博士学位論文 審査結果の要旨

Abstract of review result

芝浦工業大学大学院 理工学研究科 博士（後期）課程

Doctoral thesis defense committee

博士学位論文審査委員会

Main examiner 主 査	ヘンリーマイケル（Michael Henry）
Examiner 審査委員	伊代田　岳史（Takeshi Iyoda）
Examiner 審査委員	稲積　真哉（Shinya Inazumi）
Examiner 審査委員	志手　一哉（Kazuya Shide）
Examiner 審査委員	貝戸　清之（Kiyoyuki Kaito）
Examiner 審査委員	

氏　名 Applicant's Name	Azam AMIR
論文題目 Thesis title	Rational maintenance management system for road infrastructure applying machine-learning at the network and project levels

〔論文審査の要旨〕

Abstract of review

The final defense was held on Tuesday, January 30, with four committee members attending in person and one online. In addition, 13 SIT graduate students and two of Azam's family members joined on-site, and one professor (Gifu University), one PhD student (Kanazawa Institute of Technology), and six members of Azam's family joined online. In total, 19 people were on-site for the final defense and nine participated via Zoom.

Azam first gave a 60-minute presentation summarizing the achievements of his doctoral study. He began by thoroughly reviewing the importance of a data-driven approach for realizing rational pavement maintenance, then proceeded to introduce and explain how he applied various machine learning algorithms to extract valuable information for both evaluating and informing decision-making processes. He next demonstrated a new analytical method that effectively utilizes both network- and project-level data to predict pavement deterioration for heterogeneous road networks, and finally concluded by discussing the applicability of his approach to pavement management in other countries and transferability to management problems in other fields.

During the subsequent 60-minute discussion session, the committee members broadly commended Azam for the improvements made to his presentation and dissertation based on the feedback from the preliminary defense. Several committee members further noted that Azam's dissertation will be a valuable resource for them, as the methods and achievements would be very useful for guiding research in their own fields. Questioning mainly centered around issues such as how the proposed framework may inform practical decision-making, how to verify the accuracy of the deterioration prediction, the data requirements for implementing the proposed system, and how the system may be improved in the future. It was further noted that the dissertation still contained numerous minor errors, such as missing references, mislabeled figures and graphs, and other mistakes. The committee members encouraged Azam to reflect the discussed issues and thoroughly check and correct the thesis before final submission.

Considering the afore-mentioned value of Azam's research achievements, as well as the depth of his understanding and analysis of pavement maintenance management issues, the committee members unanimously agreed that Azam should pass the final exam of his doctoral thesis.