MOROKOT SAKAL

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EXPERIENCE

American University of Phnom Penh — Phnom Penh, Cambodia
Lecturer — Jun 2021 – Present

- Lecturer in the Faculty of Information Technology (IT).

AUPP High School - Foxcroft Academy — Phnom Penh, Cambodia
Part-time Lecturer — Jun 2021 – Present

- Teacher of Robotics class (as part of the STEAM Program).
- Lab manager of the MakerSpace.

Ministry of Post and Telecommunication of Cambodia — Phnom Penh, Cambodia
Technical Advisor — Jun 2021 – Aug 2022

- Support the decision-making in Ministry-related projects.
- Conduct research on satellite applications for Cambodia in cooperation with the Satellite Policy Department.

1U CubeSat Project Apsara-1 — Phnom Penh, Cambodia
Project Coordinator — Dec 2020 – Jul 2021

- Led the concept design phase of 1U CubeSat "Apsara-1" (definition of the mission objective, component selection, and the verification method).
- Responsible for the design of the communication subsystem, structure subsystem, and ground segment.
- Co-written the Apsara-1 CubeSat design specification and submitted the application form to the 6th round KiboCube launch opportunity.

Research and Innovation Center, Institute of Technology of Cambodia — Phnom Penh, Cambodia
Researcher — Apr 2020 – May 2021

- Researcher at the Dynamics and Control Laboratory (DCLab).
- Leader of DCLab's Satellite Research Group.
- Supervised four bachelor students and co-supervised three master students on the final-year research projects.

Paragon International University — Phnom Penh, Cambodia
Adjunct Lecturer — Nov 2020 – Apr 2021

- Lecturer for the Physics course in the undergraduate program.

Space Robotics Laboratory, Tohoku University — Sendai, Japan
Satellite Embedded Software Engineer — Apr 2018 – Mar 2020

- Participated in the software design, development and test of the Science Handling Unit of microsatellite RISESAT: a 50-kg class Earth-observation satellite, launched in January 2019, (still active in orbit).
- Participated in defining system level requirement, interfaces, concept of operations and test plans of IHI-SAT: a 3U CubeSat for demonstrating the AIS receiver technology.
- Co-authored/presented 7 publications from the RISESAT and IHI-SAT projects.

EDUCATION

Tohoku University — Sendai, Japan
Graduate School of Engineering, Department of Aerospace Engineering — Apr 2018 – Mar 2020
M. Eng., Aerospace Engineering, GPA 3.45/4.00

Tohoku University — Sendai, Japan
School of Engineering, Department of Mechanical and Aerospace Engineering — Apr 2016 – Mar 2018
B. Eng., Mechanical Engineering, GPA 2.95/4.00

National Institute of Technology, Ibaraki College — Ibaraki, Japan
Department Mechanical and Systems Engineering — Apr 2013 – Mar 2016
A. Eng., Mechanical Engineering, GPA 3.76/4.00

AWARDS

- SATO YO International Scholarship for Master's Degree — Apr 2018 – Mar 2020
- MEXT Scholarship 2016 for Bachelor's Degree (2-year extension) — Apr 2016 – Mar 2018
- MEXT Scholarship 2012 for Associate's Degree — Apr 2012 – Mar 2016
- Cambodian Government Scholarship — Oct 2010 – Mar 2012

PUBLICATIONS

Updated: May 2023

Journal Papers

1. Penghuy Srean, **Morokot Sakal**, et al. "Development of Orbital Simulator for Cambodian CubeSat Mission in LEO." *Techno-Science Research Journal, 2021,* Cambodia.
2. Dalin Soun, **Morokot Sakal** et al. "Design and Implementation of the Commercial-Off-The-Shelf Electrical Power System for the Satellite Training Kit – DemoSat," *Techno-Science Research Journal, 2021,* Cambodia.
3. Tomomasa Shibuya, Toshinori Kuwahara, Pasith Tangdhanakanod, Shinya Fujita, Yuji Sato, Kosuke Hanyu, Yu Murata, Adrien Potier, **Morokot Sakal**, et al. "Thermal Design and Evaluation of the Microsatellite RISESAT," *TRANSACTIONS OF THE JAPAN SOCIETY FOR AERONAUTICAL AND SPACE SCIENCES, AEROSPACE TECHNOLOGY JAPAN 19*, no. 6 (2021), pp. 855–864.
4. **Morokot Sakal** et al. "Integration and Orbit Demonstration of Micro-satellite Payload System Based on a Plug-and-Play On-board Computer", *TRANSACTIONS OF THE JAPAN SOCIETY FOR AERONAUTICAL AND SPACE SCIENCES, AEROSPACE TECHNOLOGY JAPAN 19*, no. 5 (2021): 784-793.
5. Kurihara Junichi, Toshinori Kuwahara, Shinya Fujita, Yuji Sato, Kosuke Hanyu, **Morokot Sakal**, et al. "A High Spatial Resolution Multispectral Sensor on the RISESAT Microsatellite." *TRANSACTIONS OF THE JAPAN SOCIETY FOR AERONAUTICAL AND SPACE SCIENCES, AEROSPACE TECHNOLOGY JAPAN 18*, no. 5 (2020): 186-191.
6. Robert Filgas, Milan Malich, Toshinori Kuwahara, Jan Broulím, Michael Holík, **Morokot Sakal**, et al. "RISEPix—A Timepix based radiation monitor telescope onboard the RISESAT satellite." *Astronomische Nachrichten 340*, no. 7 (2019): 674-680.

Conference Papers

1. **Morokot Sakal**, Maximilien Berthet, and Riccardo Corrado "Starlink for ASEAN: can it be the changemaker in the race toward SDGs?," *73rd International Astronautical Congress (IAC)*, 2022, France.
2. Maximilien Berthet, **Morokot Sakal**, et al. "International Collaboration Towards Cambodia's First Small Satellite Education Program: Lessons Learnt", *Small Satellite Conference*, Paper SSC21-WKI-01, Utah, US, August 2021.

3. Maximilien Berthet, Quentin Verspieren, Giulio Coral, Ryohei Takahashi, Nobuhiro Funabiki, Sarot Srang, Hoksong Tim, and **Morokot Sakal**. "Student-Led Policy and Technical Capacity Building Program: The Road to Cambodia's First CubeSat," *71st International Astronautical Congress (IAC)*, 2020, France.
4. Yu Murata, Yuji Sato, **Morokot Sakal** et al. "Ground Evaluation of the Attitude Control System of 3U-CubeSat IHI-SAT," *2020 IEEE/SICE International Symposium on System Integration (SII) (SII 2020*), Honolulu, USA, 12-15 Jan 2020.
5. Hannah Tomio, **Morokot Sakal** et al. "Lessons Learned from Integrating the Dual-band Optical Transient Camera to Microsatellite RISESAT," *Proceedings of the 12th IAA Symposium on Small Satellites for Earth Observation*, Berlin, Germany, 06-10 May 2019.
6. Hannah Tomio, Toshinori Kuwahara, Shinya Fujita, Yuji Sato, **Morokot Sakal**, et al. "Assembly and integration of optical downlink terminal VSOTA on microsatellite RISESAT." *In International Conference on Space Optics—ICSO 2018*, vol. 11180, p. 111805Z. International Society for Optics and Photonics, 2019.

Aide-mémoire

1. **Morokot Sakal** et al. "Small Satellite: The Key to Access Space Technology for Cambodia" (Aide-Memoire Vol 2, Issue 14), 2021. Cambodia Development Center (CD-Center).

ACTIVITIES

Guest Lectures

1. Science Museum Space Seminar Season 2 - Lessons Learned from Coordinating a Small Satellite Project in Cambodia, January 2023.
2. AUPP Pro Insight – Introduction Small Satellites and Their Applications, March 2022.
3. ICT Summer Short Courses – Introduction to Robotics, August 2021.

Volunteer

Kampuchea Aerospace Exploration Aspiration (KAXA) Jul 2022 – Present

- Director of KAXA.
- Organized training course for team members: Project Management.
- Define yearly activities: Space Engineering Webinar, Annual Report

Courses Taught

- ITM350 - Project Management, AUPP
- ITEC101 - Introduction to Information Technology, AUPP
- Robotics, AUPPHS-FA
- Physics I – Mechanics, Paragon IU
- Using Git/GitHub for Version Control, ITC
- Basic of Circuitry/Arduino, ITC

Mentorship

World Robotics Olympiad 2022 Mar 2022 – Nov 2022

- Mentored high school robotics teams to participate in the World Robotics Olympiad 2022, national round in Phnom Penh, Cambodia and the international round in Dortmund, Germany.
- The team won **3rd place** in the national round.

International Space Challenge 2022 Aug 2021 – Feb 2022

- Recruited a team consisting of four students from four different Universities.
- The team won the "**Distinction Award**" for the proposal of 12U CubeSat named "Reahou-Sat".

Cambodia Robotics Competition 2021 May 2020 – Jun 2021

- Mentored university robotics teams to participate in the national and international robotics competition.

- The team won **1st place** in the national Robotics competition in 2021 and won the "**Best Design Award**" for the ABU International Robotics Competition 2021.

Bak Touk High School
Physics Outstanding Student
- Participated in Grade 12th National High School Physics Outstanding Exam, Phnom Penh, Apr 2010.
- Participated in Grade 9th National High School Physics Outstanding Exam, Battambang, Apr 2007.

COURSES AND CERTIFICATES

Google Project Management: Specialization Jan 2023
Issuing Organization: Coursera
Certification ID: REK2ZYWBQ9ZG

Spacecraft Dynamics and Control Specialization Mar 2022
Issuing Organization: Coursera
Certification ID: UJRBQ2NA3S9P

SKILLS

- Technical: C, C++, Matlab, Arduino, Python, Linux, Git, Solidworks, Soldering, 3D Printing, MS Office, LaTex, and PIC Microcontroller.

Language: Khmer (native), English (professional), and Japanese (professional).

REFEREES

Available Upon Request