

Supporting Partners



MINISTRY OF INTERNATIONAL TRADE AND INDUSTRY



马来西亚-中国商务理事会
Malaysia - China Business Council



Network Intelligence for Future Networks

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HUAWEI

Huawei Asia-Pacific Innovation Day

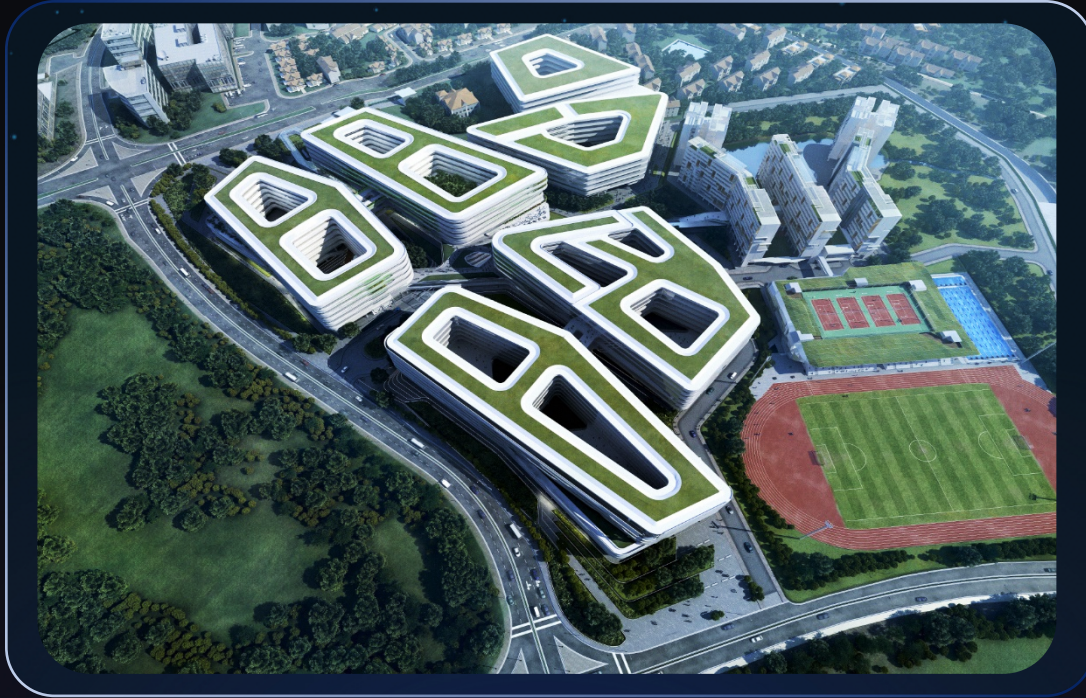


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SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

A BETTER WORLD BY DESIGN



Singapore University of Technology and Design

Our Unique Value Proposition

Mission

- To advance knowledge and nurture **technically grounded** leaders and innovators to improve lives
- Focus on Design through integrated **multi-disciplinary curriculum and research**



Strategic Collaborations



SUTD – Recognized for High Impact Research in Telecomms

The State of Innovation Report 2017
The Relentless Desire to Advance



NTU, SUTD and A*Star among top in world
for research in various fields: Study



Clarivate Analytice listed SUTD as the fifth most influential scientific research institution in telecommunications. ST PHOTO:KUA CHEE SIONG

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Figure 89: Most influential scientific research institutions in telecommunications (2006-2016)

Institution	Country	#of Papers(WoS)	Category Normalized Citation Impact*
Rice University	US	339	5.15
University of California Berkeley	US	765	3.46
New York University	US	446	3.37
University of Texas Austin	US	1226	3.00
Singapore University of Technology & Design	Singapore	374	2.90
Princeton University	US	789	2.78
Carnegie Mellon University	US	809	2.77
Illinois Institute of Technology	US	619	2.76
University of Wisconsin Madison	US	610	2.70
University of Washington Seattle	US	547	2.62



- WNDG Group – a **world-class** lab in networking, comms, and signal processing
- Vibrant and productive group work on **important** and **cutting edge** problems
- Attracts **world-class** graduate students, postdocs, visiting students, professors
- Home for **impactful** and **high-quality** research outcome

Current Research Areas

Small Cell Networks

Deployment, PHY Techniques, and
Resource Management

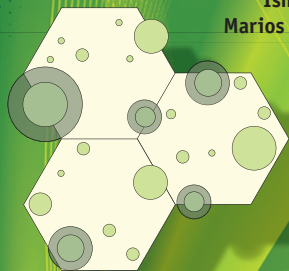
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CAMBRIDGE



Cloud Radio Access Networks

Principles, Technologies,
and Applications

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Vision of Network Intelligence

Understand
Learning Theory
for
huge heterogeneous complex
networks and systems

Develop **Learning Framework & Architecture**
for
smart cities, IoT, advanced
manufacturing, 6G,

Network Intelligence Framework

Intelligent Applications

Internet-of-Things
Smart Cities
6G & Beyond

Efficient Intelligence

Neuromorphic Computing
Fog & Edge Intelligence

Sensible Intelligence

Computer Vision
Natural Language Processing
Healthcare Analytics
Sensor Networks

Theory of Network Intelligence

Network Science
Distributed Intelligence
Machine Reasoning

Intelligent Flying Network

Hot-spot



Range extension

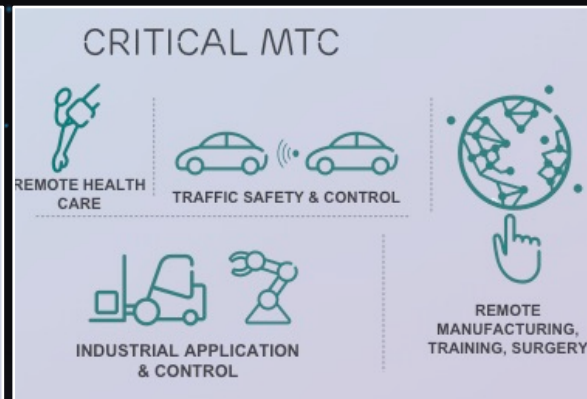
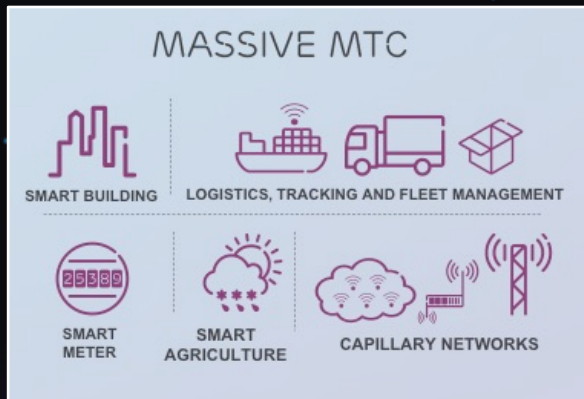
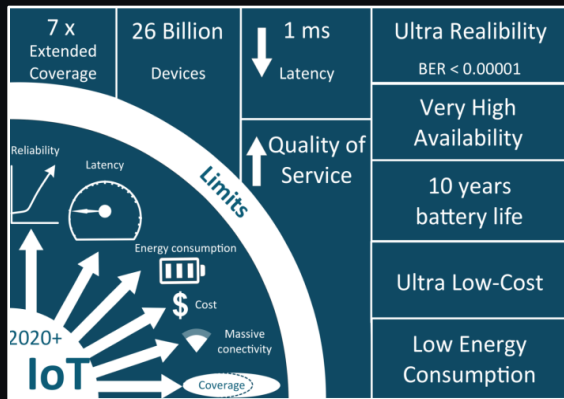


D2D relaying



- Intelligent and automated deployment
- Self-coordinated multi-UAV setting
- Intelligent UAV and terrestrial coexistence management
- Smart scheduling and control
- Human-robot-AI interaction

Automated IoT Network

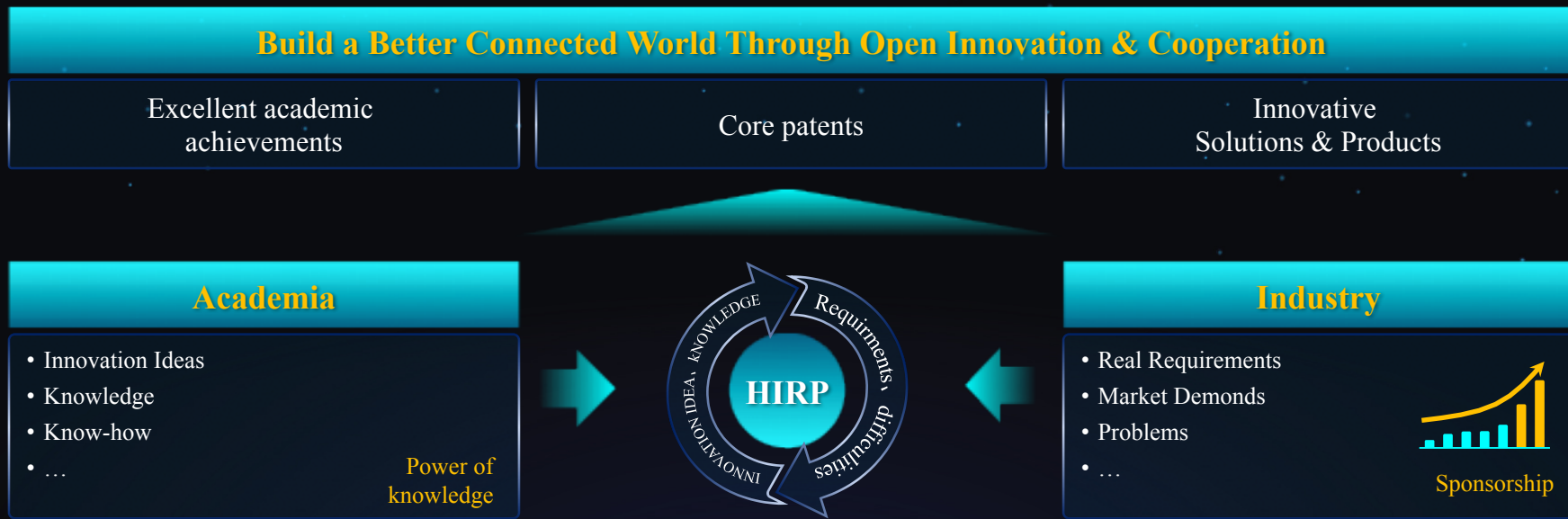


- Intelligent Fog/Edge processing
- Automated maintenance and self-organizing IoT networks
- AI + Blockchain + Sharing Economy = Sustainable and Smart IoT platform
- Intelligent and agile network and resource management for IoT services
- Role of network intelligence in tactile internet/URLLC

Challenges

- Efficient learning at the Fog/Edge
- Trade-off between learning and information collection
- Intelligence and decisions understanding
- Limited and real-time training
- Transfer learning for efficient network & service operations
- Security in automated networks

What HIRP is about



- HIRP : Huawei Innovation Research Program
- An Open Innovation Initiative, a sponsorship program targeted at funding leading universities and research institutes conducting innovative research in ICT areas

HIRP Structure

HIRP OPEN



- Support novel and early-stage research ideas in the ICT areas that Huawei published or even beyond.
- 1~2 year award with amount about 70,000 USD.
- Open call for proposals , usually 2 rounds per year. Yet accept online submission anytime for novel ideas.

HIRP FLAGSHIP



- Support research that will significantly impact technology areas that are of mutual interest to academic and Huawei.
- Large and multi-year contract-based awards.
- Invitation-only basis, inviting leading-class faculty members from top universities and research institutes around the world .

HIRP Exploratory



- Bring together internationally renowned leading researchers for the purpose of exploring cutting-edge topics.
- Format: Advisory Board、 Summit、 Seminar etc.
- Invitation-only basis

HIRP OPEN 2017



HIRP OPEN 2017 first round will publish 140 research subjects involving 13 technical fields



My HIRP Journey

- Submitted 5 proposals online across various topics
- 1 was accepted – Highly competitive
- Project was revised after several iterations to align both side interests – Understand market demands and learn new expertise from Huawei R&D team
- Funding research – Flexible and good
- Technology transfer – Difficult without ICT sponsor
- Impactful research – Science to real world applications

Current Status & Expectations

- Project contract to be signed
- Start with 1 year project
- Looking forward to better understand industry needs
- Expect to evolve into a bigger project and a longer term collaboration with Huawei team
- Looking forward to collaborate across other topics
- Hope to play a key role in Huawei roadmap of beyond 5G

Thank you.

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Learn More About HID

Digital