



哈爾濱工業大學
HARBIN INSTITUTE OF TECHNOLOGY



Work at HIT as lecturer after graduation

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Harbin Institute of Technology, China

2013-03-28 @ Ritsumeikan

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- II) What about HIT?
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I) Where am I from ?

Education Background

2001-2005

B.S. HIT

2005-2007

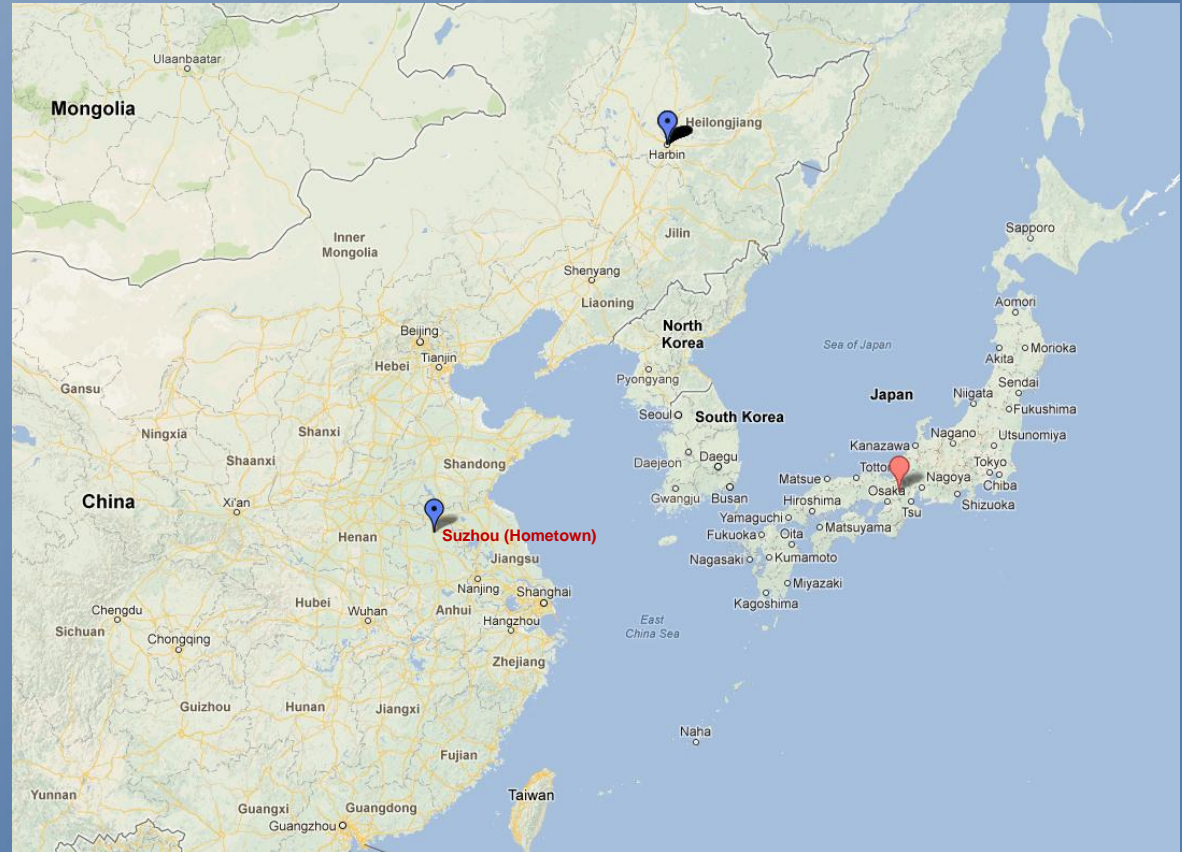
M.S. HIT

2007-2010

Ph.D. Ritsumeikan
Ma Laboratory

2011-

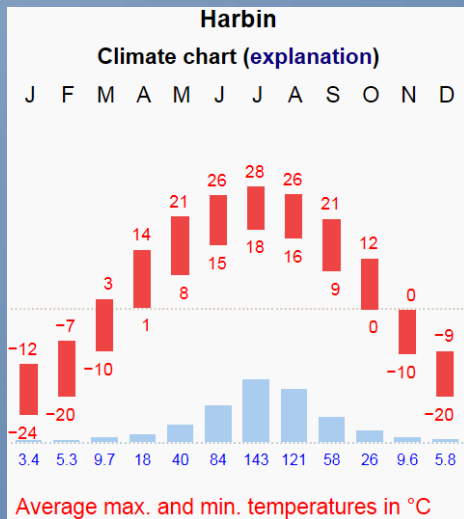
Lecturer, HIT
School of Mechatronics
Engineering



I) Where am I from ?

Harbin
哈尔滨

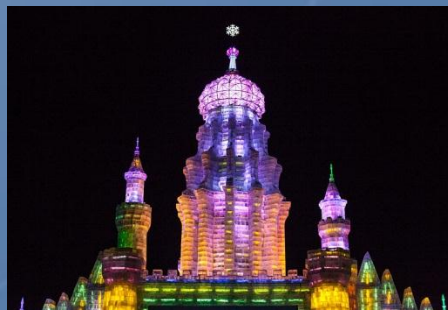
Nickname(s):
Ice City,
Oriental Paris,
Oriental Moscow



Russian Orthodox Saint
Sofia Church built in 1907



Harbin Xinhua Bookstore



Tower at Harbin Ice and
Snow Festival 2013



Photographed by
Atsushi Kakogawa

II) What about HIT?

Harbin
Institute of
Technology

- A member of the C9 League
- First-level institute of Technology in China
- To cultivate intellectuals and engineers for industry



School Badge



Motto:
Strict and Standard, Greatest Effort

II) What about HIT?



Statue of Minor Planet
in campus

- ❑ 55838 Hagongda (provisional designation: 1996 LN) is a main-belt minor planet.
- ❑ It was discovered through the Beijing Schmidt CCD Asteroid Program at the Xinglong Station in the Yan Mountains of China on June 7, 1996.
- ❑ It is named after the Harbin Institute of Technology, nicknamed *Hagongda*.

II) What about HIT?



Main building of Russian-style (built in 1950s)

II) What about HIT?

Schools of HIT (Science, Engineering, and Architecture)

School of Astronautics

School of Mechatronics Engineering

School of Material Science and Engineering

School of Energy Science and Engineering

School of Electrical Engineering and Automation

School of Civil Engineering

School of Municipal and Environmental Engineering

School of Architecture

Schools of HIT (Humanity, social science, and management)

School of Management

School of Humanities and Social Sciences

School of International Relations of Economics and Trade

School of Law

School of Foreign Languages

II) What about HIT?

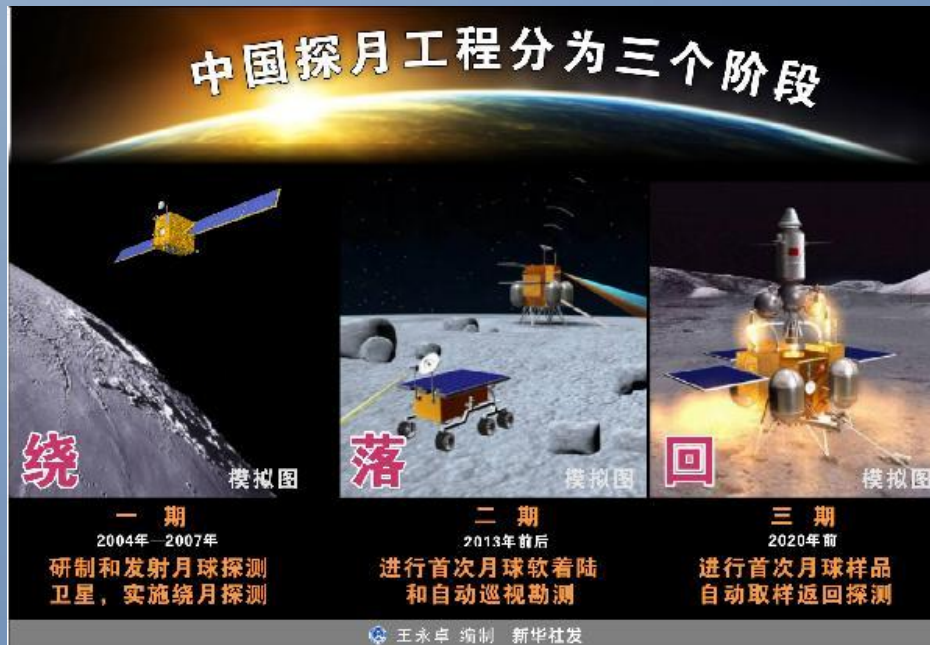
Research Center of Aerospace Mechanism and Control



- ❑ Research related to Lunar exploration in China
- ❑ Innovative mechanisms with light-weight, low-power, high-reliability
- ❑ Close relationship with National Aerospace Departments

II) What about HIT?

Lunar Exploration of China (Chang'e Mission)



Circling

Landing

Returning

Phase I: Circling

- Satellite (2007)

Phase II: Landing

- Lunar Rover (2013)

Phase III: Returning

- Automated Sampling Device (2017)

II) What about HIT?

Lunar Rovers with Different Configurations

Phase II



Rocker-bogie Rover



Negotiating obstacles



Rover with symmetric suspension



Closed-chain rover

II) What about HIT?

Phase II



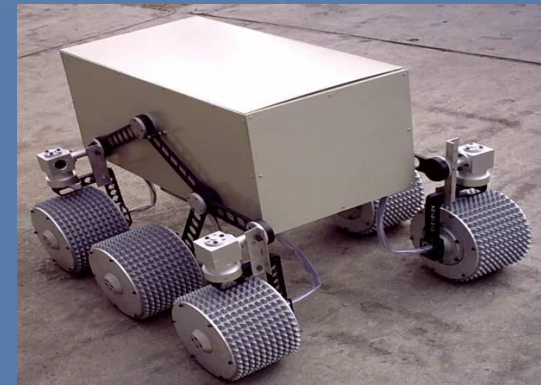
Gravity center changeable rover



Rover with torsional bar



Multi-joint wheeled-walking rover



6-wheeled rocker-bogie rover

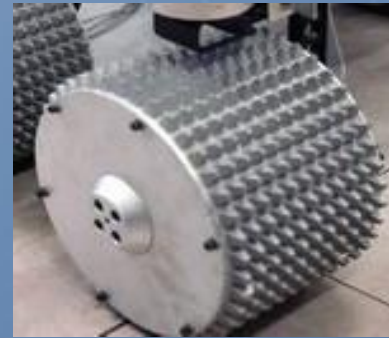
II) What about HIT?

Rover Wheels with Different Shapes

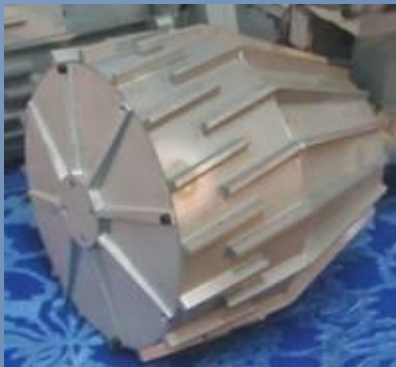
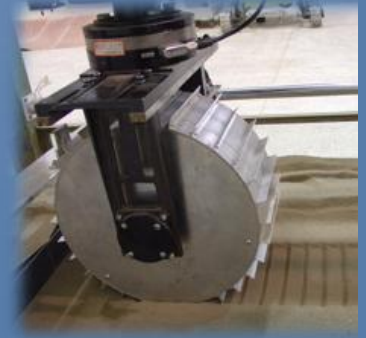
Phase II



Light weight wheels



Cylinder wheels



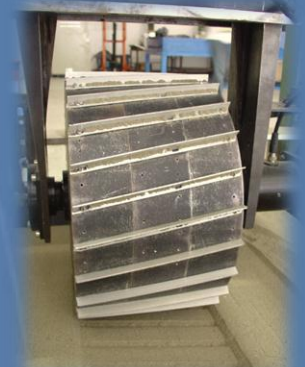
Cylinder-cone wheel



Drum wheel



Straight rug

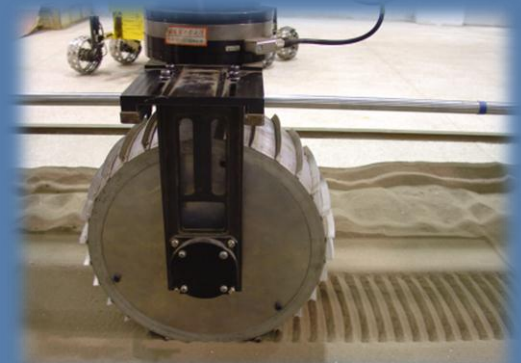
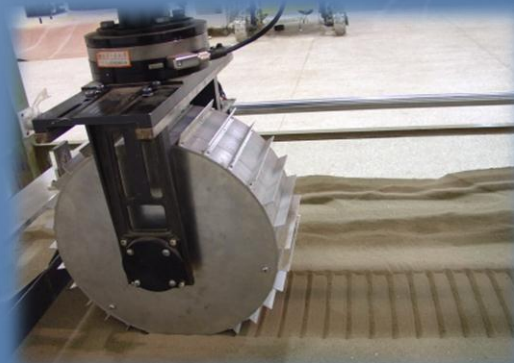
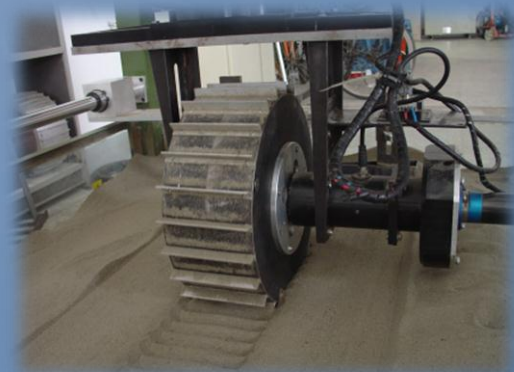
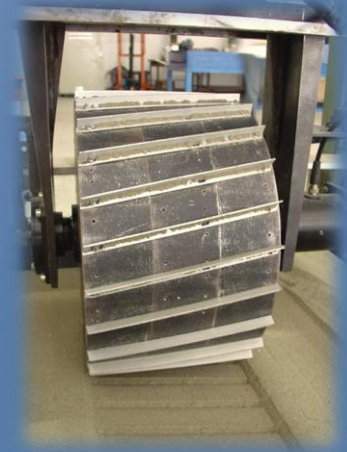


Inclined rug

II) What about HIT?

Test-bed to evaluate the performance of wheels

Phase II



III) My Research Interests

2005-2007

RCAMC, HIT

Master thesis:

Development of a test-bed for wheel -soil interaction and experimental study



2007-2010

Ma Laboratory, Ritsumeikan

Doctoral thesis:

Analysis of a Crawler Robot with Environmentally-adapted Mobility and its Modular Design



III) My Research Interests

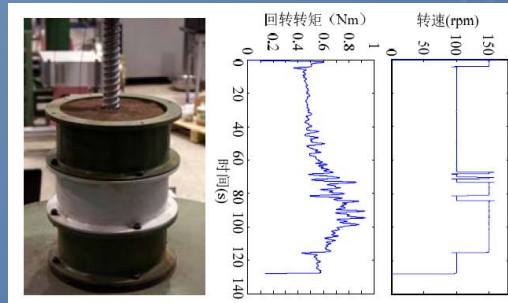
2011-present

RCAMC, HIT

- Intelligent Drilling Strategy Based on Recognition
- USDC(Ultrasonic Driller and Corer)



Drilling test-bed



Drilling Experiments



USDC

IV) Working Experience

Positions for young doctors at HIT

Three types:

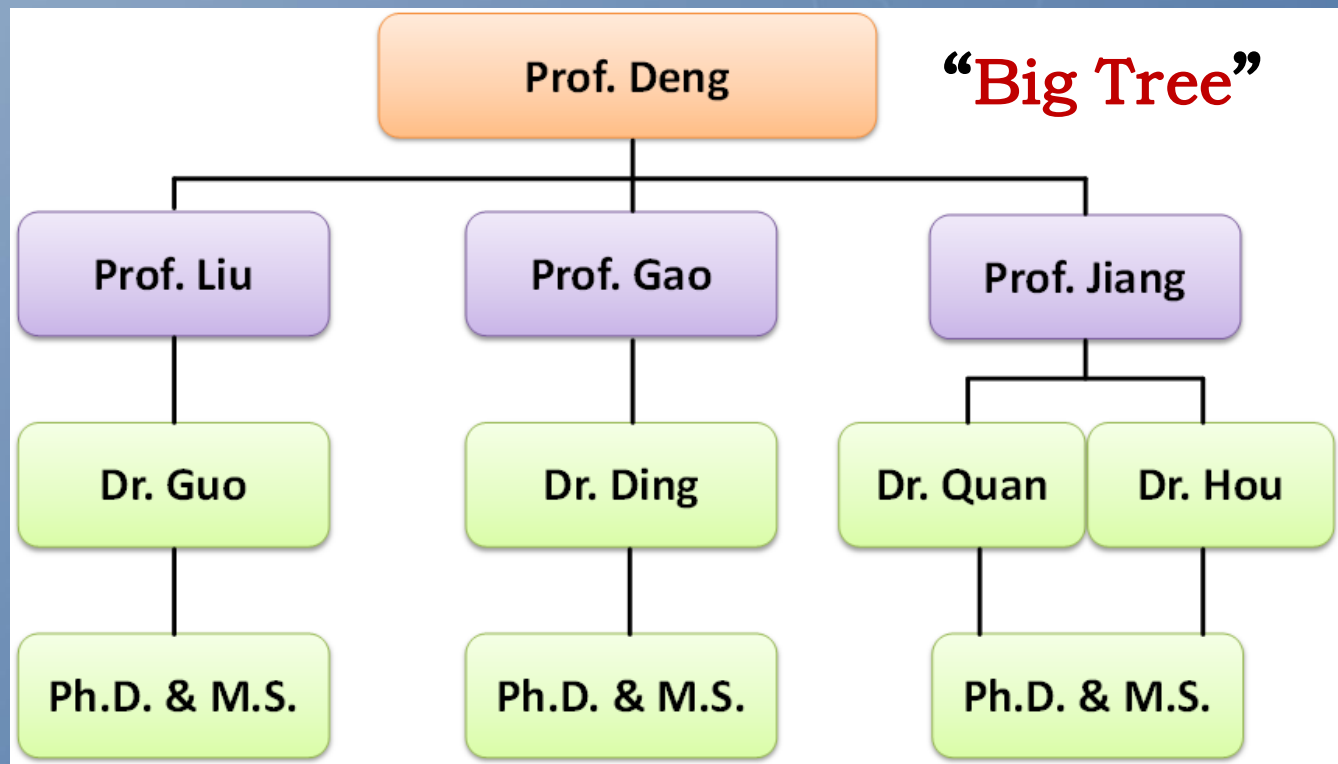
Education

Research & Education

Research

IV) Working Experience

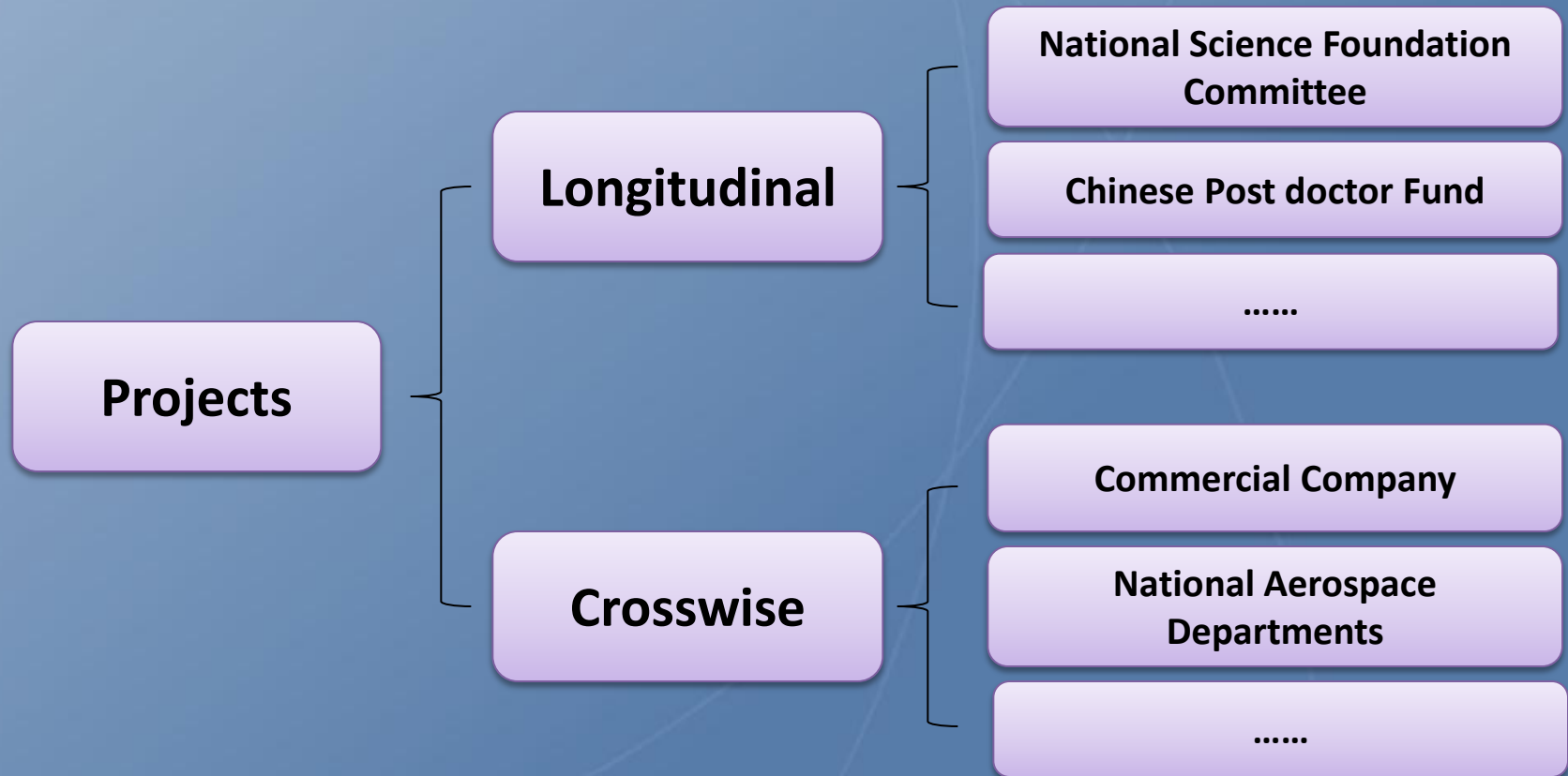
Personnel of RCAMC



“Laboratory Tree”

IV) Working Experience

Research Resources:



V) Advice for Juniors

Japanese Students:

- Research, Research, Research.
- NO research, NO position.

Resident Students:

1. Work in Japan

- Research, Research, Research.
- Improve Japanese Level.

2. Return Motherland

- Project, Project, Project.
- NO project, NO research.

Acknowledgement

- Professor Ma
- Professor Hirai
- Professor Maeda
- Professor Kawamura
- Professor Ozawa
- Professor Nokata
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- Members of Hirai Laboratory
- Mr. Sugiyama at Workshop
- Friends at Ritsumeikan



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Thanks for your attention!