Exploring the Community of Model Publishers on TensorFlow Hub

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Summary

- We **explore the community** of the model publishers (MPs) on TensorFlow Hub (TF Hub)

- We demonstrate that the method of **analyzing the metadata of MPs** on TF Hub could be an alternative strategy to **understand people sharing models** on TF Hub

- We provide an insight into **design technology to support collaborative work** among MPs

Introduction

- As the number of research in AI is increasing, new questions about **building responsibility into AI** systems are raising

- However, little is known about **the online communities for MPs** and **how they share models** they developed

- Our research aims to **explore the community of MPs on TF Hub** by **identifying the metadata** of MPs and the models they shared on TF Hub.

Methods

- We **crawled MPs and models metadata** on TF Hub using Selenium software

- A descriptive statistic method was used to summarize the obtained metadata

Results

- We identified **36 MPs** sharing a total of **1,155 models** on TF Hub

- We found that each model consists of **domains, categories, architectures and datasets** (Table 1)

- We also identified the **relationship between MPs and models** on TF Hub (Figure 1). In each domain, **models are identified by the combination** of category, architecture, and dataset

Table 1. The total numbers of models, categories, architectures, and datasets for each domain on TF Hub.

#	Image	Text	Audio	Video	Total
# of Models	749	344	34	28	1,155
# of Categories	17	10	7	4	38
# of Architectures	86	15	12	12	125
# of Datasets	39	33	10	6	88

Figure 1. The overview of the relationship between (A) model publishers and (B) models on TF Hub.
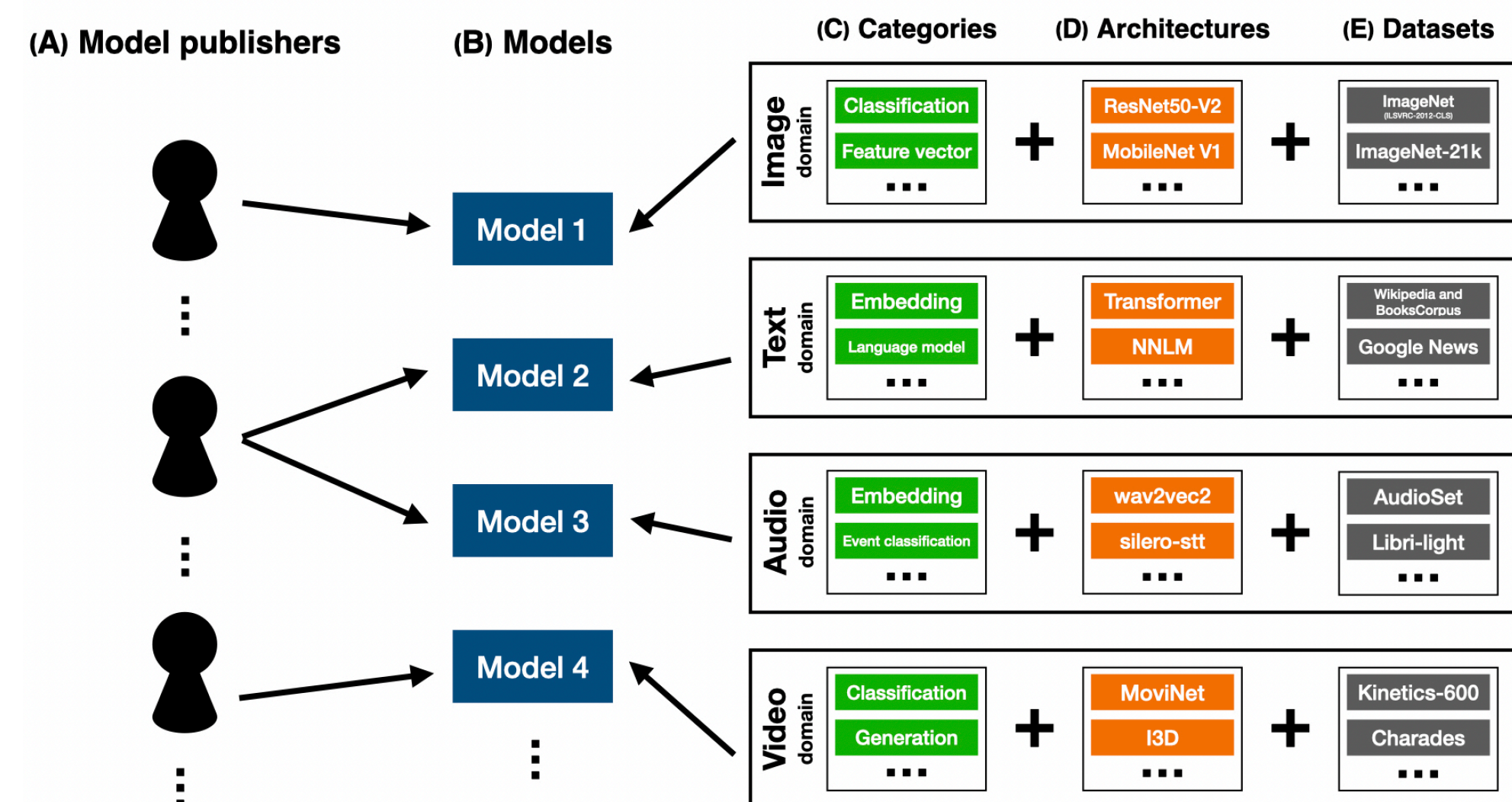
Discussion

- Recent studies showed that **interactions among users** help developers interact actively on online communities such as GitHub

- First, features such as pull requests help **developers contribute to the projects**, **lead the community to be more transparent**

- Second, **visible signs** such as like and following **help developers be involved** in communities,

- Thus, implementing those features may help **MPs share models with each other** more actively

Limitation & Future Work

- While we identified the metadata of MPs, we did not observe behaviors, such as **motivations, challenges, and strategies to overcome such challenges** when sharing models on TF Hub.

- For future work, it would be essential to **understand MPs and model users by inferential analysis** such as surveys and interviews

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