

Application Form of EASTS IRG

Date of Submission: 2018/06/07

<p>1. Name of IRG: Shared Space Design and Modeling: Case Studies in Asian Cities</p>
<p>2. List of research members</p> <p>1) a) Name of representative: Dr. Hooi Ling KHOO b) ID number of EASTS Regular Member: MY-03-17-0014 c) Affiliation: Universiti Tunku Abdul Rahman d) E-mail: khoohl@utar.edu.my e) Tel: (+60) 0164549916 f) Country/Region & Address: MALAYSIA Department of Civil Engineering, Lee Kong Chian Faculty of Engineering and Science, Universiti Tunku Abdul Rahman, Level 8, Block KB, Jalan Sungai Long, Bandar Sungai Long, Kajang, 43000, Selangor, Malaysia.</p> <p>2) a) Name: Dr. Ghim Ping ONG b) ID number of EASTS Regular Member: SG-96-17-0005 c) Affiliation: National University of Singapore d) E-mail: ceeongr@nus.edu.sg e) Tel: +65-6516-2279 f) Country/Region & Address: SINGAPORE Department of Civil and Environmental Engineering, National University of Singapore, Block E1A, #07-03, 1 Engineering Drive 2, Singapore 117576</p> <p>3) a) Name: Dr Yu-Ting HSU b) ID number of EASTS Regular Member: TW-95-17-0290 c) Affiliation: National Taiwan University d) E-mail: yutinghsu@ntu.edu.tw e) Tel: +886-2-3366-4237 f) Country/Region & Address: TAIWAN Department of Civil Engineering, National Taiwan University, No. 1, Sec. 4, Roosevelt Rd, Taipei, Taiwan 10617</p>
<p>3. Name of contact person other than representative: Hooi Ling KHOO</p>
<p>4. Keywords (Maximum: 5 words) Shared space design, pedestrian behavior modeling, motorcyclist, bicyclist</p>
<p>In recent years, there is an increasing awareness to the concept of “shared space” in transportation systems and infrastructure design. Shared space is an area/zone which no traditional traffic management systems (such as traffic lights, road signs, road markings and other conventional traffic elements) are removed or shared spaces between different modes are created, thereby forcing vehicles, alternate transport modes and/or pedestrians to share the same road or sidewalk space. This new-yet-old concept has received increasing attention in the city/sub-urban area design especially in major cities within the Asia-Pacific region such as Kuala Lumpur, Singapore and Taipei. Shared space design could also play a potential role in reducing carbon footprint.</p>

IRG-35-2018

The success of the shared space design is highly dependent on the traffic composition and condition as well as the commuter/driver behavior. It is thus challenging for cities when considering such mixed traffic condition. The mission of this IRG is to carry out study on issue in relation to the shared space design and modeling. With respect to shared space, several issues will be looked into:

- 1) Identify issues and challenges in shared space implementation across different countries/regions
- 2) Understand the design principles for shared space
- 3) Case study review on successful shared space design among the Asia Pacific countries
- 4) Modeling of driver/commuter/cyclist behavior in shared space, i.e. the interaction between car/vehicle with pedestrian at unsignalized intersection and cross road; motorist behavior and its interaction with pedestrian and bicyclist.
- 5) To understand the impact of shared space on the overall transport network performance.

With this IRG, it is expected to share knowledge on the effort put in so far by each city or country with respect to the above scope. The IRG also aims to conduct new research in this discipline and discover new knowledge especially with the increasing use of mixed modes in major cities.

6. Target year for completion (Research period is suitable within four years.):

Three years [October 2018 to September 2021]

7. Research plan:

(October 2018 to September 2019)

Stage I: Critical review on shared space design principles and implementations in Asia Pacific cities.

Timeline	Task
October 2018 to April 2019	-Perform desktop search on the information about shared space implementation in Asia Pacific cities. -Identify/choose interesting case study to be studied in detailed.
May 2019 to September 2019	-Collect detailed data on the case study chosen. -Compare the shared space design principles and issues for the case studies chosen. -Formulate the shared space principles which are applicable for Asia Pacific cities. -Identify lessons learnt from good and bad principles.

Expected outcome for first year:

- At least one journal publication on critical review of shared space principles and implementation in Asia Pacific countries
- One organized session on “Shared Space Transport Design and Implementations in Asian Cities” in 2019 EASTS conference in Sri Lanka

(October 2019 to September 2020)

Stage II: Analysis of driver/motorist/cyclist/pedestrian interactions at cross roads, unsignalized

IRG-35-2018

intersection and sidewalks

Timeline	Task/Milestone
October 2019 to December 2019	-Establish criteria for data collection site -Identify potential sites for observation -Preparation for site data collection
January 2020 to June 2020	-On site data collection -Data clearing and filtering
March 2020 to September 2020	-Data analysis on behavioral interactions between different modes in shared transport spaces

Expected outcome:

- At least 1 journal publication on data collection and analysis of behavioral interactions between different modes in shared transport spaces.
- One seminar/symposia on “Shared Space Transport in Asian Cities” at one of the IRG member university

(October 2020 to September 2021)

Stage III: Modeling of driver/motorist/cyclist/pedestrian interaction at cross roads, unsignalized intersection and sidewalks and development of good design practices and policies for adoption in Asian cities

Timeline	Task/Milestone
October 2020 to June 2021	-Development of driver/motorist/cyclist/pedestrian behavioral interaction model -Model calibration and validation
July 2021 to September 2021	-Journal paper preparation

Expected outcome:

- At least 1 journal publication on driver/motorist/cyclist/pedestrian behavioral interaction model and shared space design/policies.
- One organized session on “Shared Space Transport Modeling, Design and Best Practices for Asian Cities” in 2021 EASTS conference

8. Research funds:

Source of research funds (*)	Approximate amount (US\$)
ICRA	5,000
Matching university internal funding from UTAR (Malaysia), NUS (Singapore) and NTU (Taiwan)	5,000

*: (ex.) ICRA (Research grant of EASTS), Grants-in-aid for Scientific Research of Ministry of Education, Culture, Sports, Science and Technology (Japan), and etc.

All applications are to be delivered to:
Dr. Naohisa OKAMOTO, Secretary-General
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