

Image Disinformation Detection at Scale

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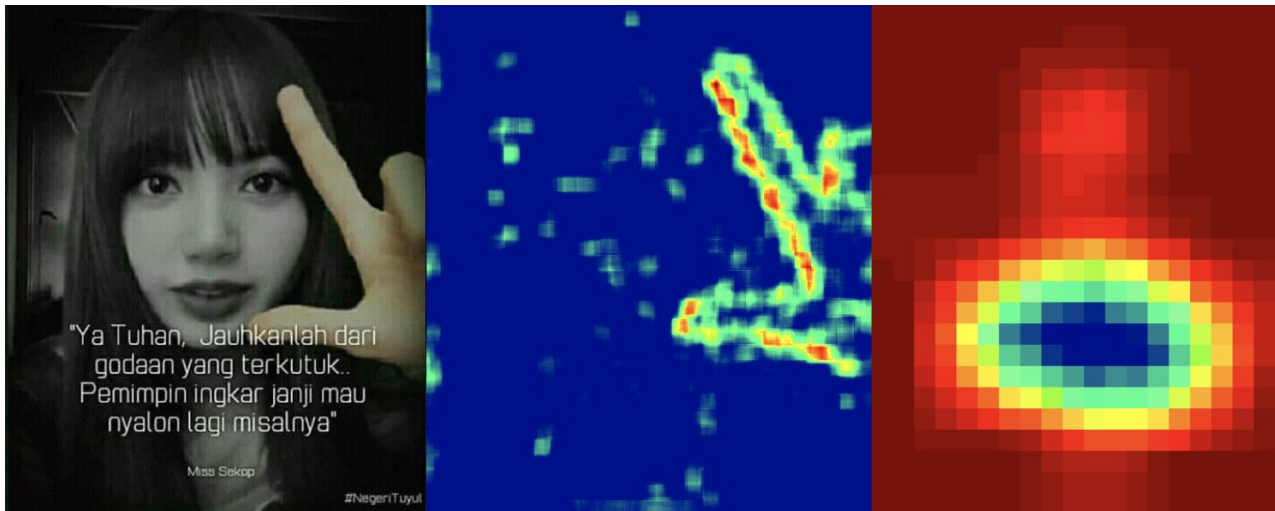
University of Notre Dame

Computer Vision Research Lab

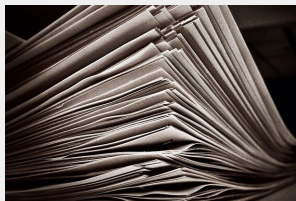


Background

- ▶ Project space - Disinformation via Images
 - Image content
 - Text altering/addition
- ▶ UND CVRL challenges
 - Workflows
 - Scalability



Initial Project: Image Forgery Detection via Classical ML Methods Tooling



Vast Literature



Lack of Standards



Implementations in
Proprietary Programming
Environment (Matlab)



Third Party Service

FOR ACADEMICS

Initial Project Result: pyIFD - Python Image Forgery Detection Toolkit



Python-Based

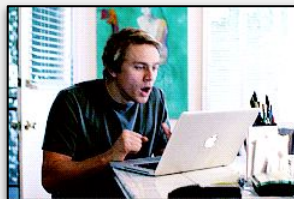
```
10| import os
11| import numpy
12| import pyifd
13| import cv2
```

Standardized and
Easily Extendable

FOR ALL



Open Source



Self-hosted and
Scalable Service

Status and Next Steps



Completed - pyIFD development:

- ▶ Algorithms ported + testbed + CI
- ▶ Validation scripting + workflow
- ▶ Library released on Github: pyIFD



In progress - pyIFD assessment:

- ▶ Performance analysis of pyIFD on MFC18 for publication in IEEE T-IFS
- ▶ Comparison of classical pyIFD methods with ManTraNet
- ▶ Exploration of fusing classical pyIFD methods



Enqueued - Unsupervised motif mining:

- ▶ Given unlabelled, unsorted data determine clusters of related images
- ▶ Per pyIFD approach, method will be approachable/extendable
- ▶ Can discover new classes (Ukraine example)

Thank you!

Project page:

https://research.redhat.com/blog/research_project/disinformation-detection-at-scale/



pyIFD repo:

<https://github.com/EldritchJS/pyIFD>

