Report of UZH-KU Joint Research Project

Section 1

Project title:	Zurich-Kyoto Future Medicine Cluster: Creating Multilingual Medical AI Solutions
Project coordinator (KU) **Name** **Position** **Faculty, department**	Koji Fujimoto Associate Professor Department of Real World Data Research and Development, Graduate School of Medicine
Project coordinator (UZH) **Name** **Position** **Faculty, department**	Michael Krauthammer Professor Dr. Med. Professor Department Quantitative Biomedicine (UZH), Chair of Medical Informatics (USZ)
Period of project	From: May 2021 To: March 2022
Project location	Online organization
No. of participants	[KU] Faculty members: 6 Students: 1 Others: 0 [UZH] Faculty members: 3 Students: 1 Others: 3 (Post-docs) Others: *A participant list can be attached instead of completing the above section. The list should include the details above.
URL at which project outcomes can be viewed (e.g. workshop notifications/programs/reports, evidence of academic papers published or otherwise made available, etc.)	Progressive Transformer-Based Generation of Radiology Reports Farhad Nooralahzadeh, Nicolas Perez Gonzalez, Thomas Frauenfelder, Koji Fujimoto, Michael Krauthammer https://aclanthology.org/2021.findings-emnlp.241/

Photographs with captions	

Section 2

Summary of the project (approx. 200 words)
*KU project leaders are required to submit a summary of the project in Japanese in addition to the English summary (approx. 400 characters).

The Zurich Kyoto Future Medicine Cluster started as a collaborative initiative by Professor Michael Krauthammer from UZH and Dr. Koji Fujimoto from KU. Based on the experience on a shared project to automatically generate medical reports from chest x-ray images, in this project we sought for a possibility to find future collaborators to further establish this partnership by holding a workshop on "multilingual capabilities of AI solutions in medicine".

As a major outcome, we held two workshops, as well as five individual interview series to discuss and share information on (1) expectation and prospect of NLP in medical decision support systems, on (2) dataset generation and on (3) special research interests of the individual researchers. Another outcome of this project was a joint conference paper ("Progressive Transformer-Based Generation of Radiology Reports") accepted in EMNLP 2022. We also participated in a shared task workshop (https://sociocom.naist.jp/real-mednlp) on medical NLP as an international team (Kyoto-Zurich) with five additional new members (3 from KU, 2 from UZH), where we jointly submitted two conference papers (under review).

このプロジェクトでは、自然言語処理の医療応用に経験豊富なスイス大学の Prof. Krauthammer と京都大学の放射線科医師である藤本が、これまで培ってきた胸部 X 線画像からの文章生成の共同研究での経験を生かし、京都大学・スイス大学の双方でさらなる共同研究者を発掘すべく「医療における多言語処理 AI の将来」をテーマとしてワークショップを開催した。

プロジェクト期間内に２回のワークショップを開催したほか、双方の施設の研究者に対する個別のインタビューを計５回開催し、（１）自然言語処理の医療応用に何を期待するか（２）データセットの作成および共有における問題点（３）各研究者が専門とする研究内容　について、議論と情報共有を行った。このプロジェクトの成果として、医用画像からのテキスト生成に関する論文（"Progressive Transformer-Based Generation of Radiology Reports"）が採択されたほか、京大３名、チューリヒ大２名の新規研究者を加えた国際共同チームで公開データを用いたシェアードタスク・ワークショップ(https://sociocom.naist.jp/real-mednlp)に参加し共著で論文２編を投稿した（査読中）。