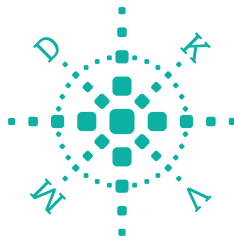


# Umsetzung von offenen Lehr- und Lernmaterialien (Open Educational Resources) mit Hilfe des Jupyter Ökosystems

Referent: Johannes Otto



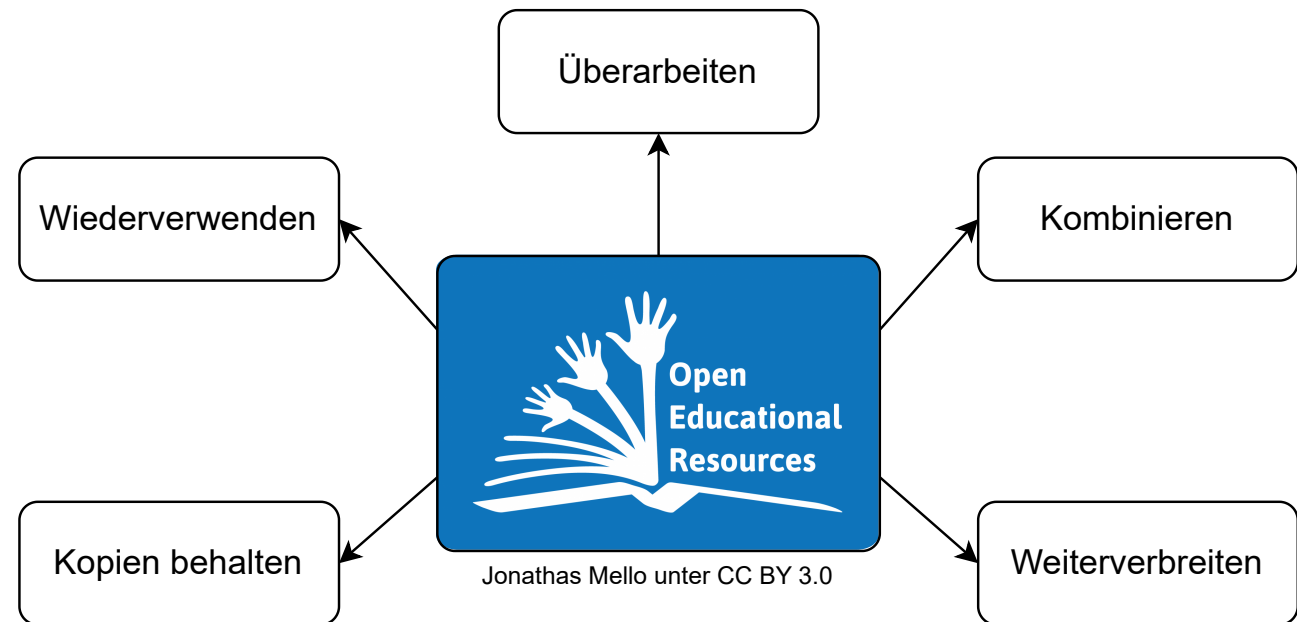


## Open Educational Resources

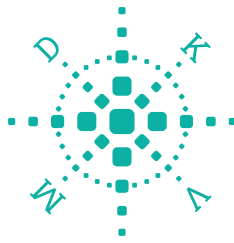
Freie Lehr- und Lerninhalte, kostenlos veröffentlicht unter offener Lizenz (Creative Commons, GNU, Apache 2.0, MIT, ...)

-> freier Zugang zu hochqualitativen Lerninhalten

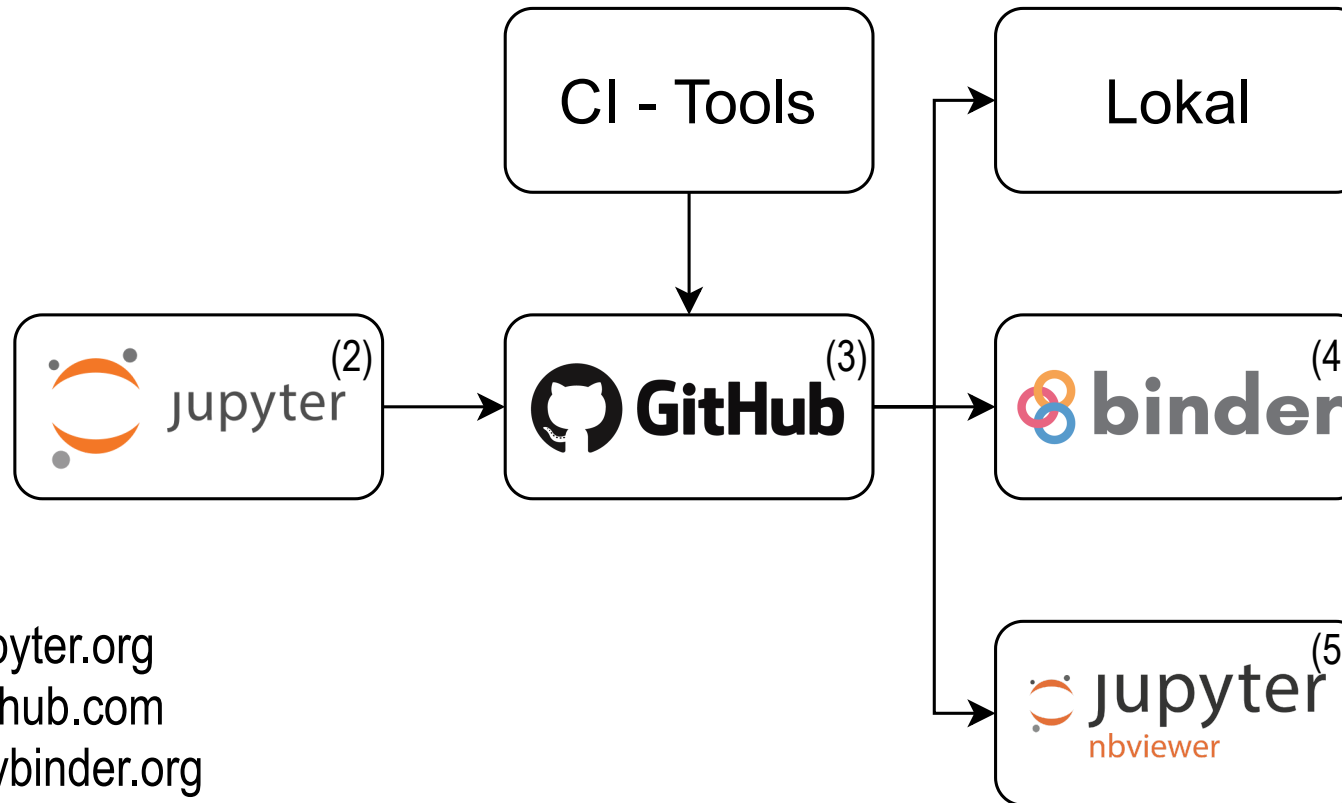
-> Ausgleichen von Unterschieden in der Zugänglichkeit von Bildung



(1) Wiley and Hilton, Defining OER-enabled pedagogy



## Jupyter Ökosystem

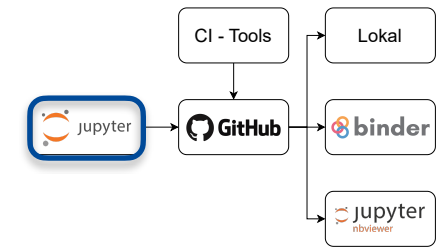
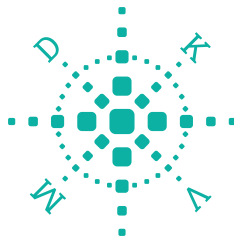


(2)<https://jupyter.org>

(3)<https://github.com>

(4)<https://mybinder.org>

(5)<https://nbviewer.jupyter.org>



## Jupyter Notebook



(2) <https://jupyter.org>

### Überschrift

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

$$X(j\omega) = \int_{-\infty}^{\infty} x(t) e^{-j\omega t} dt$$

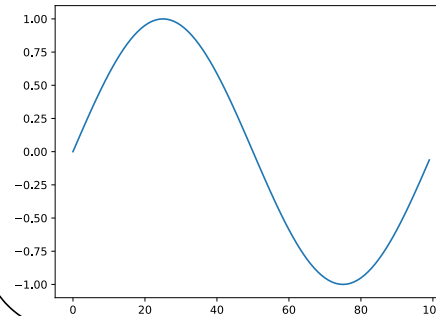


Markdown Zelle

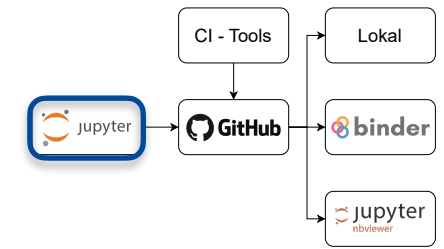
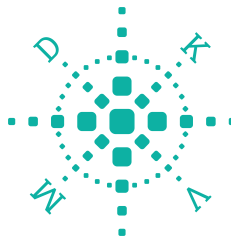
```

1. import numpy as np
2. import matplotlib.pyplot as plt
3. x = np.arange(0,1,0.01)
4. plt.plot(np.sin(2*np.pi*x))
    
```

Code Zelle



Code Output



## Offene Lizenzierung



(5)

(2) <https://jupyter.org>

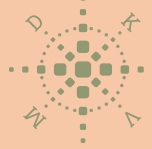
(6) <https://creativecommons.org/licenses/by/4.0>

(7) <https://opensource.org/licenses/MIT>

### Überschrift

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

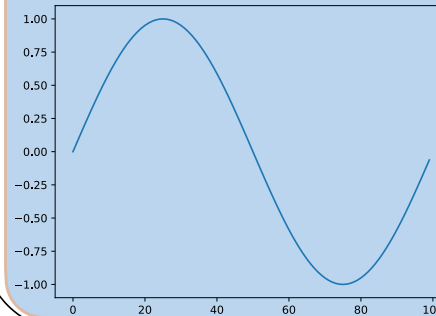
$$X(j\omega) = \int_{-\infty}^{\infty} x(t) e^{-j\omega t} dt$$



Markdown Zelle

```

1. import numpy as np
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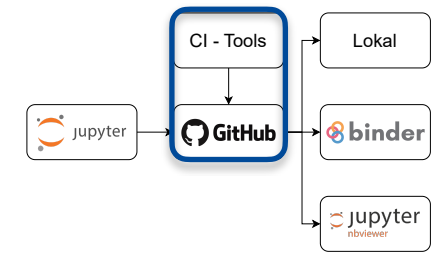
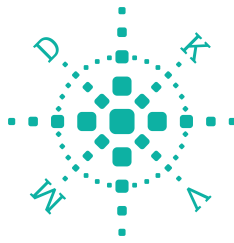


Code Zelle

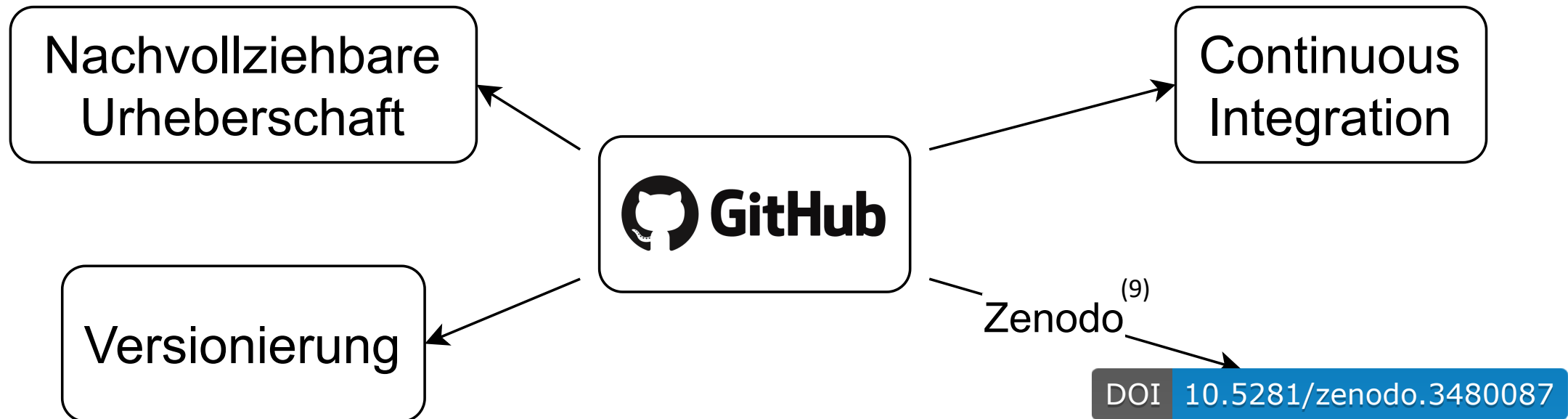
Code Output

Creative Commons  
(CC BY)<sup>(6)</sup>  
für Text und Bilder

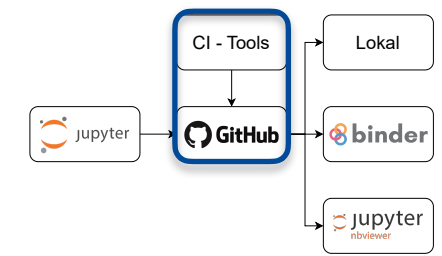
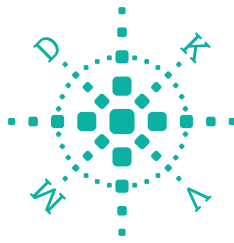
MIT Lizenz<sup>(7)</sup>  
für Code



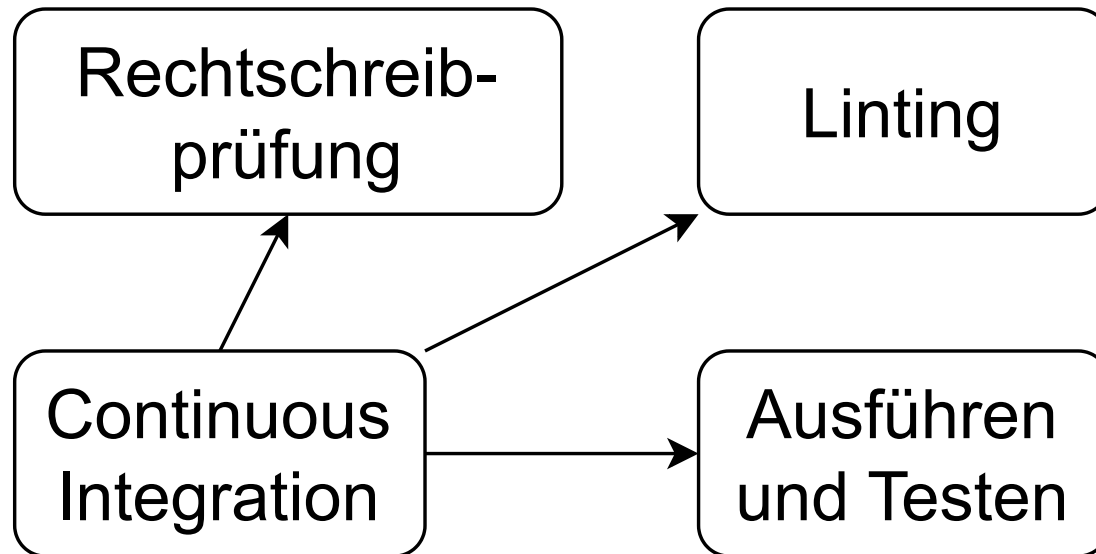
## Veröffentlichung



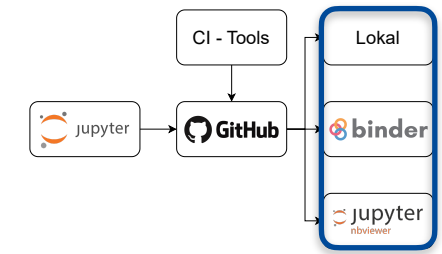
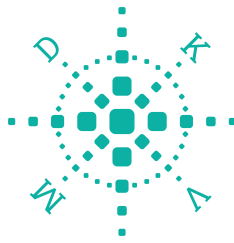
(9)<https://zenodo.org>



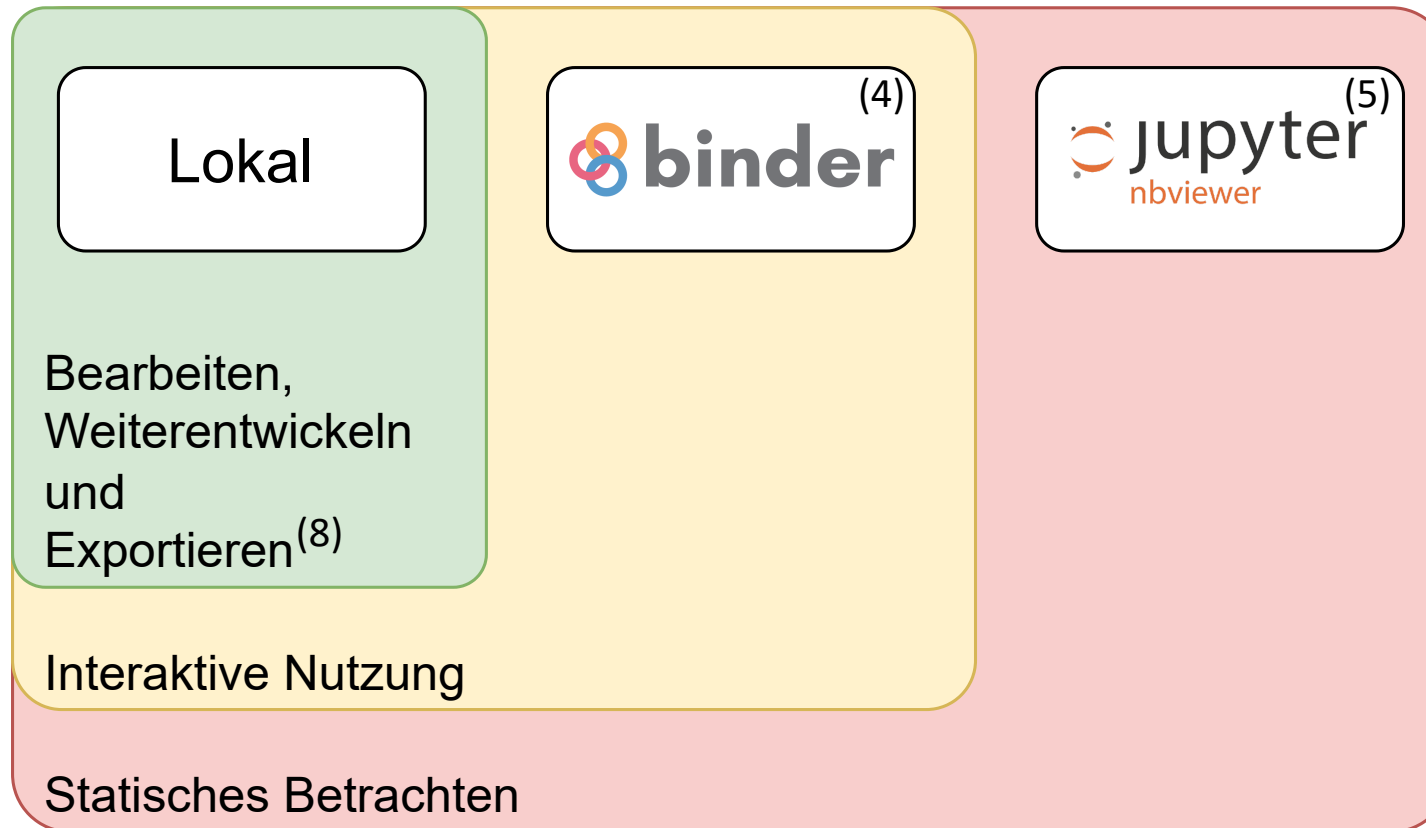
## Continuous Integration



Automatisierte Ausführung bei jeder Revision  
über GitHub Actions



## Nutzung

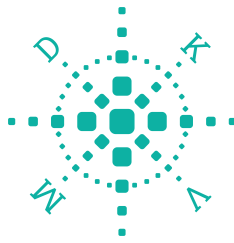


(4)<https://mybinder.org>

(5)<https://nbviewer.jupyter.org>

(8)<https://github.com/spatialaudio/nbsphinx>





## Quellen und Links

- (1) Wiley, David, and John Levi Hilton Iii. "Defining OER-enabled pedagogy." *The International Review of Research in Open and Distributed Learning* 19.4 (2018).
- (2) <https://jupyter.org>
- (3) <https://github.com>
- (4) <https://mybinder.org>
- (5) <https://nbviewer.jupyter.org>
- (6) <https://creativecommons.org/licenses/by/4.0>
- (7) <https://opensource.org/licenses/MIT>
- (8) <https://github.com/spatialaudio/nbsphinx>
- (9) <https://zenodo.org>
- (10) Spors, Sascha, et al. "Concept and Realization of Open Educational Resources using Jupyter."
- (11) <https://github.com/spatialaudio/digital-signal-processing-lecture>