Data Science and Communication in Smart Cities

Day 1: Course Overview

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NATIONAL TAIWAN NORMAL UNIVERSITY

Course type and participants

- Course title: Data Science and Communication in Smart Cities
  - i-COIL: Issue-based Collaborative Online International Learning
- Student body:
  - 17 from Kyushu University, Japan
  - 15 from National Taiwan Normal University (NTNU), Taiwan
- Instructors:
  - Kyushu: Shin'ichi Konomi 木實新一 konomi@artsci.kyushu-u.ac.jp
  - NTNU: Chao Wang 王超 cw@ntnu.edu.tw
- Teaching assistants:
  - Kyushu: Sabrina Suhaimi suhaimi.sabrina.201@s.kyushu-u.ac.jp
  - NTNU: Yu-Ting Chiang 蔣毓庭 61247043s@gapps.ntnu.edu.tw

Course objective

- Goal: learning to apply information science and engineering to address real-world society-based issues.
- Context: smart cities
- Technologies:
  - data science
  - data communication

Course format

- Lectures + group discussion + team project
- Five days, 15 hours (+1 hour for NTNU students)
  - Day 1 (7/23): Overview; Introduction to Smart Cities; Group Project
  - Day 2 (7/26): Data Science Basics
  - Day 3 (8/6): Data Communication Basics
  - Day 4 (8/9): Group Project Workshop
  - Day 5 (8/16): Project Final Presentations
- Collaborative online international learning
  - lecture recording ?
- Grading policy

Team project and homework assignments

- Team project
  - Day 1: group discussion and project topic choosing
  - Days 2 and 3: learning related knowledge base
  - Day 4: workshop
  - Day 5: final presentation and Q&A; peer feedback
- Homework assignments (to be done individually and independently)
  - Day 1: article reading and response
  - Day 2: data science exercise
  - Day 3: data communication exercise
  - Submit your work via e-mail, before the next course meeting date.

Software used in this course

- In this course, we will use the following software:
  - Anaconda
  - QGIS
  - Eclipse Mosquitto
  - Paho Python MQTT Client
- Other than installing each of them on your own machine, you are encouraged to use a Linux environment (within a virtual machine, for example).
  - Oracle VM VirtualBox
  - UTM for Mac

Course website

- We've created a course website for details of the above and more:
  - https://web.ntnu.edu.tw/∼cw/icoil/