SDK Reinvented

Document Image Analysis Methods as RESTFul Web Services

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Where are we Today?

Good methods in the community

Many behind closed doors
  Difficult to reproduce results
  Hard to test on new data

Lack of exposure to «end users»

Document Analysis and Exploitation (DAE)[1]


What is Missing?

Unified Access

User Interfaces

Easy integration into any project

Easy way to provide methods

Information for method providers
What I am Presenting Today

DIVAServices @ DAS2016

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DIVAServices: The first Public Web-Based SDK

Much more than the front-end
Hosted on cloud infrastructure
   No computation on the client
Standard input and output format
Always up to date
How do we provide the methods?

RESTFul Web Services

Using standard HTTP commands

Useable in almost any programming language
Example

POST
/segmentation/textline/seam
body: {
  inputs: {
    sigma: 3,
    slices: 4,
    smooth: 3.000001
  },
  highlighter: {
    type: rectangle
    segments: [[x,y],[x,y],...]
  }
  imageUrl: http://...
}

body: {
  output: [],
  highlighters: [
    {
      line:
      segments: {
        [[x,y],[x,y],...]
      }
    }
  ]
}

JSON
Impact on Computer Science

Perform experiments more easily
Have your method exposed to a wide range of data
Receive insights
Increased Citations
Impact beyond Computer Science

```java
public static void extractOcrOcropyPageSeg() throws IOException {
    DivaServicesCommunicator communicator = new DivaServicesCommunicator("http://divaservices.unifr.ch");
    File folder = new File("M:\\WriterIdentification\\icdar2011\\Original");
    for (File file : folder.listFiles()) {
        String filename = FilenameUtils.getBaseName(file.getName());
        BufferedImage image = ImageIO.read(file);
        DivaServicesResponse response = communicator.runOcropyPageSegmentation(image, false);
        int i = 0;
        for (String textline : response.getOutput().keySet()) {
            BufferedImage lineImage = ImageIO.read(new URL((String) response.getOutput().get(textline)));
            ImageIO.write(lineImage, "png", new File("M:\\WriterIdentification\\icdar2011\\lines\") + fil
        }
    }
}
```
Can my method be integrated too?

YES!

Executable from the command line

Produce results according to our format

Run your own instance of DivaServices
18 Methods are Available on DIVAServices

Original

Ocropus

Image Enhancement

Text Line Extraction

Original

Artificial Degradation

Layout Analysis

Color Inverting
Future

Short- / Mid Term
- Web application for adding methods
- Work on multiple images / collections
- Training of OCR language models
- Developer Libraries

Long Term
- Reporting for method providers
- Workflow Generation
- Automated Evaluation on Datasets
Recap

Good methods

We aim to make them accessible

You can start using it today

Everything open source
Thank You for Your Attention

More information available

DIVAServices: http://divaservices.unifr.ch
DIVAServices-Spotlight: http://divaservices.unifr.ch/spotlight
Source Code: http://www.github.com/lunactic/DIVAServices

If you want to provide methods
Come talk to me (marcel.wuersch@unifr.ch)