- **09:00 – 10:50 Part I**
- **10:50 – 11:10 Break**
- **11:10 – 12:30 Part II**
  - **11:10 – 11:30 Introduction to Part II**
  - **11:30 – 12:30 Hands-on: CLIP Experiments**
- **12:30 – 13:00 Wrap-Up**

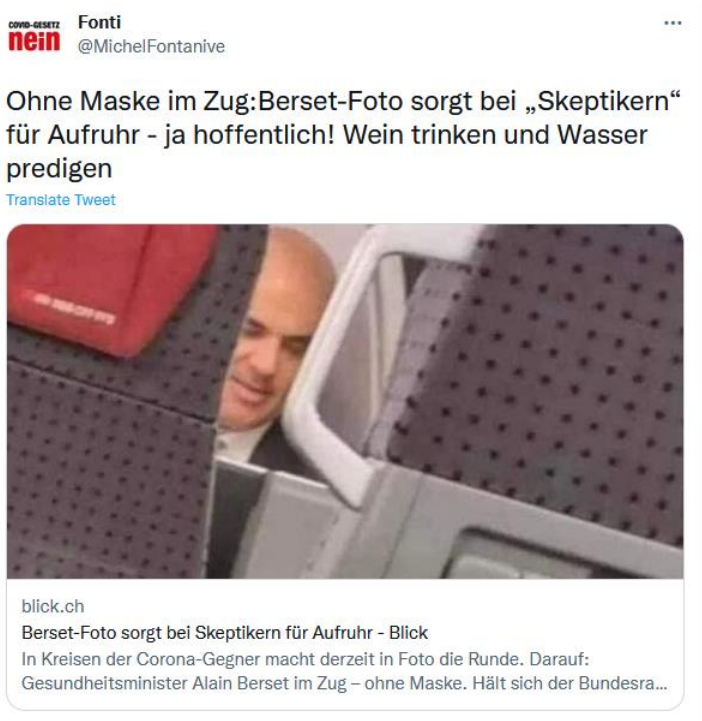
Visual Disinformation and the Dark Side of Internet Memes

Multi- & Cross Modal Deep Learning

Workshop - Part 2

AMLD, March 27, 2022

Marco Willi, Michael Graber (FHNW)
Raphael Meier (armasuisse S+T)



Multi-Modality: Why is it important?

«Love the way you smell today!»

Multi-Modality: Why is it important?

Multi-Modality: Why is it important?

Hateful Memes Challenge (Kiela et al., 2021)

Multi-Modality: Why is it important?

Where is the child sitting?

Multi-Modality: Why is it important?

Where is the child sitting?

Fridge!

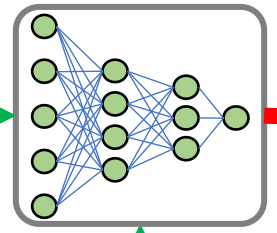
(Goyal et al., 2017)

Multi-Modality: Why is it important?

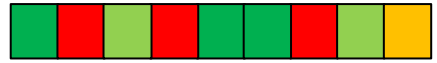
Hardworking #Uyghur 勤劳的维吾尔族人民 #Xinjiang #新疆 XSLT

https://t.co/kOPNErsSLh

Deep Multi-Modal Representation Learning

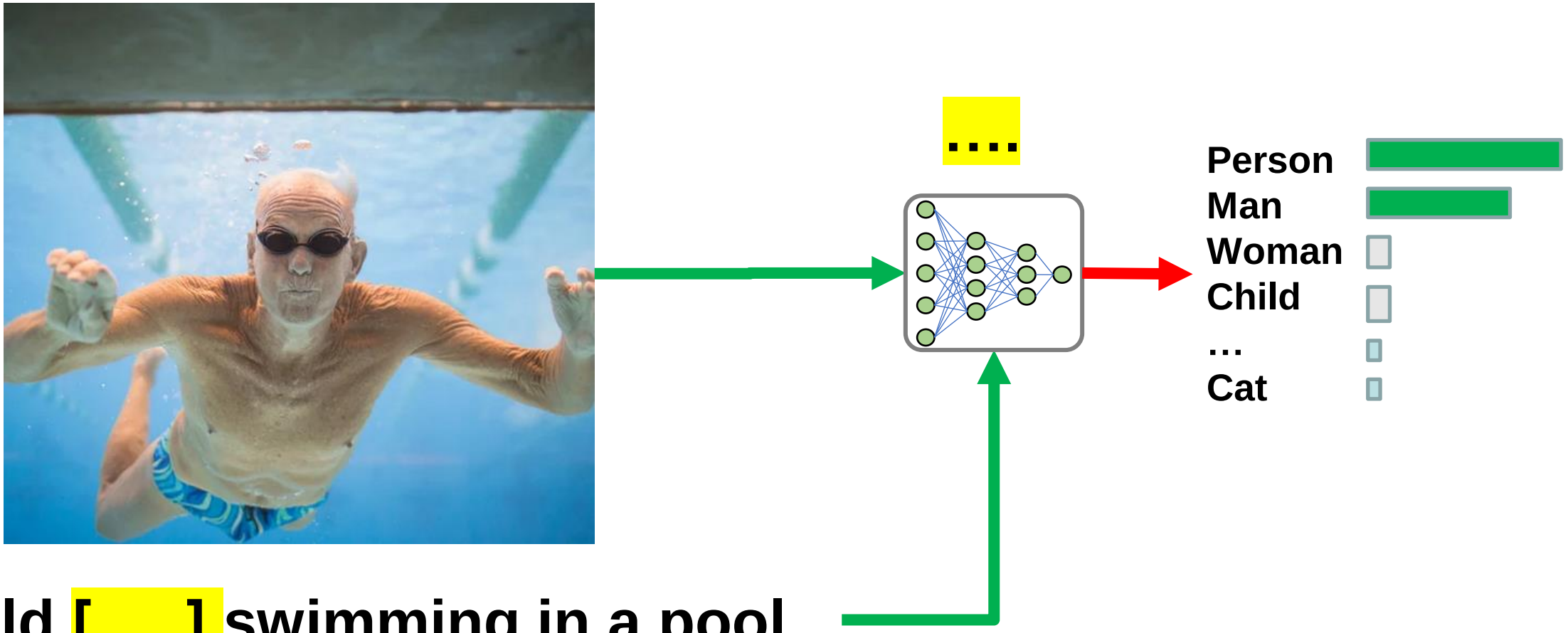


Representation



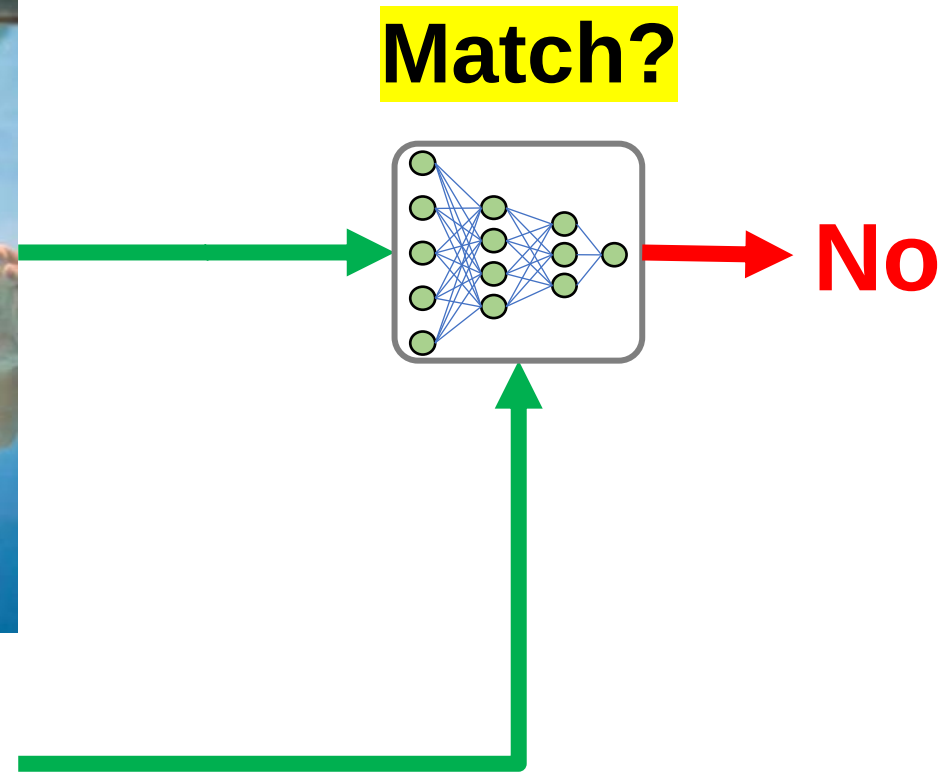
An old man swimming in a pool.

Deep Multi-Modal Representation Learning

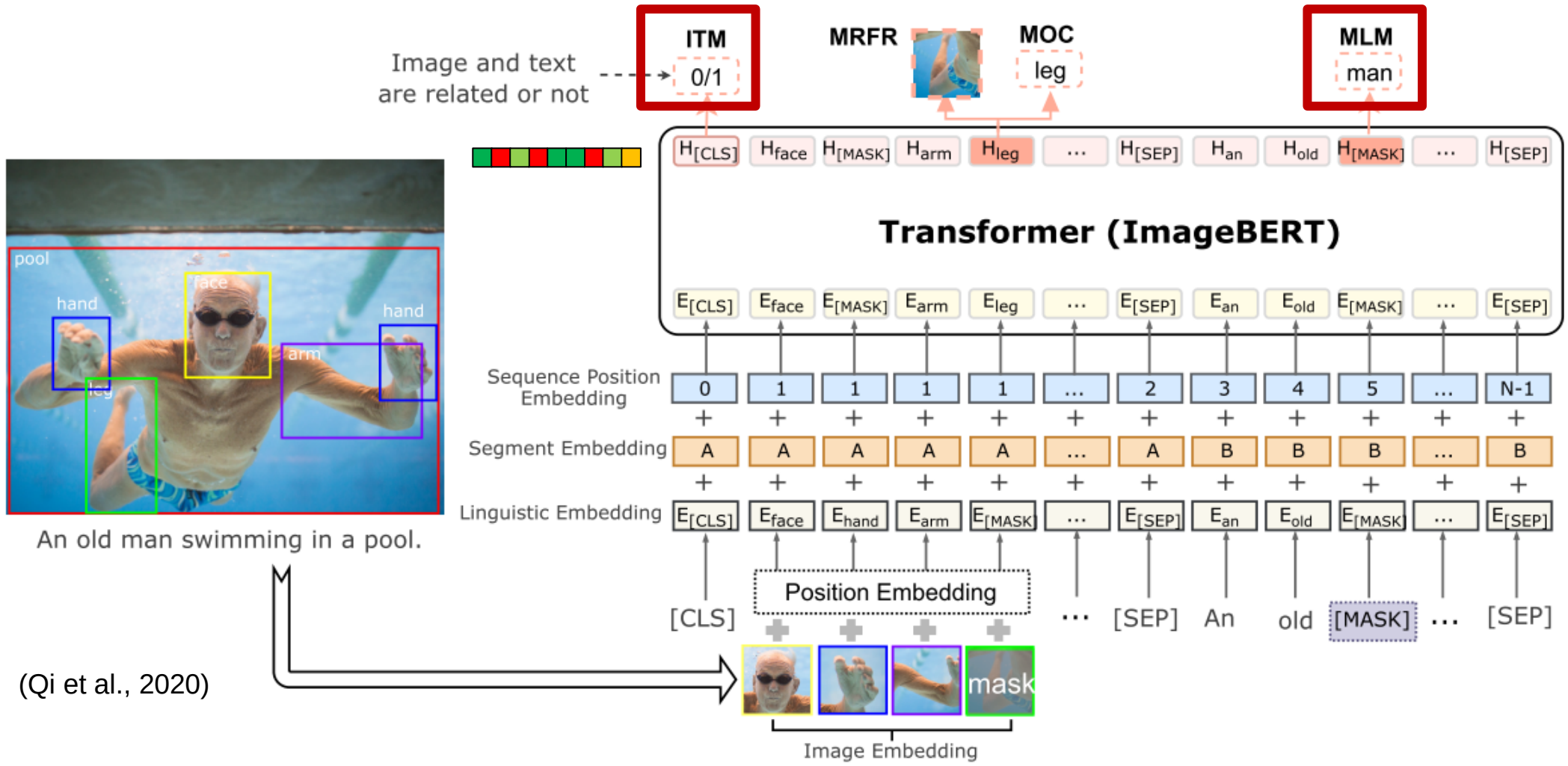


An old [.....] swimming in a pool.

Deep Multi-Modal Representation Learning



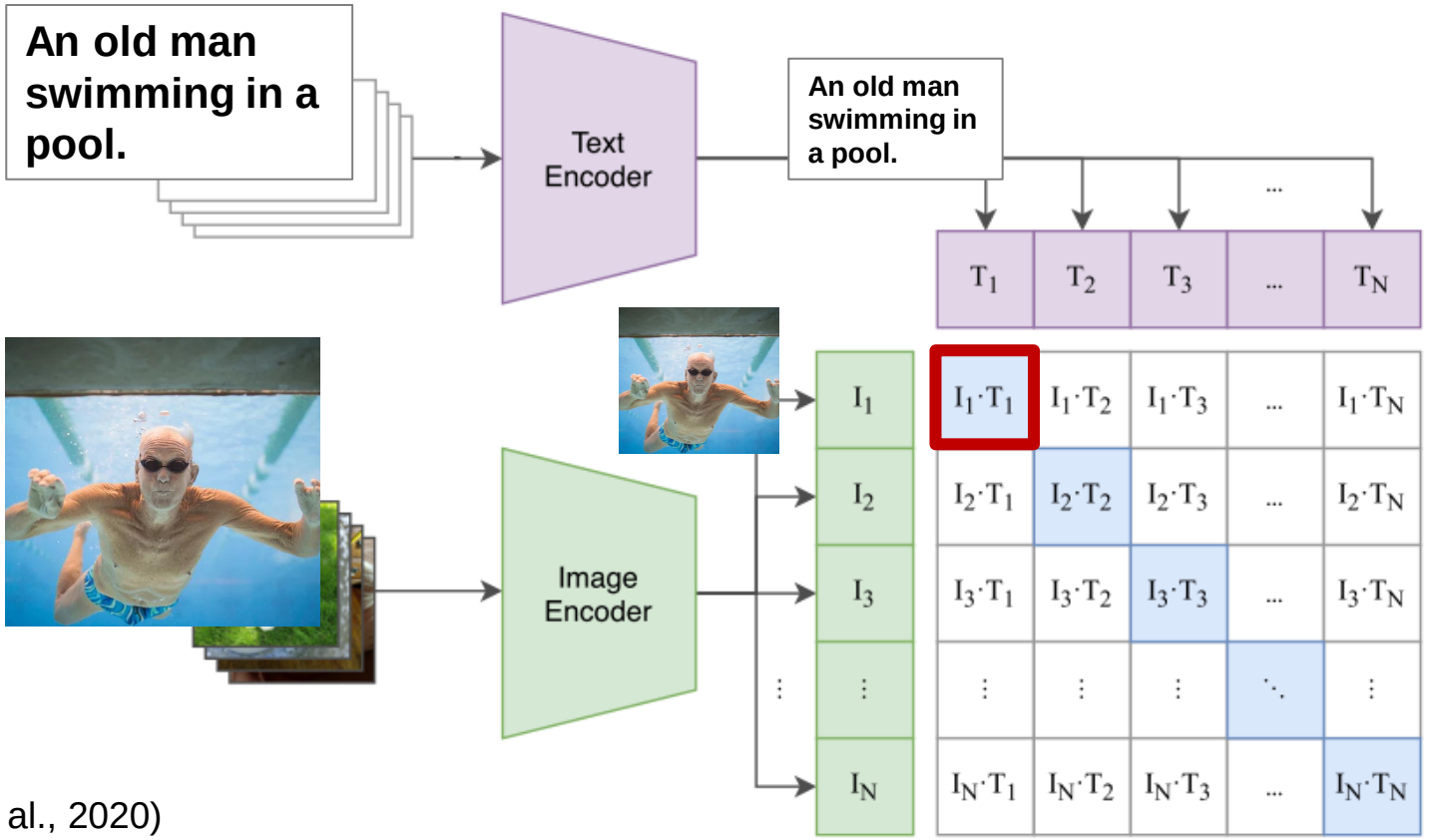
Deep Multi-Modal Representation Learning



(Qi et al., 2020)

Deep Cross-Modal Representation Learning

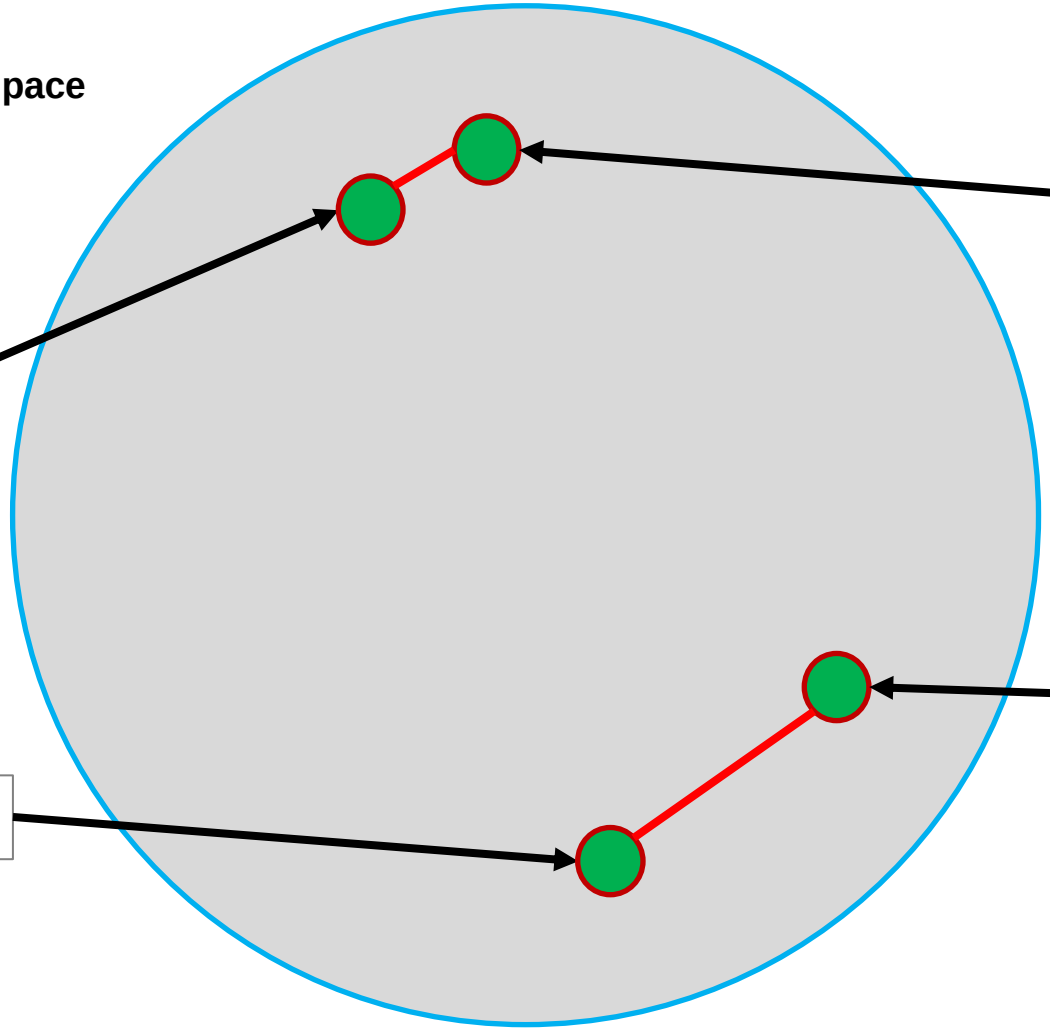
CLIP: Contrastive Language–Image Pre-training



(Radford et al., 2020)

Deep Cross-Modal Representation Learning

Cross-Modal Embedding Space



An old man swimming in a pool.

A car with a trailer.

Workshop - Dataset

Twitter Transparency: https://transparency.twitter.com/en/reports/information-operations.html

Twitter is making publicly available archives of **Tweets and media that we believe resulted from state linked information operations on our service.**

Our first investigation found and removed a network of 69 fake accounts that can be reliably tied to Russian state actors. A number of these accounts amplified narratives that were aligned with the **Russian government,** while another subset of the network focused on undermining faith in the NATO alliance and its stability.

Attributed to the **GRU** – Russias Military Intelligence Service. In total over 8'000 Tweets

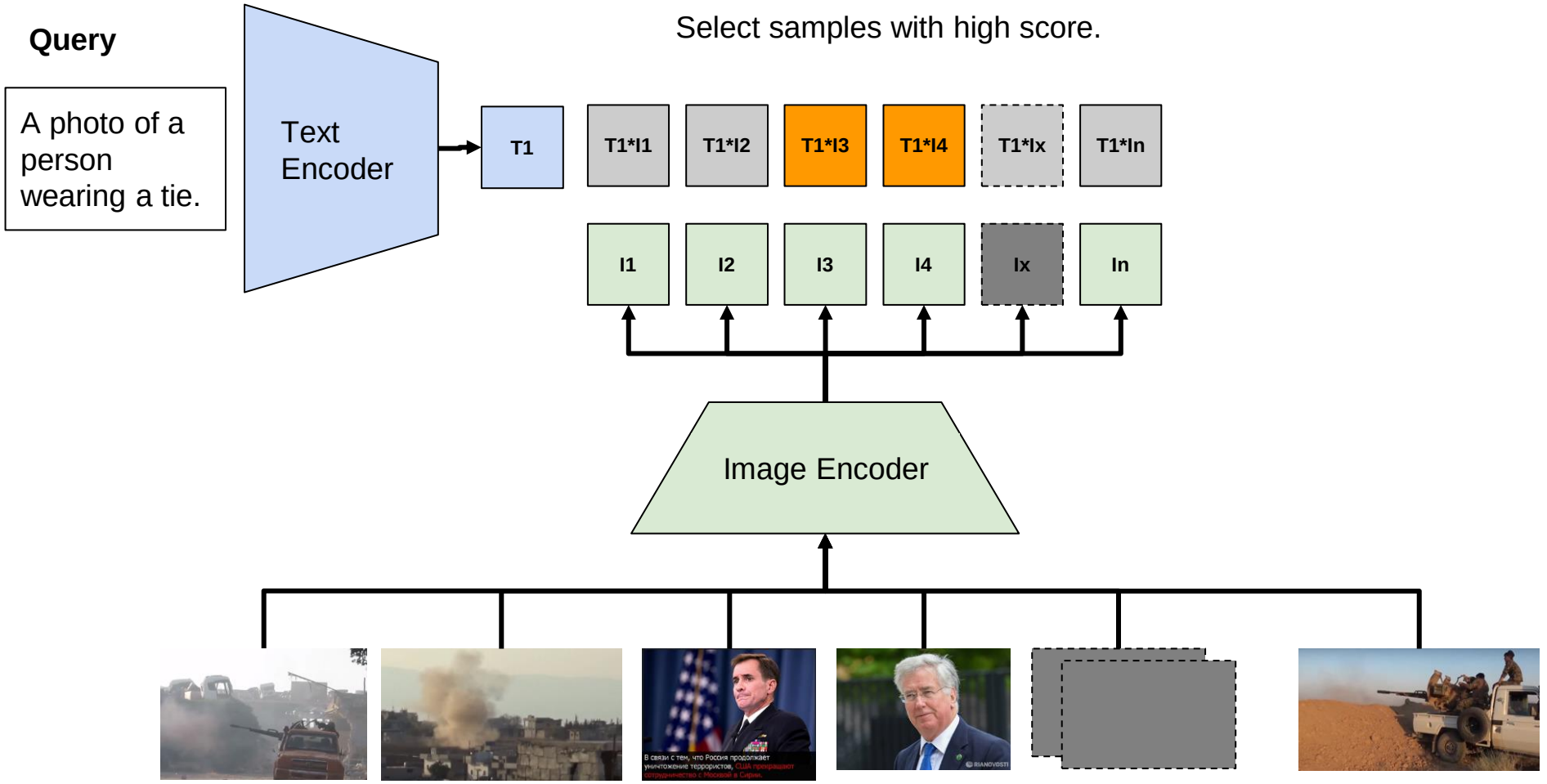
(tweetid: 1108288403739688960, campaign_id: 2020_12/GRU_202012)

Workshop - Goal

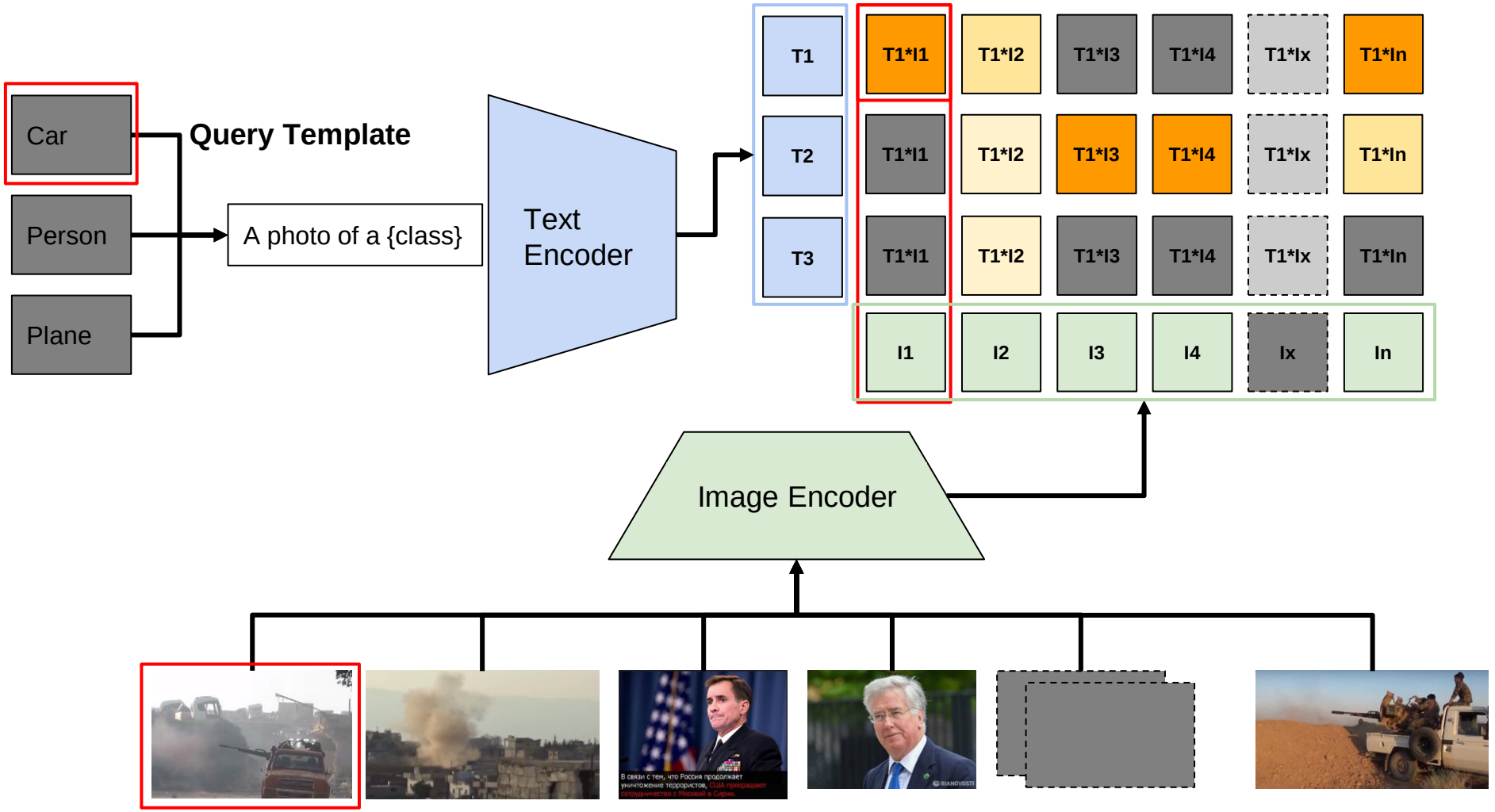
1. Inspect the Dataset
2. Find specific Tweets
3. Classify Tweets
4. Analyse the emotionality of images
5. Cluster the Tweets

We will use CLIP and primarily analyse the images in the Tweets.

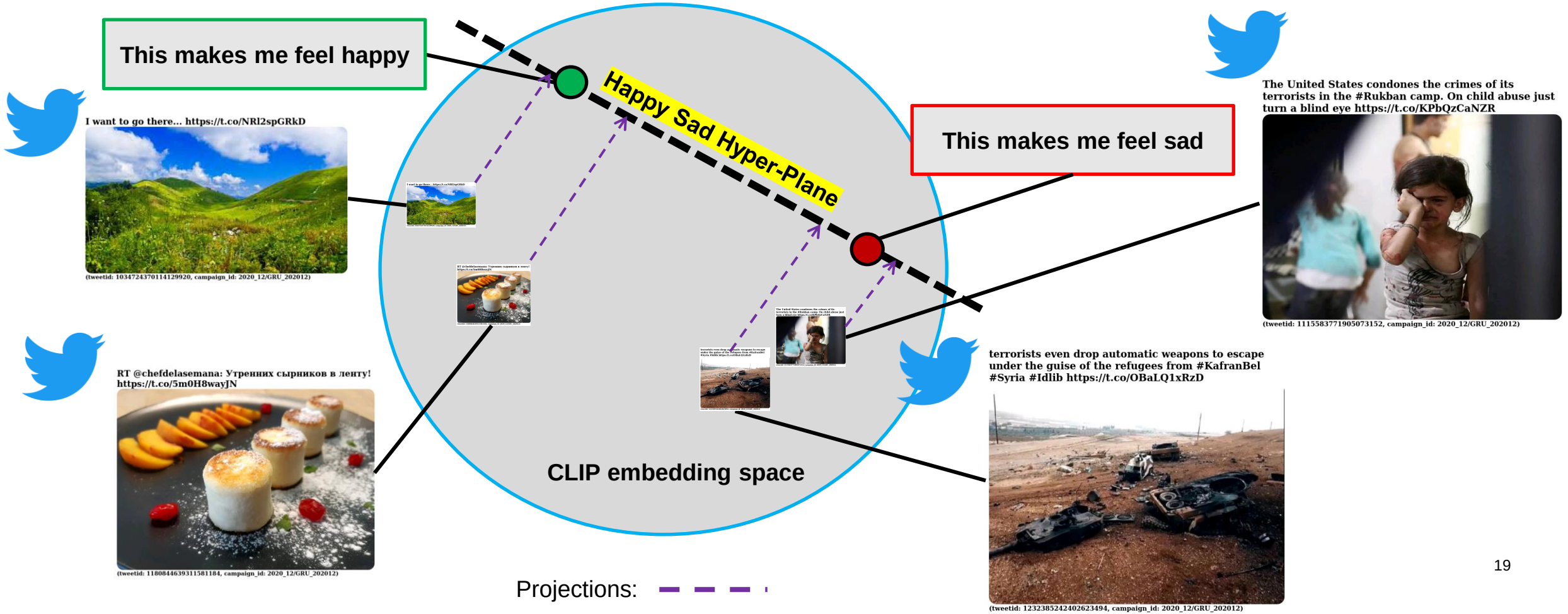
Workshop – Image Retrieval



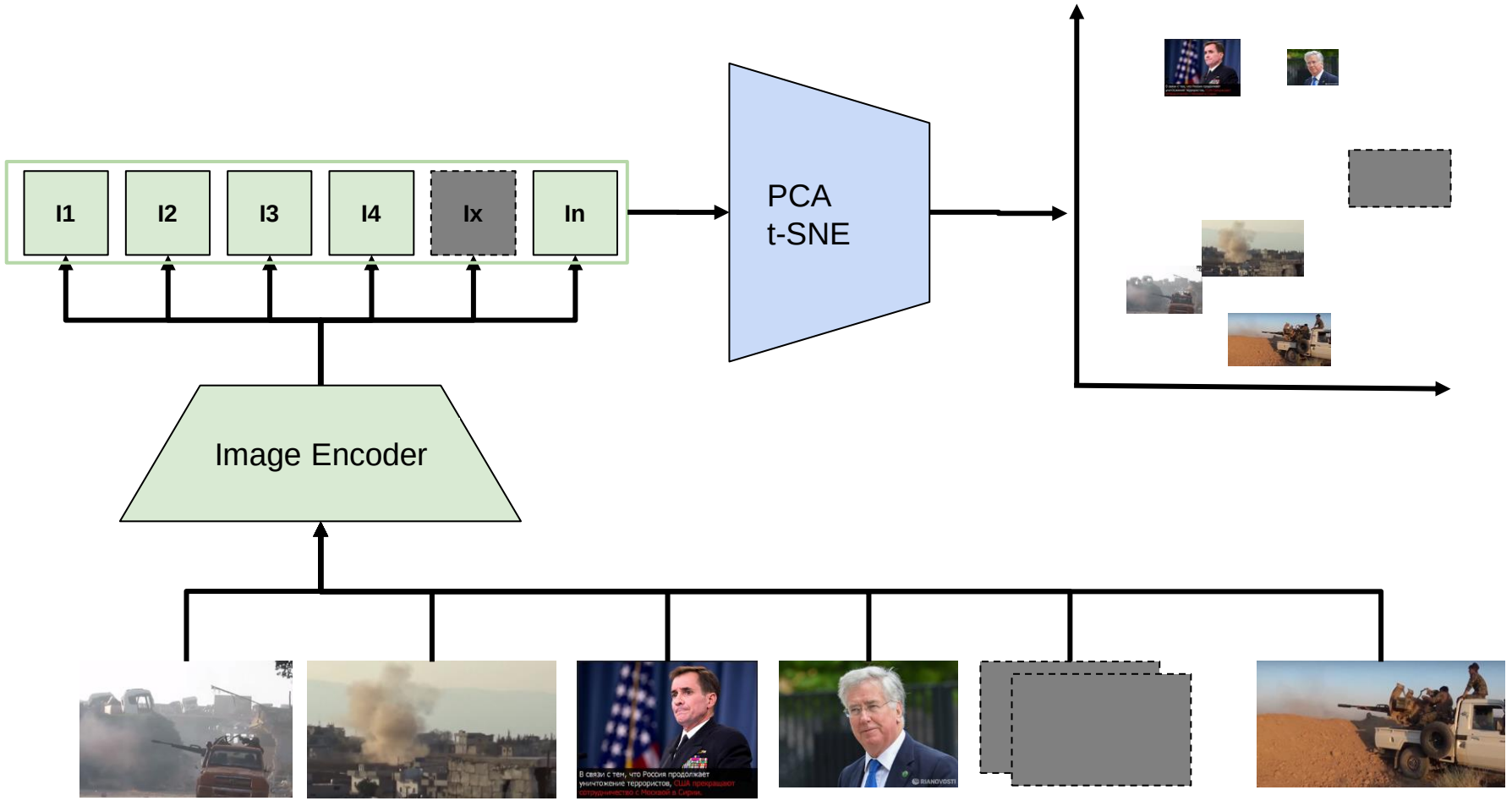
Workshop – Zero-shot Classification



Workshop – Emotion Analysis



Workshop – Dimensionality Reduction & Clustering



Questions?

Have fun with the workshop!

README.md

Applied Machine Learning Days EPFL 2022 - Workshop

AMLD EPFL

Visual Disinformation and the Dark Side of Internet Memes

This repository contains code and data for the workshop "Visual Disinformation and the Dark Side of Internet Memes" at the Applied Machine Learning Days EPFL 2022 (Workshop Link).

Workshop Part 1

Click on the following badge to open the notebook in Google Colab (recommended):

Open in Colab

Workshop Part 2

Click on the following badge to open the notebook in Google Colab (recommended):

Open in Colab

This makes me feel happy — This makes me feel sad

Appendix

Multi-Modality: Why is it important?

Hardworking #Uyghur 勤劳的维吾尔族人民 #Xinjiang #新疆 XSLT

https://t.co/kOPNErsSLh

#USA may block delivery of #Turkey F-35 because of the contract with #Russia for the supply of S-400. #Russia #USA #Turkey #Syria #NATO #S400 #F35 #Russia #Turkey #ABM #Air Defense #Politics

#США могут заблокировать поставку #Турции F-35 из-за контракта с #Россией на поставку С-400. #Russia #USA #Turkey #Syria #NATO #S400 #F35 #Россия #Турция #ПРО #ПВО #Политика https://t.co/dfo8JsGcyl

(tweetid: 979300265517092864, campaign_id: 2020_12/GRU_202012)

Multi-Modality: Why is it important? (2/3)

Visual Question Answering

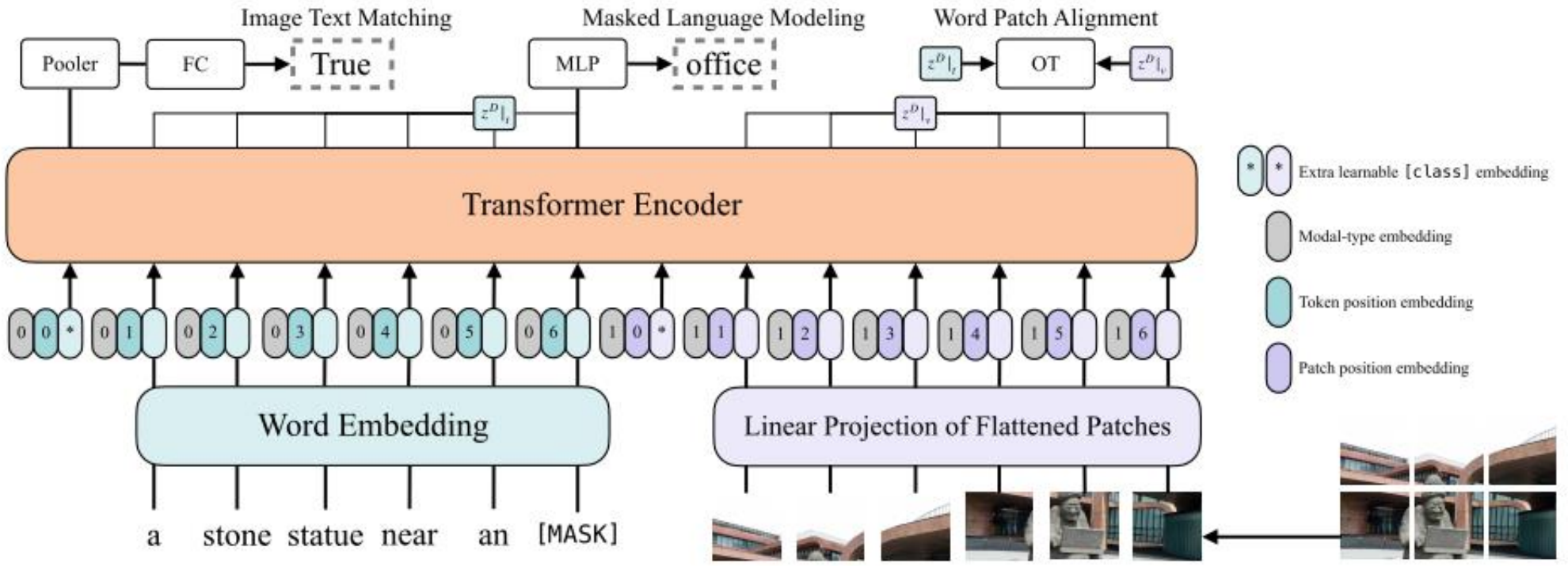
Where is the child sitting?

fridge

arms

(Goyal et al., 2017)

Multi-Modality: Deep Representation Learning (1/2)



(Kim et al., 2021)