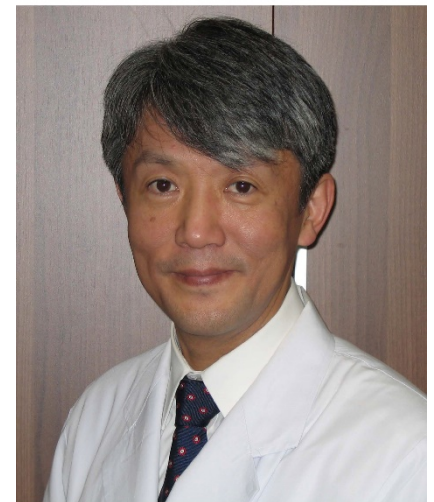


AC21 Newsletter

Greetings from the new Director of AC21 General Secretariat

Hideki Kasuya

Professor of Graduate School of Medicine, Nagoya University



On April 1st, 2019, I will be appointed as the new Director of the AC21 General Secretariat to take over Professor Yoshihito Watanabe. Currently I am a Professor in the Department of International Medical Education in Graduate School of Medicine. I have been involved in AC21 promotion office since 2009. It's incredible to notice that I've been involved almost 10 years in AC21's long story. AC21 has gradually changed its shape, we have cooperated and discussed every detail in order to make the best shape of AC21 consortium. During this process, some friends left and new friends joined. With all those changes and efforts, I believe, AC21 took a great shape and now it is the treasure and pride of all of our members as a worldwide excellence based on academic cooperation with warm friendship. However, we need to evolve and seek to improve for next generation. Currently, there are a lot of academic consortiums in the world; with this in mind, how we can be a distinctive and unique consortium? Where do we want to be in future? To have a better idea of it, we recently did a survey requesting member's future vision of AC21. After receiving the survey, we want to implement as much as many

of the ideas in order to find the best shape of AC21. Each opinion is valuable to make a brilliant future of our cooperation. In 2019, Students Forum will be held in South Africa by the University of Stellenbosch and Steering committee will be held in Washington DC. Our students will have the unique and unforgettable experience in South Africa and keep the experience forever in their memory. I am very excited to hear their experience and thoughts of it. I will also join and give my most sincere greeting to the members of steering committee in Washington DC. Lastly, I would deeply appreciate if all of members could cooperate with our new AC21.

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AC21 Special Project Fund(SPF)2018: Reports from Awardees Joint Mini-Symposium on Agro-Industry Research for Well-Being 2018 at Kasetsart University, Bangkok, Thailand

Kasetsart University

AC21 Joint Mini-Symposium on Agro-Industry Research for Well-Being 2018 was successfully held at the Faculty of Agro-Industry, Kasetsart University, Thailand during November 12 – 14, 2018. Participants from Stellenbosch University, Nagoya University, Gadjah Mada University and Kasetsart University were invited to present their research related to Agro-Industry under the theme of “Well-Being”.

The symposium welcome was addressed by Assoc. Prof. Ravipim Chaveesuk, Associate Dean for Strategic and Organizational Development, Faculty of Agro-Industry, Kasetsart University and then Assoc. Prof. Siree Chaiseri, Vice President for Research, Kasetsart University presided over the opening ceremony.

Presentations about Nagoya University, Stellenbosch University, Gadjah Mada University and Kasetsart University were given by representatives of 4 universities namely Assoc. Prof. Dr. Jun Marase, Prof. Dr. Marena Manley, Dr. Supriyadi Supriyadi and Asst. Prof. Dr. Sasitorn Tongchipakdee, respectively.

During 2-days of oral presentation 24 presenters presented their research work under 6 themes including Agro-Industry Management, Material Science, Functional Food Ingredients, Biotechnology, Food Quality and Security, and Molecular Biology. More than 50 participants including faculty staffs, researchers and students attended this interesting event. During the symposium many possible collaborations have been discussed

among participants such as student exchange, staff exchange, research collaboration and etc.

The conference ended with a field trip to C.P. Retailing and Marketing Co., Ltd. or CPRAM, one of the affiliated companies in the marketing and distribution business within Charoen Pokphand Group that is the leading company in production and distribution of ready to eat food and bakery products at Phatumtani Province and a cultural visit to Chao Sam Praya National Museum and the Ancient Palace in Ayutthaya Province.



A Platform construction: Mini Multi-style Workshop on Understanding Water-Energy-Climate Change Nexus in a Transitional World

Nanjing University

Water and energy are both the foundation of human society and economy. The production and consumption of energy are closely integrated with that of water, and vice versa. In the past few decades, the rising demand to both energy and water has led to several crucial sustainability issues, such as climate change, renewable energy, urbanization, and responsible trading. Meanwhile, the changing natural, economic and political environment

across the world would bring much uncertainty to energy and water issues, especially at this transitioning period for all countries.

There are many interesting issues which we shall put forward and discuss. How can our energy and water systems be more sustainable? How resilient are they against natural and social risks and potential disruptions? And how should different stakeholders, such as cities or multinational companies, prepare themselves

to understand sustainability and resilience in such context?

These questions arouse a lot of attention from governments, academia, companies, as well as the general public. To provide some preliminary answers, we applied the special fund from AC21 in 2018 to support our multi-style mini workshop to: 1) establish a platform to bring together researchers from (non-)AC21 members of different countries who are interested in energy-water-climate change nexus

(EWCN) in different research areas, to extensively exchange research ideas and methods thus discover further collaborative opportunities through multiple ways (online and onsite); 2) record what we has discussed and send out "EWCN highlights" to share these ideas and research results, not only in the academic world, but also among non-profit sectors as well as the general public.

In 2018, we organized one online workshop and several onsite talks/discussions among (non-)AC 21 members on the EWCN topic, with a special focus on city and agricultural climate adaptation.

Jointly Funded by AC21, Environmental Management and Policy Analysis Center (EMPA) and International Environmental Global Institutes (IGES), we cooperated with a professional video production

company, to make high quality video materials from our invited talks, which promoted the barrier-free communication among scholars and the general public.

Inspired by the AC21 special fund project, we initiated an Energy, Environmental and Climate Change (EECC) Salon Series, to invite experts, industrial leaders and lay person who have interests and experience in this field to share their ideas with students and the general public. We believed that, to some extents, we are all "blind men", who only touched pieces of a huge elephant. We want to bring more pieces together to enlighten the world. These videos will be uploaded and updated as the supporting materials of the MOOC titled Environmental Policy Analysis, which will be online in April 2019.

Supported by AC21, we developed different ways to discuss, share and broadcast our understandings on EWCN. We believe that, these efforts would hopefully establish academic communications among universities and research centers from AC21 members and other institutes, facilitate publications, and create various funding proposals, as well as raise the AC21's reputation on both academic and non-academic fields, in the longer term.



Promoting the uptake of the modern sampling theory in agriculture research and extension applications

The University of Adelaide

Capacity to collect quality data underpins the productivity and sustainability of the modern data-driven and data-sharing agriculture. Establishing such capacity requires inputs from statisticians and agri-scientists. This SPF project focused on promoting the methodology of ranked set sampling in agriculture research in Australia, New Zealand and Laos through a two-day symposium and a series of workshops. The methodology allows field researchers to collect objectively a representative set of bio-samples for laboratory assessment, significantly reducing the expense in comparison to a simple random sample as well as eliminating the bias of subjective

selection. Dr Olena Kravchuk (University of Adelaide), Prof Jennifer Brown (University of Canterbury) and Prof Silinthone Sacklokhom (National University of Laos) joined their efforts in this project. The International Ranked Set Sampling Symposium in Adelaide (<https://rankedsetsymposium2018.website/>) presented talks on recent statistical developments and applications in agricultural and environmental research as well as relevant technological developments in field research. A round-table discussion at the Symposium between statisticians and agricultural scientists from several countries explored current sampling practices, goals and constraints in modern agriculture. Spanning from

this SPF project, further developments are being undertaken in establishing programs for professional development and research training for statisticians and bio-scientists in the participating countries.



Report on Finding Errors Before They Find You Workshop

Stellenbosch University

A successful workshop on new research in software analysis and bug finding was held on 15 October at the Stellenbosch Institute for Advanced Study (STIAS), Stellenbosch, South Africa. The workshop was co-located with the International Colloquium on Theoretical Aspects of Computing (ICTAC) and participants from both events were free to attend all presentations and shared social events (winery visit, a “boere braai” and a banquet). There were representatives from various AC21 partners (Stellenbosch, Minnesota, Freiburg) as well as other Universities and industry. The workshop was purposefully scheduled for the beginning of the week, before ICTAC started, to allow ample opportunity for discussions during the rest of the week.

The main theme for the workshop was on various new research directions for finding errors in code, with as little as possible human intervention. An array of experts in the field of software testing and analysis were assembled to discuss their current research. There was an emphasis on discussing “new”, i.e. unpublished work.

One of the core research techniques used in a number of the presentations, was symbolic execution. Symbolic execution allows one to “execute” code on symbolic inputs and then collects constraints on the input to realize certain program executions. This has been shown in the past to be a very good approach to generating tests and for finding subtle errors. Prof Matt Dwyer (University of Virginia) and

Dr Antonio Filieri (Imperial) kicked things off with a new approach that allows one to do a partial analysis and then to prioritize future analyses that would allow most information gain. Prof Yunho Kim (KAIST) followed on from this approach to show that if one can find an error by analyzing a unit, there remains the problem of how to make sure if that unit can be reached with the required conditions during a system execution. He showed a technique again using symbolic analysis that can solve this problem. Three more presentations also showed techniques that extend symbolic execution. Firstly, Prof Jaco Geldenhuys (Stellenbosch) contrasted two techniques for doing concolic symbolic execution efficiently. Prof Mike Whalen (Minnesota) showed that one can summarize static regions with a technique called Veritestest that allows better scalability and lastly Prof Willem Visser (Stellenbosch) showed a new way of combining symbolic execution and fuzzing for finding subtle errors. One more presentation, by Prof Ina Shaefer (Braunschweig), showed a different approach to solving the problem of eliminating errors in code: don’t introduce them in the first place. The approach allows one to construct programs that are provably correct.

The workshop was concluded by allowing some Stellenbosch postgraduate students to get a taste of presenting their work before leading experts in the field. Alex Leid showed how to analyze smart contracts using symbolic execution; Jan Taljaard, is optimizing constraint caching to improve software analysis; Philip van

Heerden, developed a tool to find concurrency errors; and Moeketsi Raselimo is using fault localization on faulty grammars written by students.

Interestingly most vibrant discussions centered on a problem that nobody presented explicitly during the workshop, but clearly was on everybody’s mind: how to test programs using neural networks (or machine learning more general). Discussions went so well that it was decided to host a follow-up workshop in March 2019 to allow for a longer period and a wider audience to look at the more general issue of “Sensemaking In the Digital Age”.



AC21 Special Project Fund (SPF) : Results of the 2019 Round SPF Awarded to 5 Projects This Year

The AC21 General Secretariat is delighted to announce that five proposals have been selected for the 2019 round SPF awards after careful evaluation by our STC member schools, from the fourteen outstanding applications submitted this year. Established in 2009, the SPF provides support to projects that involve multiple AC21 members in order to encourage collaboration and partnership.

| Project Title | Participating Universities |
|--|---|
| ➤ Towards Ultra-Reliable Low-Latency Communications for 5G UAV Ecosystems: Collaborative Research Planning among NC State, NU and AU | ✓ North Carolina State University* ✓ Nagoya University ✓ The University of Adelaide Non-member institutes: ✓ University of South Florida |
| ➤ Advancing Paleontological Research and Specimen Conservation in Southeast Asia | ✓ North Carolina State University* ✓ Stellenbosch University ✓ Kasetsart University ✓ Chulalongkorn University Non-member institutes: ✓ Suranaree University of Technology ✓ Western State Colorado University ✓ North Carolina Museum of Natural Sciences ✓ Department of Mineral Resources ✓ Sirindhorn Museum |
| ➤ Multilingualism, Identity, and Education: Global Perspectives on Research, Policy, and Pedagogy | ✓ Stellenbosch University* ✓ North Carolina State University ✓ University of Strasbourg Non-member institutes: ✓ Charles University ✓ Human Sciences Research Council of South Africa ✓ Makerere University ✓ University of Cape Town ✓ University of Edinburg etc |
| ➤ Constructing the 21st-Century Silk Road: Southeast Asia in the Race for Connectivity and Geopolitical Interests | ✓ University of Freiburg* ✓ Gadjah Mada University ✓ Nagoya University ✓ Nanjing University Non-member institutes: ✓ German Institute for International and Security Affairs ✓ University of Applied Sciences Konstanz ✓ MERICS Berlin ✓ Arnold-Bergstraesser-Institute |
| ➤ Workshop on smart civil on construction and operation | ✓ Northeastern University* ✓ Tongji University ✓ Nanjing University ✓ The University of Adelaide ✓ University of Freiburg ✓ Stellenbosch University ✓ North Carolina State University Non-member institutes: ✓ Kyushu University (Japan) ✓ Seoul National University (South Korea) |

* denotes a project representative.

AC21 International Graduate School (IGS) 2019

"Invasion Science for society: hands-on experience of environmental, social and economic impacts of alien species"

Robert Kotzé, Senior Director: Stellenbosch University International
Stellenbosch University



From 12 July – 21 July 2019 Stellenbosch University (SU) (www.sun.ac.za) will host the 2019 AC21 International Graduate School (IGS) in Stellenbosch and Fynbos Retreat, a rural field camp. The School will include daily workshops, lectures and field excursions into the unique and invaded fynbos biome. It will be a fantastic opportunity to gain practical experience and unique understanding of invasions from world leaders in invasion science at one of South Africa's national centres of excellence, the DST - NRF Centre of Excellence for Invasion Biology (C·I·B) and partner organisations. This trans - disciplinary IGS will appeal to post - graduate students of environmental sciences or those interested in the social and economic impacts of invasive species.

The C·I·B is an inter-institutional Centre of Excellence established in 2004 and its

members undertake research on the biodiversity consequences of biological invasions, largely through post-graduate student training. The C·I·B's research targets all aspects of the phenomenon of biological invasions, all taxonomic groups and all ecosystems. Better understanding of invasion patterns and processes is required, and options for management and remediation need to be explored. Each stage of the invasion process (pre-introduction; initial incursion; expansion; and dominance) demands its own tools, insights and types of study. The C·I·B undertakes work in several overarching themes: Biological or biodiversity foundations; model systems; human dimensions; basic inventories; modelling capacities; policy formulation and risk assessment. This suite of themes provides the scope for cutting-edge work in invasion science, while providing opportunities to draw in students from diverse biological fields and many other disciplines.

Participants will spend their first day in Stellenbosch for a welcome event and exploring the university town. On the second day they will travel to Fynbos Retreat for the full programme, including workshops and lectures on assessing the impact of invasions, the economics of invasions, the restoration of invaded habitats, marine invasions and responding to alien plants. Excursions will include clearing an incursion and a visit to an invaded rocky shore and harbour. Fynbos Retreat

is a fully equipped field camp where SU students regularly stay during field trips. All meals are served on site and the group will stay in shared facilities.

Dr John Measey, C·I·B senior researcher, will lead a team of nine facilitators including Prof John Wilson, science lead for the South African National Biodiversity Institute's (SANBI) Directorate of Biological Invasions, Dr Elizabeth Pienaar, Assistant Professor in the Department of Wildlife Ecology and Conservation, University of Florida (USA), Dr Jana Fried, Assistant Professor at the Centre for Agriecology, Water and Resilience, Coventry University (UK), and Prof Karen Esler, Head of Conservation Ecology (SU).

One can read about the Fynbos Biome and the Cape Floral Kingdom, the smallest of the six Floral Kingdoms in the world (<http://pza.sanbi.org/vegetation/fynbos-biome>) or you can join the 2019 AC21 IGS and experience it first-hand! We welcome you to the Western Cape and South Africa!



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Announcement for the 17th AC21 Steering Committee Meeting

AC21 STC members will meet in Washington D.C.

Junko Iwatsuki, Project Coordinator
AC21 General Secretariat, Nagoya University

The annual AC21 Steering Committee Meeting (STC) is usually called at the time of the major AC21 events, such as Student World Forums (SWF), International Graduate Schools (IGS) or International Forums (IF) since 2010.

This year, however, the STC member universities will meet in Washington D.C. on May 28, during the NAFSA 2019 Conference.

The meeting will be comprised of the annual house meeting and a

discussion session that focuses on strategy and governance to enhance AC21 activities.

The AC21 General Secretariat will notify the STC members of the meeting agenda/venue by email and the details will also be posted in our Monthly Report on the AC21 website <http://www.ac21.org>.

We look forward to seeing you in D.C!

Upcoming AC21 Activities and Events

| YEAR | DATES | EVENT/ACTIVITY | LOCATION |
|------|------------|---|--|
| 2019 | May 26-31 | Attendance at NAFSA 2019 | Washington D.C. (USA) |
| | May 28 | 17 th Steering Committee Meeting | JSPS Washington Office (USA) |
| | July 12-21 | 3 rd International Graduate School | Stellenbosch University (South Africa) |
| 2020 | TBA | 18 th Steering Committee Meeting | Kasetsart University (Thailand) |
| | TBA | 10 th International Forum | Kasetsart University (Thailand) |
| | TBA | 10 th General Assembly | Kasetsart University (Thailand) |

AC21 General Secretariat Activities (Oct 2018 - Mar 2019)

| YEAR | DATES | EVENT/ACTIVITY | LOCATION |
|------|--------------|-----------------------------------|------------------------|
| 2018 | November 1 | Call for application for SPF 2019 | |
| | November 5 | AC21 Steering Committee Meeting | Via Internet |
| 2019 | March 14 | Announcement of SPF 2019 results | |
| | March 25 -29 | Attendance at APAIE 2019 | Kuala Lumpur, Malaysia |

AC21 Members

As of April, 2019

| | | | |
|------------------|-------------------------------|---------------------|---------------------------------|
| Australia | The University of Adelaide | Japan | Nagoya University |
| China | Jilin University | Laos | National University of Laos |
| | Nanjing University | New Zealand | University of Canterbury |
| | Northeastern University | South Africa | Stellenbosch University |
| | Shanghai Jiao Tong University | Thailand | Chulalongkorn University |
| | Tongji University | | Kasetsart University |
| France | University of Strasbourg | USA | North Carolina State University |
| Germany | University of Freiburg | | University of Minnesota |
| Indonesia | Gadjah Mada University | | |

What is AC21?

AC21 is an international academic consortium comprised of higher education institutions from around the world. It was established in 2002 at the initiative of Nagoya University, with the aim of creating an academic network that transcends borders to address global issues by sharing knowledge and expertise. The network is managed by the AC21 General Secretariat located at Nagoya University.

AC21 General Secretariat



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Visit our website
for the latest information!

www.ac21.org

