

帰国留学生短期研究報告書 (外国人研究者用)

Research Report (Foreign Researcher)

2020年 2月10日
year month day

首都大学東京学長 殿
Dear President, Tokyo Metropolitan University

外国人研究者氏名 (カタカナまたは漢字) ※パスポートと同一の氏名	Foreign Researcher (In alphabet) ※Your name as written in your passport
グエン・シュアン・トゥン	Nguyen Xuan Tung
受入研究者氏名 (カタカナまたは漢字)	Research Advisor (In alphabet)
村越 潤	Professor Jun Murakoshi
国 籍	Nationality
ベトナム	Vietnamese
所 属 機 関	Affiliation
交通運輸大学	Unviersity of Transport and Communications
職 名	Position
副学科長・講師	Vice Dean of Faculty of Civil Engineering/Lecturer
研 究 期 間	Period of Research
1/11 - 2/9	Jan 11st - Feb 9th
専 攻 分 野	Major Field
橋梁工学	Bridge Engineering

①研究課題 / Theme of Research (全角390文字/半角780文字以内) (Within two-bite 390 characters in Japanese/ one-bite 780 letters in English)
Practical maintenance methods of highway bridges in Japan

②研究概要 / Outline of Research (全角390文字/半角780文字以内)
(Within two-bite 390 characters in Japanese/ one-bite 780 letters in English)

1. Damage types and inspection of highway bridges
 - Periodic inspection system in Japan
 - Common damage types of concrete/steel/cable stayed/suspension bridges
 - Inspection system using camera, multicopter, robot, etc.
2. Practical maintenance methods on highway bridges
 - Modern inspection and maintenance technologies in Japan
 - Applicability of the technologies to Vietnam

③研究成果 / Results of Research (全角390文字/半角780文字以内)
(Within two-bite 390 characters in Japanese/ one-bite 780 letters in English)

The popular damage types of concrete and steel highway bridge and their causes in Japan were investigated. The damage classification in Japan is more detailed and clearer than in Vietnam. In Japan, there are more than 720,000 bridges and most of them were built during the rapid economic growth, the '60-'70s in the last century, those huge numbers of bridge are 80 times more than in Vietnam with around 4000 bridges as in 2015, most of them are concrete bridges. In Vietnam, the ages of bridges varies from 25-35 years old, they were built in the opening economic period of Vietnam, '90s of last century. The main causes of the damage in Japan mostly are salt damage of concrete, alkali-silica reaction and corrosion/fatigue of steel members while in Vietnam the causes are humidity penetration that contain chemical substances via tiny cracks of RC structures. The common repair method of the both countries are use of the epoxy resin for crack and new material that can enhance the strength of the structure such as carbon fiber reinforced sheet and glass fiber sheet, etc. The currently inspection and maintenance technologies mostly deal with the latest technologies such as fly camera, multicopter or big data processing, etc. toward smart inspection and maintenance in Japan in near future

④今後の研究計画 / Further Research Plan (全角390文字/半角780文字以内)
(Within two-bite 390 characters in Japanese/ one-bite 780 letters in English)

Continue to research about the new inspection and maintenance technologies that can apply in the wide range of structures in general and in the bridges in particular. Focus on the inspection method that can apply in Vietnam such as fly camera to survey the elevated area where the inspector can not reach.

⑤東京と海外諸都市との相互理解・友好親善関係の推進についての展望 / Vision for Contribution of Strength of Mutual Understanding/Friendship Between Tokyo and International Cities (全角390文字/半角780文字以内)
(Within two-bite 390 characters in Japanese/ one-bite 780 letters in English)

As a lecturer of Civil Engineering Department, University of Transport and Communications (UTC), I will provide modern technologies of inspection and maintenance in the field of Civil works to students and encourage them to go to Japanese universities for study in higher level. As a co-founder of ViJARD (Vietnam - Japan Research and Development center) of UTC, I and my crews have been supported and consulted the Japanese companies in the field of Civil during their first step enter to Vietnamese market by organizing the seminar or events to introduce their products to Vietnamese constructors. As a alumni of TMU in Hanoi, I regularly to hold the talk between TMU alumnies to introduce the new technologies of each member's field, and try to spread the Japanese spirit to community

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Research Report (Research Advisor)

2020 年 2月10日
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首都大学東京学長 殿
Dear President, Tokyo Metropolitan University

受入研究者氏名 (カタカナまたは漢字)	Research Advisor (In alphabet)
村越 潤	Murakoshi Jun
職名	Position
教授	Professor
受入研究科名	Graduate School
都市環境科学研究科	Department of Civil and Environmental Engineering
外国人研究者氏名 (カタカナまたは漢字)	Foreign Researcher (In alphabet)
グエン・シュアン・トゥン	Nguyen Xuan Tung
国 籍	Nationality
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※以下の点に注意の上、受入研究者の立場で報告してください。

- ①研究指導概要：外国人研究者にどのような研究指導をしたか。
- ②研究指導成果：今回の研究で外国人研究者にどのような成果が見えたか。
- ③今後の計画：今後、指導者としてどのように交流をとりながら研究をすすめていくか。

①研究概要 / Outline of Research (全角390文字/半角780文字以内)

30日間の短期滞在であることから、来日前のメールのやりとりや来日時の打合せにより計画を立てた上で、本人の希望に応じて焦点を絞って研究に取り組んでもらった。日本での最近の橋梁の損傷実態や維持管理技術に関する最新情報の整理を行い、ベトナムにおける橋梁の損傷との比較や、日本の新技術の導入可能性について考察を行った。随時報告を受け、適宜文献・データ等の提供や橋梁現況の説明を行うとともに、調査結果の整理方法について指導を行った。

②研究成果 / Results of Research (全角390文字/半角780文字以内)

日本では、昨年2月に橋梁点検要領の改訂が行われるとともに、それに合わせて効率的かつ効果的な点検・診断を支援するための新技術に関する技術資料や、注意を要する損傷事例に関する技術資料が国土交通省道路局から提供されている。これらの情報の整理等を通して、自国での劣化損傷との類似性や相違点について認識を深めることができた。その上で、試行的に導入され始めている近接困難箇所に対する飛行型計測機器などによる点検支援技術や、損傷発見後の措置方法について調査することで、自国への導入可能性のある新技術についての知見を得ることができた点が成果と考える。

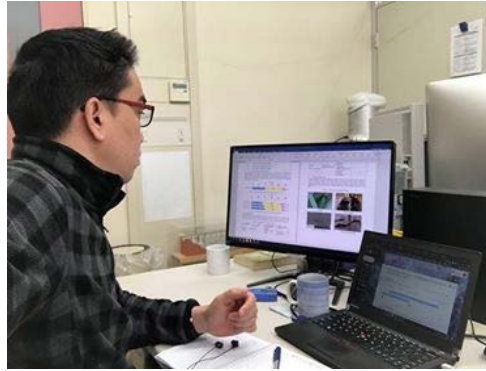
③今後の計画 / Further Research Plan (全角390文字/半角780文字以内)

日本で試行的に導入され始めている、新しい点検支援技術(特に飛行型の画像計測技術など)や維持管理技術について研究を継続していく意向であり、適宜、研究指導を行っていく。

首都大学東京帰国留学生短期研究支援制度 令和元年度 研究報告書

<外国人研究者プロフィール/Profile>

外国人研究者	グエン・シュアン・トゥン
Foreign Researcher	Nguyen Xuan Tung
国 籍	ベトナム
Nationality	Vietnamese
所属機関	交通運輸大学
Affiliation	University of Transport and Communications
現在の職名	副学科長・講師
Position	Vice Dean of Faculty of Civil Engineering/Lecturer
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研究者写真

受入研究者	村越 潤	職名	教授
Research Advisor	Murakoshi Jun	Position	Professor
受入研究科	都市環境科学研究科		
Graduate School/Department	Department of Civil and Environmental Engineering		

<外国人研究者からの報告/Foreign Researcher Report>

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<受入研究者からの報告/Research Advisor Report>

①研究概要 / Outline of Research

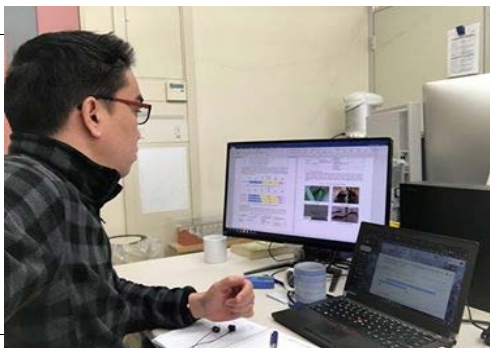
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研究室での研究風景

写真貼り付け

指導教員との打合せ