#+name: author-list #+header: :var authors=authorlist #+header: :var add-authors=additional-authors #+header: :results latex #+header: :exports results

Using Emacs Org-mode to Create Reproducible Research

[Demo]*

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ABSTRACT

One important aspect of open science is the ability to reproduce results using the published data set. For this purpose it is crucial to use similar methods and tools as the original author producing the same result set. Reproducible research is a movement that tries to bridge this gap: within one single set of data one can not only find the raw data but also the methods and tools to process the data. The ultimate discipline is to complete this cycle from the raw data up to the presentation in the derived paper. This paper demonstrates using a simple example how to combine raw data, scripts of various languages, and the describing text of a paper in one single file.
#+name: ACM-categories #+header: :var c=categories #+header: :results latex #+header: :exports results

Categories and Subject Descriptors

I.7.1 [**DOCUMENT AND TEXT PROCESSING**]: Document and Text Editing—*Emacs*; H.4.1 [**INFORMATION SYSTEMS APPLICATIONS**]: Office Automation—*Word processing*; D.2.3 [**SOFTWARE ENGINEERING**]: Coding Tools and Techniques; I.7.1 [**DOCUMENT AND TEXT PROCESSING**]: Document Preparation; I.7.4 [**DOCUMENT AND TEXT PROCESSING**]: Electronic Publishing; D.4.9 [**OPERATING SYSTEMS**]: Systems Programs and Utilities; E.2 [**DATA STORAGE REPRESENTATIONS**]: Linked representations

General Terms

Keywords

Open Science, Reproducible Research, Org-mode, Emacs, Tools

*The full source code of this paper is available on github `https://github.com/novoid/orgmode-iKNOW2012`

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1. EMACS ORG-MODE

FIXXME: Add references [2]

[1]

[3]

[4]

1.1 Formal Experiment

In [5] the authors describe a formal experiment conducted with 18 test persons in the field of information retrieval. The original data set is available online[1]. This paper here demonstrates FIXXMEFIXXME: add introduction text

Reading in raw data related to seconds per task from CSV file:

The following shell commands read in a CSV file, removes all values before the character ";" (thus removing all values related to number of mouse clicks), removes all incomplete lines (containing the string "TC"), and removes the header line as well (using the `tail` command):

```
sed 's/.*;//' refinding_tagstore.csv | \
   grep -v "TC" | \
   tail -n +2
```

In the next step, the mean values per test person will be calculated using the programming language Python:

```
#+NAME: calculate-mean-values
#+BEGIN_SRC python :var mytable=time-per-task :exports both
import numpy
return [round(numpy.average(row),2) for row in mytable]
#+END_SRC
```

1.2 End

2. REFERENCES

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