NOVALINCS
LABORATORY FOR COMPUTER SCIENCE AND INFORMATICS

FCT NOVA – COMPUTER SCIENCE PhD PROGRAM

DYNAMIC CROSS-MEDIA FOR SOCIAL STORIES ILLUSTRATION

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PhD Student

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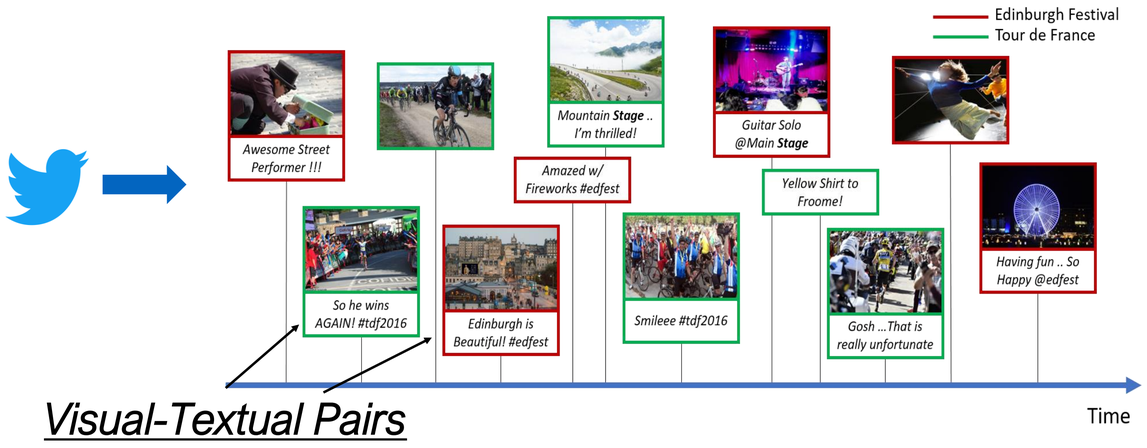
My research focuses on image understanding, machine learning, neural networks and social media mining

Social media users collaboratively contribute with multimodal content, referring to specific topics (e.g. major events), originating ***Social Media Stories***



Visual-Textual Pairs

Social Media Story: temporally delimited and articulated stream of linked social content, from a given topic

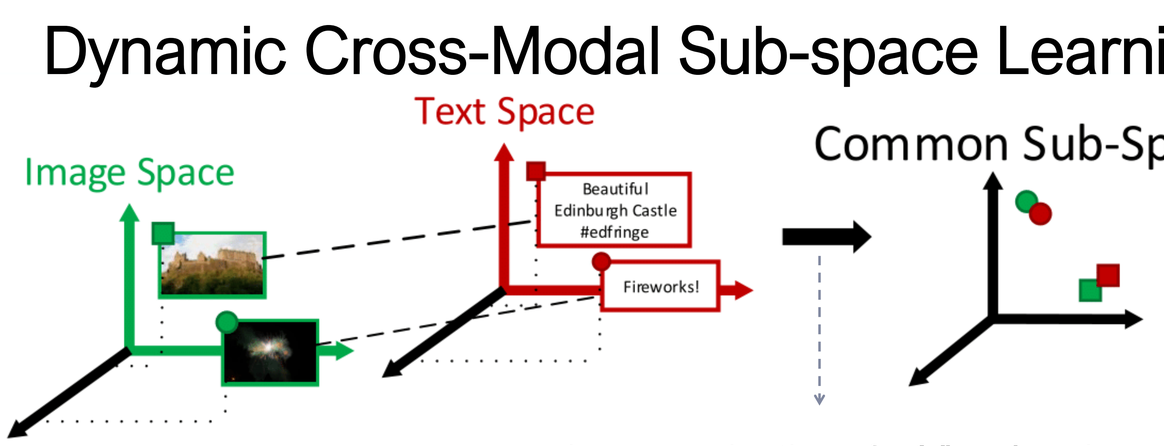
Goal: Support **user queries** based on an event-topic, and **comprising images or text**, while modelling temporal behavior of content in the collection

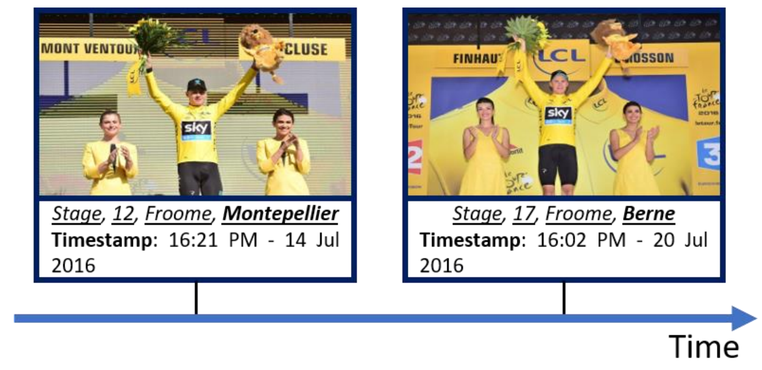
Highly Valuable for Journalists/Editors

From temporal evidence to Cross-media retrieval:

- Temporal correlations and Concept's relevance change over time
- Individual word dynamics provide clues regarding relevance over time

Dynamic Cross-Modal Sub-space Learning





Learn projections for **Visual** and **Textual** Modalities to a correlated Sub-Space

Temporal Sub-space Learning

- Enforce temporal correlations on projections target space
- Time dimension gets encoded in target space

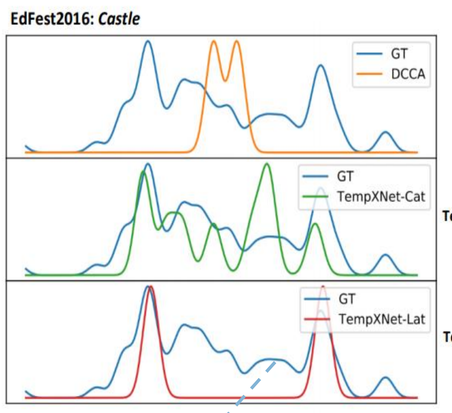
Example of Textual Query of **semantic class Castle**

Temporal correlations:

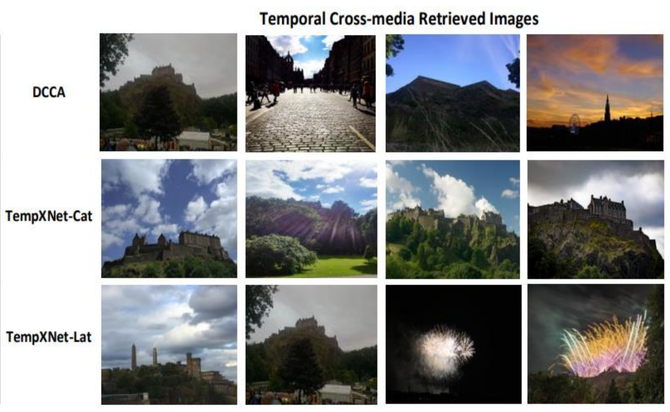
None

Documents of Class Castle

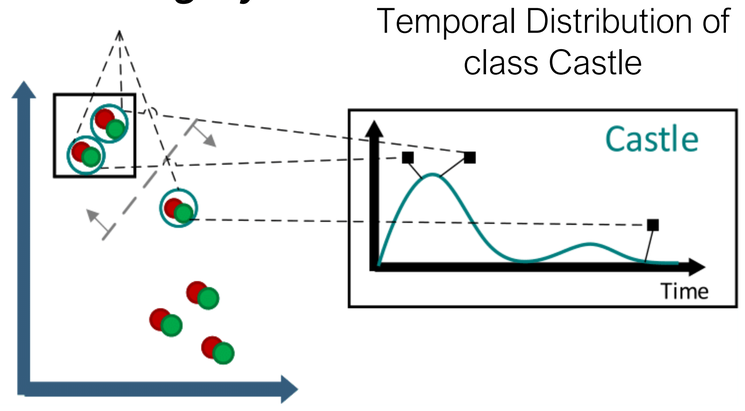
Words of Documents of Class Castle



Ground-Truth Distribution



Castle Category



Method %	NUS-WIDE					
	$I-T$		$T-I$		Avg.	
	mAP	*nDCG*	*mAP*	*nDCG*	*mAP*	*nDCG*
CCA	74.2	84.4	68.7	80.7	71.5	82.6
DCCA	73.9	85.1	76.1	85.0	75.0	85.1
TempXNet-Rec	78.7	86.6	79.9	87.6	79.3	87.1

Method %	EdFest2016					
	$I-T$		$T-I$		Avg.	
	mAP	*nDCG*	*mAP*	*nDCG*	*mAP*	*nDCG*
CCA	58.6	75.5	53.3	73.7	56.0	74.6
DCCA	89.7	96.2	72.4	85.5	81.1	90.9
TempXNet-Rec	94.5	97.4	95.5	97.7	95.0	97.6

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