen Liu, and is a seamless system created from their experience with the automated precision medical record system over the past year.

The model of the AI-assisted system for reading chest radiographs for lung inflammation was developed by the information team under the leadership of Tsai Yi-Shan of the Department of Radiology at NCKU Hospital, with active assistance from the team headed by professor Sun Yong-Nian of the College of Electrical Engineering and Computer Science. The teams used the advanced AI-automated chest radiograph reading model for pulmonary tuberculosis developed at the AI Innovation Research Center, to which they incorporated images of lung inflammation from the NCKU Hospital. With the two used in tandem, the overall speed of the reading is maximized.



NCKU brings together several smart healthcare methods in its "Smart Healthcare Clinical Decision Support System"

The smart-monitoring wristband was developed with the support of the Department of Foresight and Innovation Policies under the MOST along with Ke Nai-Ying, head of the Department of Nursing; Ko Wen-Chien, deputy superintendent of NCKU Hospital; Chen Po-Lin, head of the Center for Disease Control; Chuang Kun-Ta, assistant professor of the Department of Computer Science and Information Engineering; Kao Hung-Yu, dean of the Department of Computer Science and Information Engineering; and Yu-Chen Shu, assistant professor of the Department of Mathematics; as well as collaborating technology companies.

Copyright 2018 National Cheng Kung University

Marine Biology and Cetacean Research Center Does Its Best to Preserve the Blue Whale's Skeleton

NCKU Press Center

Cleaning bones and getting rid of rotten meat of a blue whale, the largest animal around the world, Marine Biology and Cetacean Research Center (MBCRC), National Cheng Kung University, is now carrying out an unprecedented mission of Taiwan. Floating on the ocean, the carcass of a blue whale was stranded on Taitung's seashore in January, 2020. According to the necropsy, the main structure of this young whale's skull is severely crushed. Thus, it will be a tough task of making a skeleton specimen in the future.



There are no past records of blue whales in Taiwan

“No one had ever witnessed any living or beached blue whale much more than half century in the ocean around Taiwan. According to the documents of whaling activities in the past 100 years of Taiwan area, 14 blue whales were caught in the ocean around Taiwan during 1920-1938; however, there were no exact locations of catching whales on records,” said Prof. Hao-Ven Wang, Director of MBCRC. There are no records of the appearance of blue whales around Taiwan during the past decades, either. Based on official records, although there are nearly 30 species of cetacean in the ocean around Taiwan, the blue whale is not one of them. Apart from investigating the cause of death, MBCRC also aims to preserve the skeleton of the blue whale as much as they can and make it into a specimen. It will be a significant contribution to whale research for the whole world, if the skeleton specimen is successfully made.

Based on the evidence of the necropsy, the age of this blue whale is less than three years old. Moreover, the research papers point out that the calf is born at 7 meters in length, at 15 meters after seven months and reaches a maximum confirmed length of 30 meters. The longevity for a blue whale is at least 80-90 years and some may even reach 110 years.

Prof. Hao-Ven Wang pointed out that this is the first record that a blue whale stranded in Taiwan for nearly ten decades. Currently, only few countries (e.g. Canada, America, and Britain) own blue whale's skeleton specimen and this one will be the first specimen of blue whale in Taiwan.



Hao-Ven Wang explains cetacean research

When it mentioned to the process of dissecting with the beached blue whale, Prof. Wang said sadly, “this blue whale was starving!” Its organs were rotted, and its muscles decomposed into watery- bloody- fluid. There were no food residues found in its stomach and intestines. In addition, its subcutaneous blubber layer was thin which proved that it hadn't eaten anything for a long time.

“We feel very sorry that this blue whale's mouth was twined by fishing net when we found it in Changbin, Taitung. With its mouth open, the blue whale takes in large volumes of water into its chin. Closing its mouth and squeezing out the water with its abdomen at the same time, its food, such as krill or fish, will be filtered through its baleen plates. Thus, if the blue whale cannot open its mouth, it cannot eat anything,” said Prof. Wang. Although the cause of the blue whale's death is related to fishing industry, with limited information, the research group has not yet identified to which fishing method the fishing net was categorized. Nowadays, the world begins to reflect on the importance of friendly fishing gear and fishing industry. The United Nation Sustainable Development Goals (SDGs)14 also mentioned issues of “increased efforts and interventions are needed to conserve and sustainably use ocean resources at all levels.” Therefore, Prof Wang feels that he is responsible for exploring and realizing the cause of the blue whale's death. Finally, Prof. Wang expects the proof he finds will raise awareness about issues critical to the protection of life below water.

Copyright 2018 National Cheng Kung University