Division of Environmental Design	Research field	Urban and Transportation Engineering	Lab. ID ED10
Laboratory web site	https://urban-trans.w3.kanazawa-u.ac.jp/yama/en/		

Research subjects

We analyze transportation networks and travel behavior based on academic fields such as traffic engineering and statistics.
For specific research topics, please refer to our laboratory website.

Master/Doctor course: Education policy, curriculum, typical activity in the laboratory

Basically, each student decides on a research theme according to his/her own interests and skills, and conducts his/her own research individually. Common skills (programming – MATLAB or Python, statistical analysis, and mathematical optimization) are studied among students in study groups held by the laboratory.

Daily life in the laboratory, etc.

Except for the activities listed below, students are encouraged to pursue their own research at their own pace while attending lectures. Activities as a laboratory are as follows
Weekly seminar: Each student is required to present his/her research regularly.
Group meeting: Meetings for each research group with several members.
Study seminar: study sessions among students to deal with statistics/mathematical optimization/programming.

Message or comments by the laboratory faculty staffs

The main focus of this laboratory is to answer the question, "What is the value of long-distance passenger transportation?" To answer this question, we conduct statistical analysis of human behavior data and simulations using mathematical models.
We welcome students who are interested in this topic!

Recent Master theses in these 3 years (+ more if appropriate)

year.month	Thesis title (including English translation of Japanese thesis title)
2021.3	Development of traffic state estimation methods from probe vehicle and traffic counter data by the maximum likelihood method
2021.3	Optimal placement of traffic sensors on the road network based on the information entropy
2021.3	A method of road network evaluation with the matrix tree theorem
2021.3	Spatio-temporal pattern analysis of short-distance and long-distance travel behavior by non-negative matrix factorization
2021.3	Analysis of multimodal network shape considering seasonal fluctuation in travel demand
2021.3	A study of road network connectivity assessment with the spectral graph theory
2021.3	Grasping the actual situation of traffic congestion using the running path information of probe car data
2020.3	A study on the decomposition of the road travel velocity variability using the mixed effect model
2020.3	An estimation of the route choice logit parameter on the road network using the maximum likelihood method
2020.3	Non-negative Matrix Factorization Approach for Estimating Travel Purposes of Mobile Phone Location Data
2020.3	A study on road traffic flow forecasting using the kinds of neural networks
2019.3	An eigenvalue analysis of connectivity of the emergency transportation road network
2019.3	A variability analysis of vehicle velocities with the probe and traffic counter data
2019.3	Analysis of Travel Pattern Change by Hokuriku High Speed Railway using Non-Negative Tensor Factorization
2018.3	A Study on Application of Semi-Dynamic Traffic Assignment Model Considering Space-Time Propagation of Traffic Congestion to LRT Introduction Planning
2018.3	A Study on the Current Status of the Disaster Management Bases in Japan and a Method for Ranking of Their Importance
2018.3	An Improvement of Traffic Assignment Model with the Travel Time Variability: A Case Study of Ishikawa Prefecture Road Network

Recent Doctoral theses in these 3 years (+ more if appropriate)

year.month	Thesis title (including English translation of Japanese thesis title)
2021.3	A study on the improvement of mid-to-long term maintenance and management planning for bridges

2020.9	A study of the semi-dynamic traffic assignment using the sensitivity analysis
Laboratory mail address	Assitant Prof.H. Yamaguchi<hyamaguchi *at*se.kanazawa-u.ac.jp>