IGLUE: A Benchmark for Transfer Learning across Modalities, Tasks, and Languages
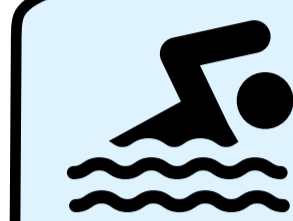
Emanuele Bugliarello   **Fangyu Liu**   **Jona**...**er**
Siva Reddy   **Desmond Elliott**   **Edoardo Ponti**...**Vulić**

iglue-benchmark.github.io

IGLUE: Image-Grounded Language Understanding Evaluation

🌍 **20 languages**: 11 language families, 9 scripts, 3/5 macro-areas

⚙️ **4 tasks** requiring different levels of V&L understanding

📁 **5 datasets**, both pre-existing and new ones!

📈 **Zero-shot** & **Few-shot** learning setups

▪️ Datasets and training setups for **fast development**

Multilingual Vision-and-Language Tasks

NLI
لاعب كرة السلة يرمي
كرة بثلاث نقط.

↓

contradiction

ENG: The basketball player shoots a three pointer

QA
갈색이 아닌
음식은 어떤
것입니까?

↓

vegetables

ENG: Which kind of food is not brown?

Reasoning
两张图加起来总共超过五个人在打鼓,
并且两张图中 的人所打鼓的种类不同。

↓

True

ENG: In total, there are more than five people playing drums in the two images combined and people in the two images are playing different kinds of drums.
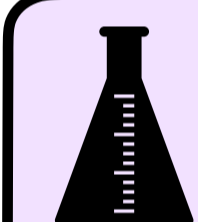
Retrieval
Мужчины и женщины в черных платьях и костюмах держат ноты в руках и поют хором.

↓

ENG: A group of men and women dressed in formal black dresses and suits holding their music books and singing.
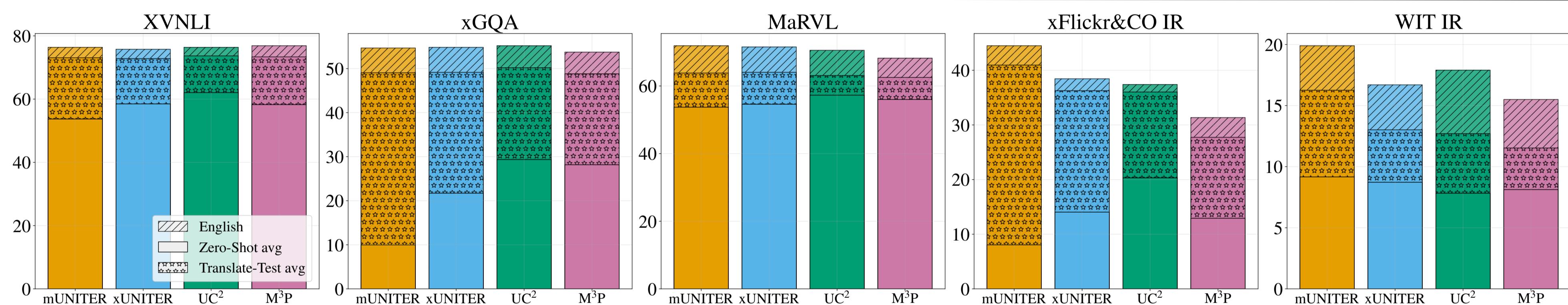
Experimental Setup

👑 **Baselines:** Implement the four available models in VOLTA

🙂 **Fine-Tuning** on 🇺🇸 split

🌍 **Zero-Shot transfer** to target language

🌍➡️🇺🇸 **Translate-Test transfer** in English (via MT)

🌍 **Few-Shot learning** in target language

Zero-Shot Learning Results

Legend: English / Zero-Shot avg / Translate-Test avg

Charts: XVNLI, xGQA, MaRVL, xFlickr&CO IR, WIT IR (models: mUNITER, xUNITER, UC², M³P)

Take-Away

▸ **Diverse tasks**: *languages* and possible *answers*

▸ **Large drop in Zero-Shot** cross-lingual transfer

▸ **Translate-Test » Zero-Shot**

▸ Consistent but **moderate gains in Few-Shot learning**

Code, data and models available at

🤗 **github.com/e-bug/iglue**

Few-Shot Learning Results

Charts: XVNLI, xGQA, MaRVL, xFlickr&CO

Model
- mUNITER
- xUNITER
- UC²
- M³P

IR — — TR