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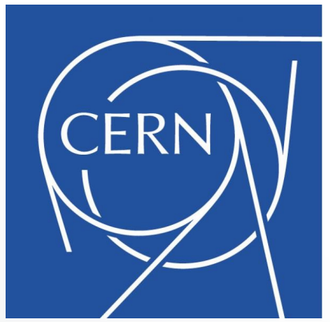

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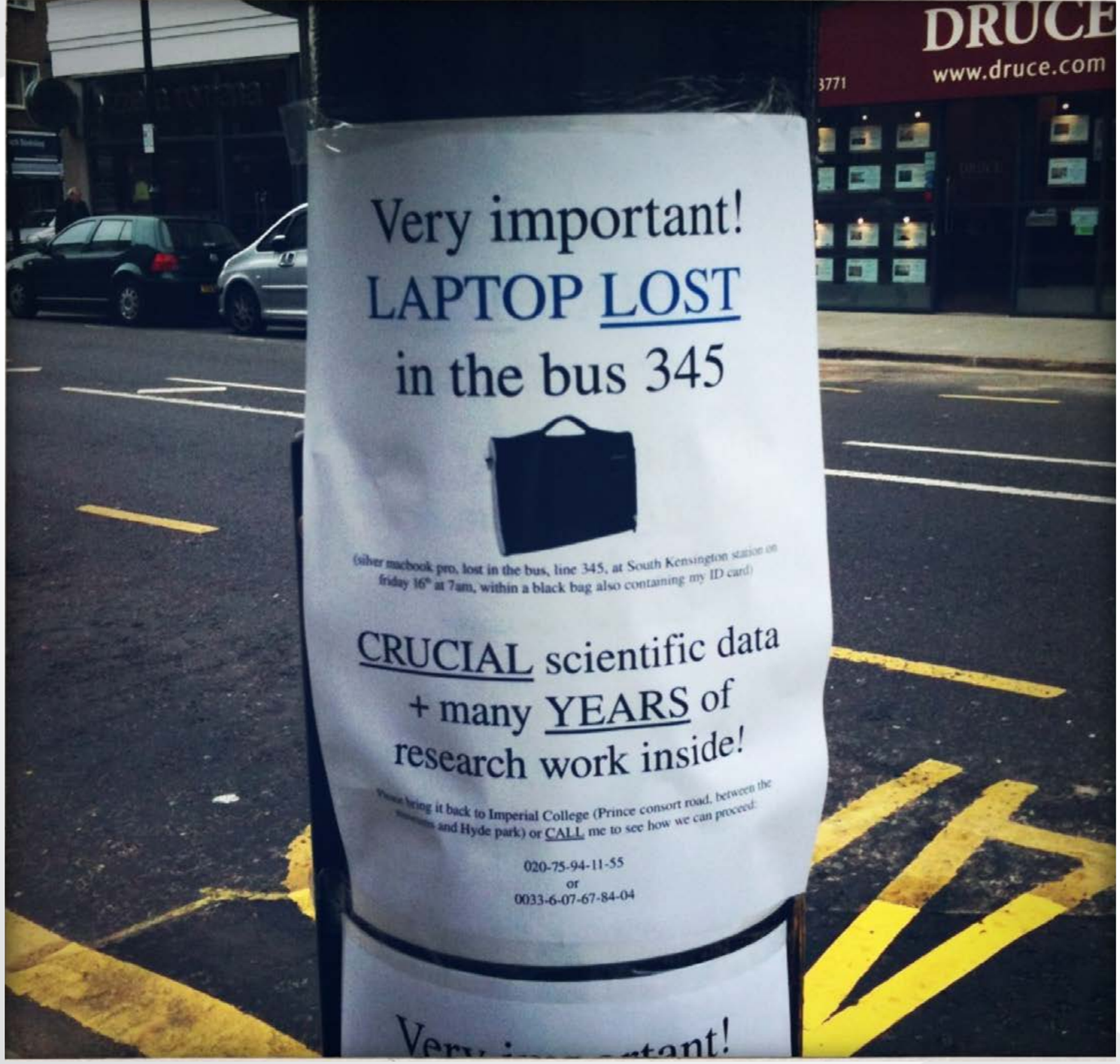

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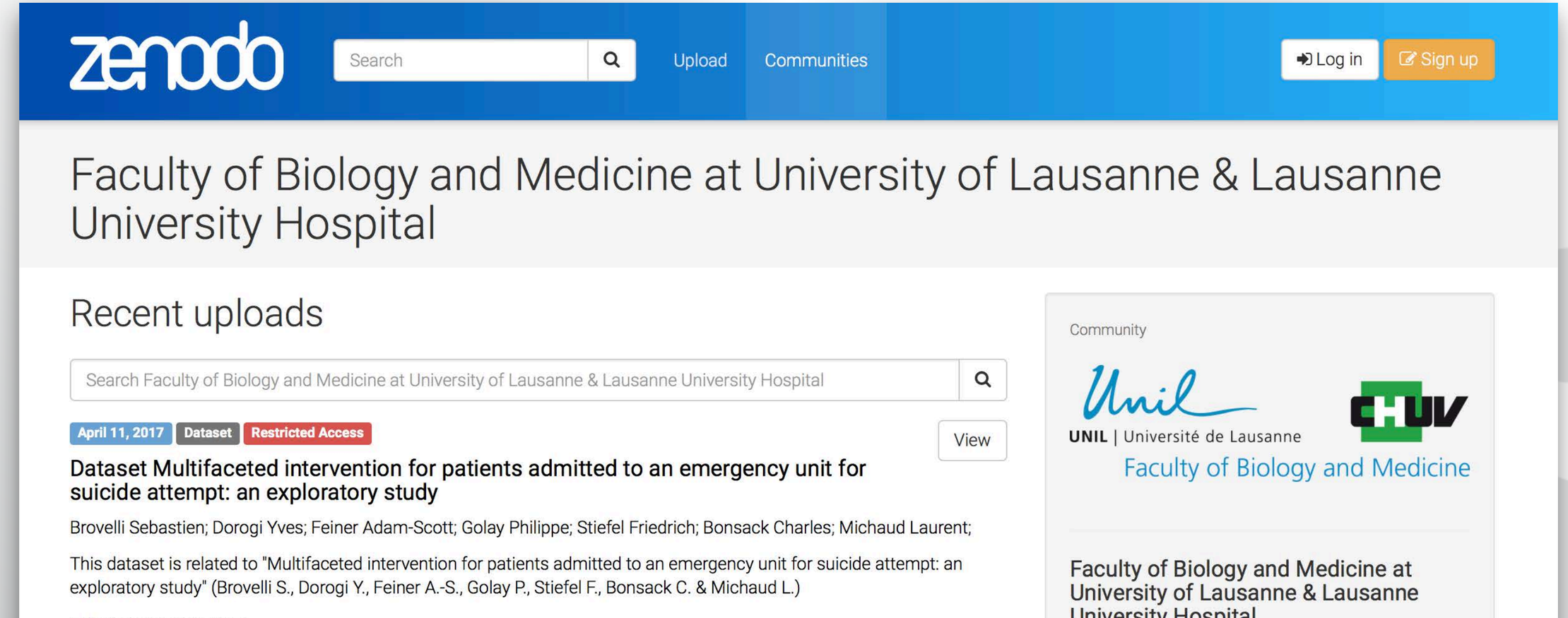

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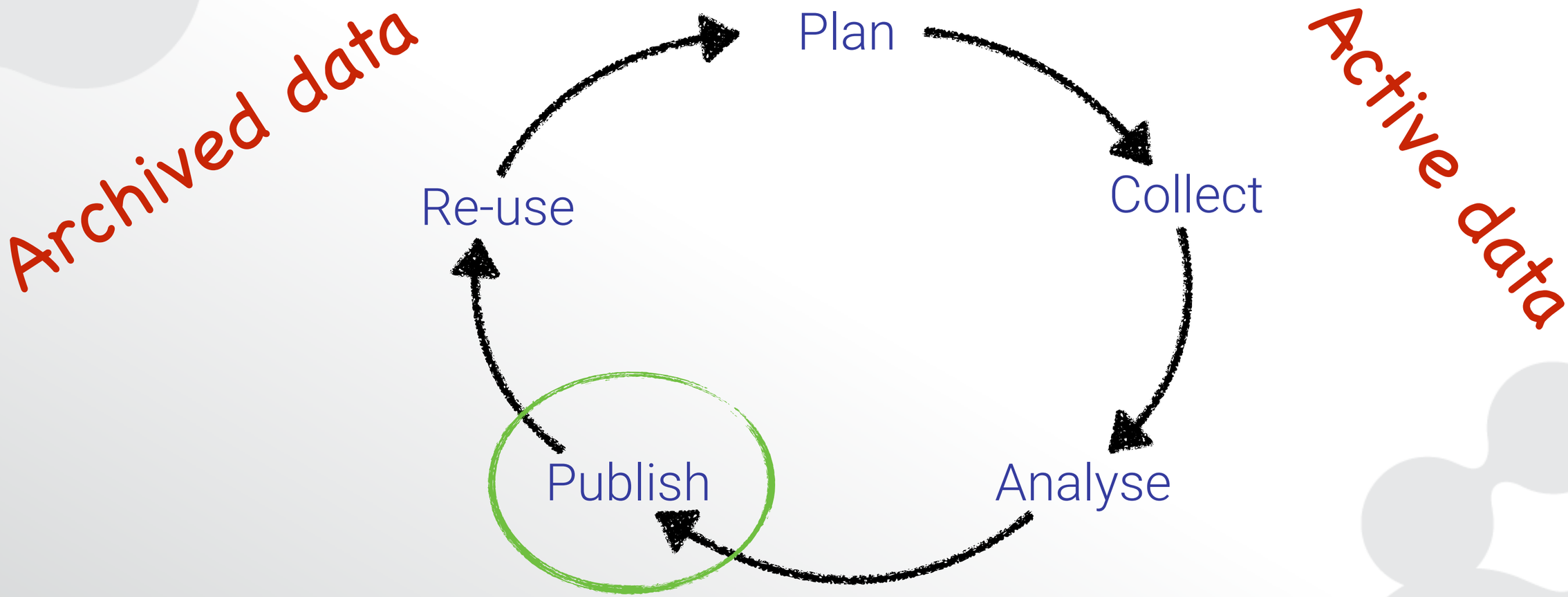

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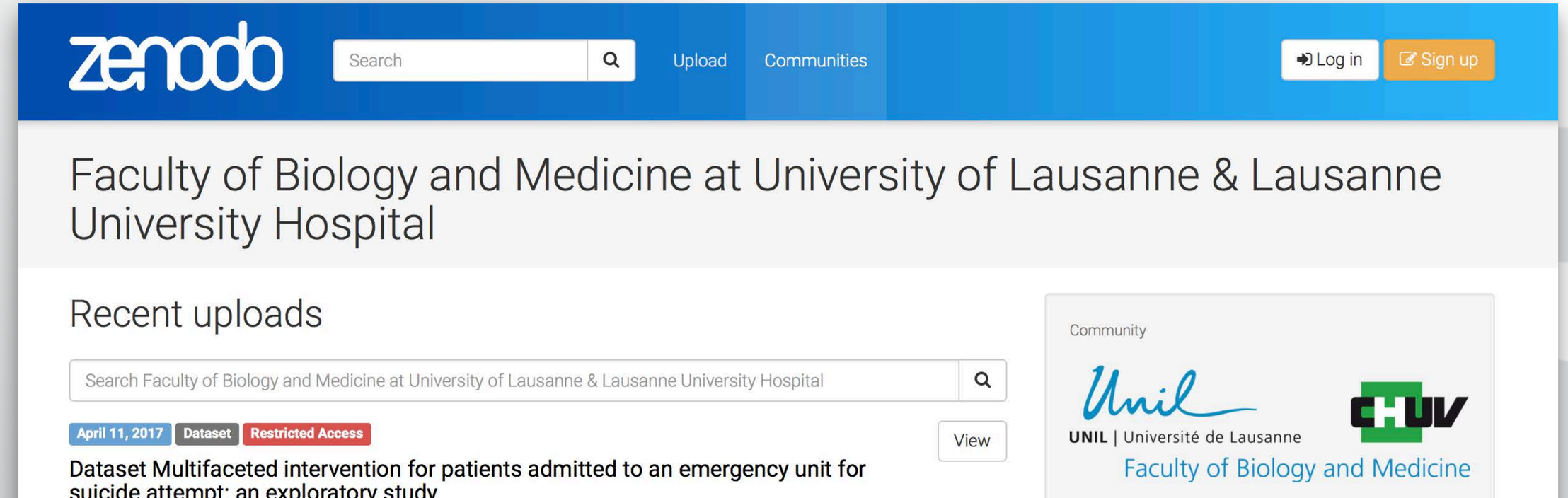

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RESEARCH ARTICLE

Development of a duplex real-time PCR for the detection of *Rickettsia* spp. and typhus group rickettsia in clinical samples

Stefano Giulieri[1], Katia Jaton[2], Alain Cometta[3], Laurence T. Trellu[4] & Gilbert Greub[1,2]

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Correspondence: Gilbert Greub, Institute of Microbiology, Centre Hospitalier Universitaire Vaudois and University of Lausanne, Rue du Bugnon 46, CH-1011 Lausanne, Switzerland. Tel.: +41 21 314 49 79; fax: +41 21 314 40 60; e-mail: Gilbert.Greub@chuv.ch

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Editor: Achilles Gikas

Keywords

rickettsia; polymerase chain reaction; spotted fever; typhus.

Abstract

Molecular diagnosis using real-time polymerase chain reaction (PCR) may allow earlier diagnosis of rickettsiosis. We developed a duplex real-time PCR that amplifies (1) DNA of any rickettsial species and (2) DNA of both typhus group rickettsia, that is, *Rickettsia prowazekii* and *Rickettsia typhi*. Primers and probes were selected to amplify a segment of the 16S rRNA gene of *Rickettsia* spp. for the pan-rickettsial PCR and the citrate synthase gene (*gltA*) for the typhus group rickettsia PCR. Analytical sensitivity was 10 copies of control plasmid DNA per reaction. No cross-amplification was observed when testing human DNA and 22 pathogens or skin commensals. Real-time PCR was applied to 16 clinical samples. Rickettsial DNA was detected in the skin biopsies of three patients. In one patient with severe murine typhus, the typhus group PCR was positive in a skin biopsy from a petechial lesion and seroconversion was later documented. The two other patients with negative typhus group PCR suffered from Mediterranean and African spotted fever, respectively; in both cases, skin biopsy was performed on the eschar. Our duplex real-time PCR showed a good analytical sensitivity and specificity, allowing early diagnosis of rickettsiosis among three patients, and recognition of typhus in one of them.

MEDICAL MICROBIOLOGY

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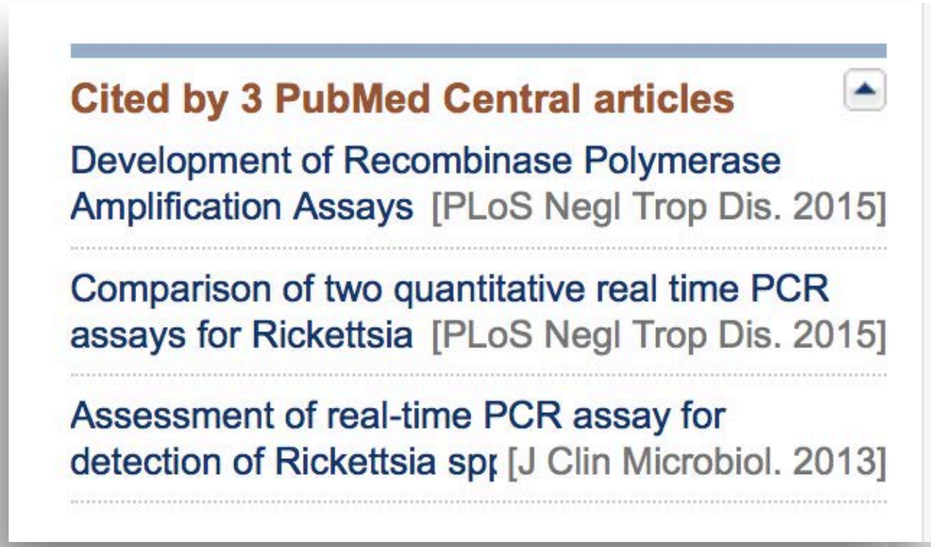

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This dataset is related to "Multifaceted intervention for patients admitted to an emergency unit for suicide attempt: an exploratory study" (Brovelli S., Dorogi Y., Feiner A.-S., Golay P., Stiefel F., Bonsack C. & Michaud L.)

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Carlos Ciller; Sandro De Zanet; Konstantinos Kamnitsas; Philippe Maeder; Ben Glocker; Francis L. Munier; Daniel Rueckert; Jean-Philippe Thiran; Meritxell Bach Cuadra; Raphael Sznitman;

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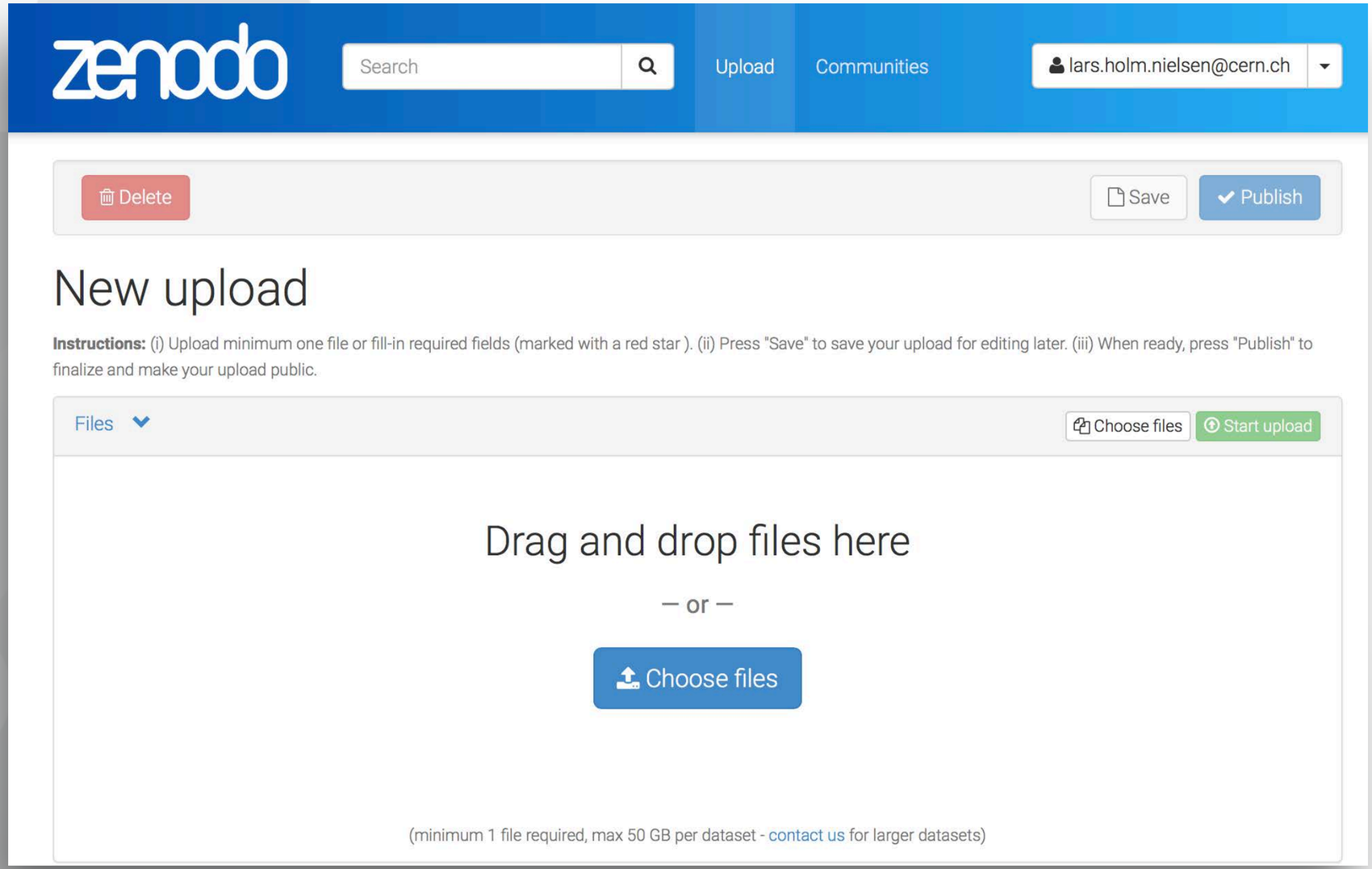

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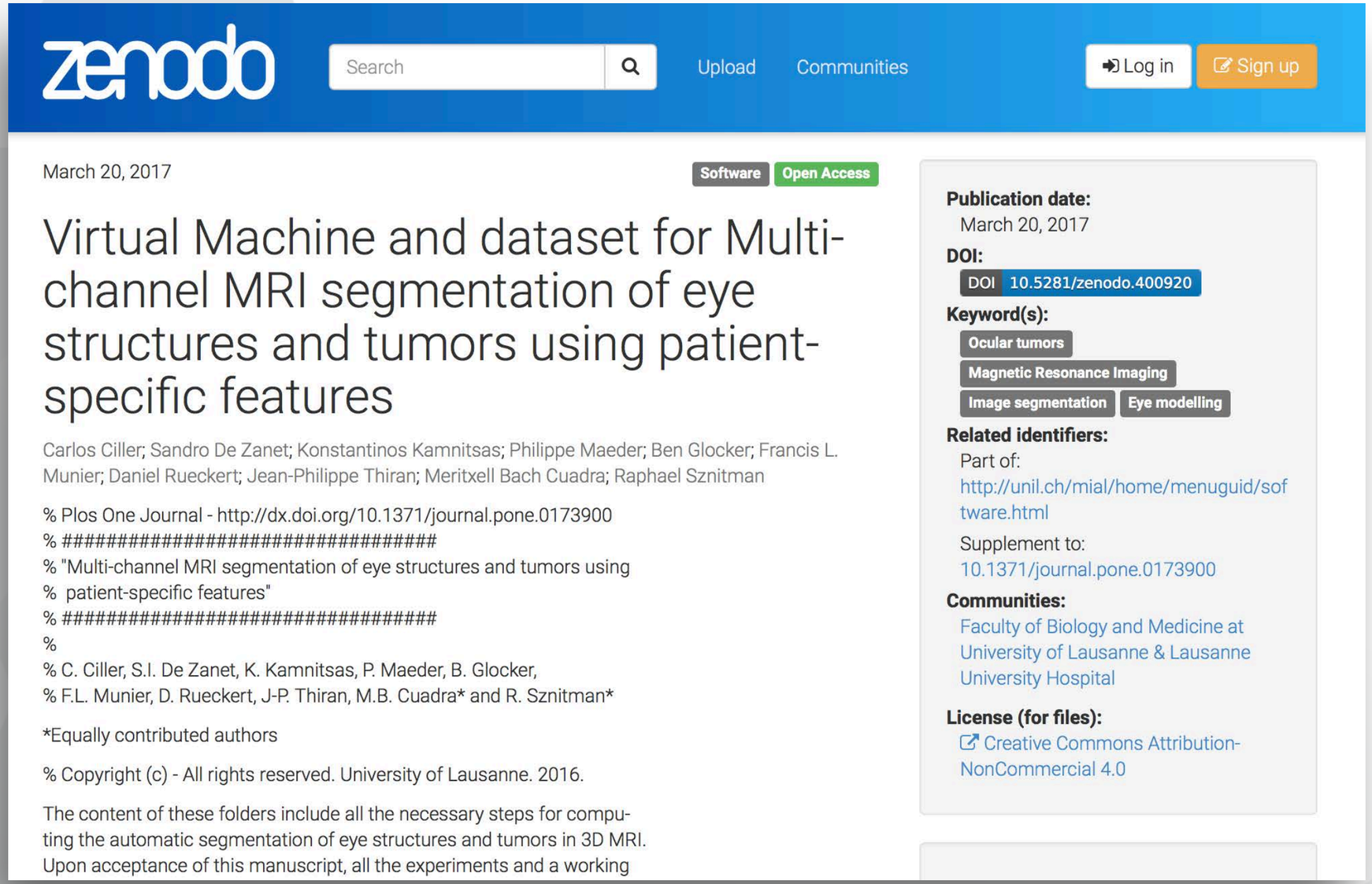

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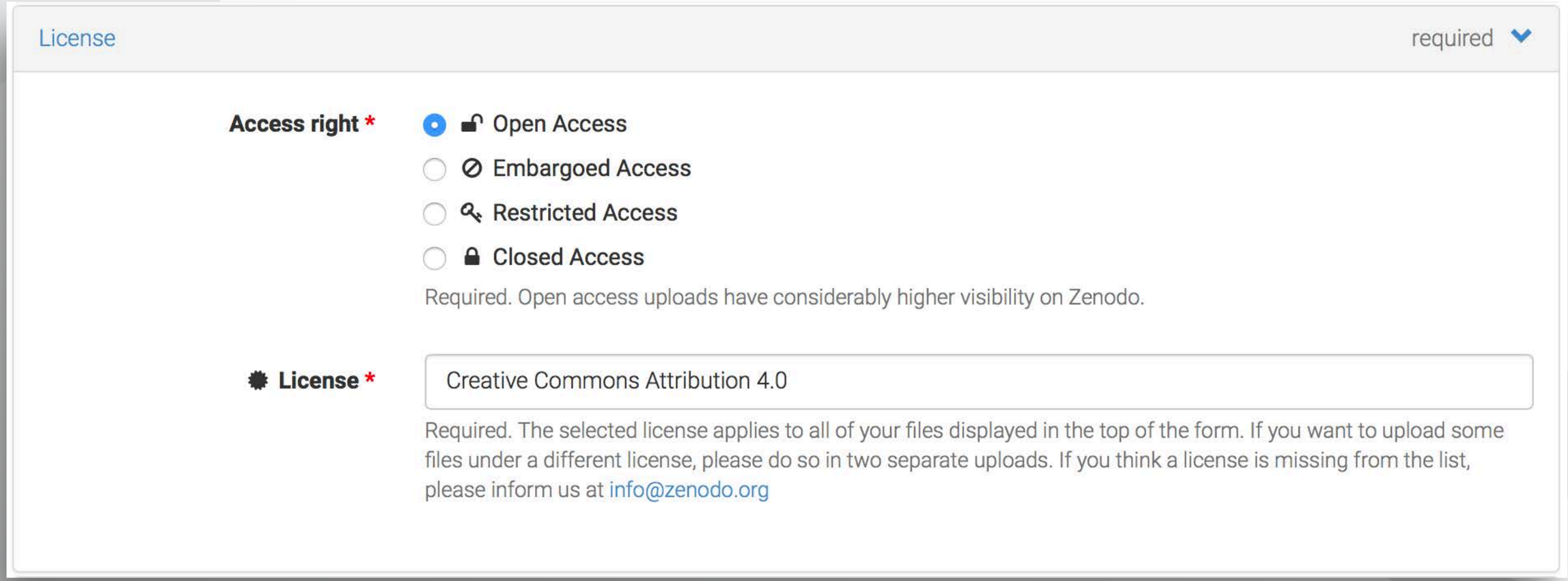

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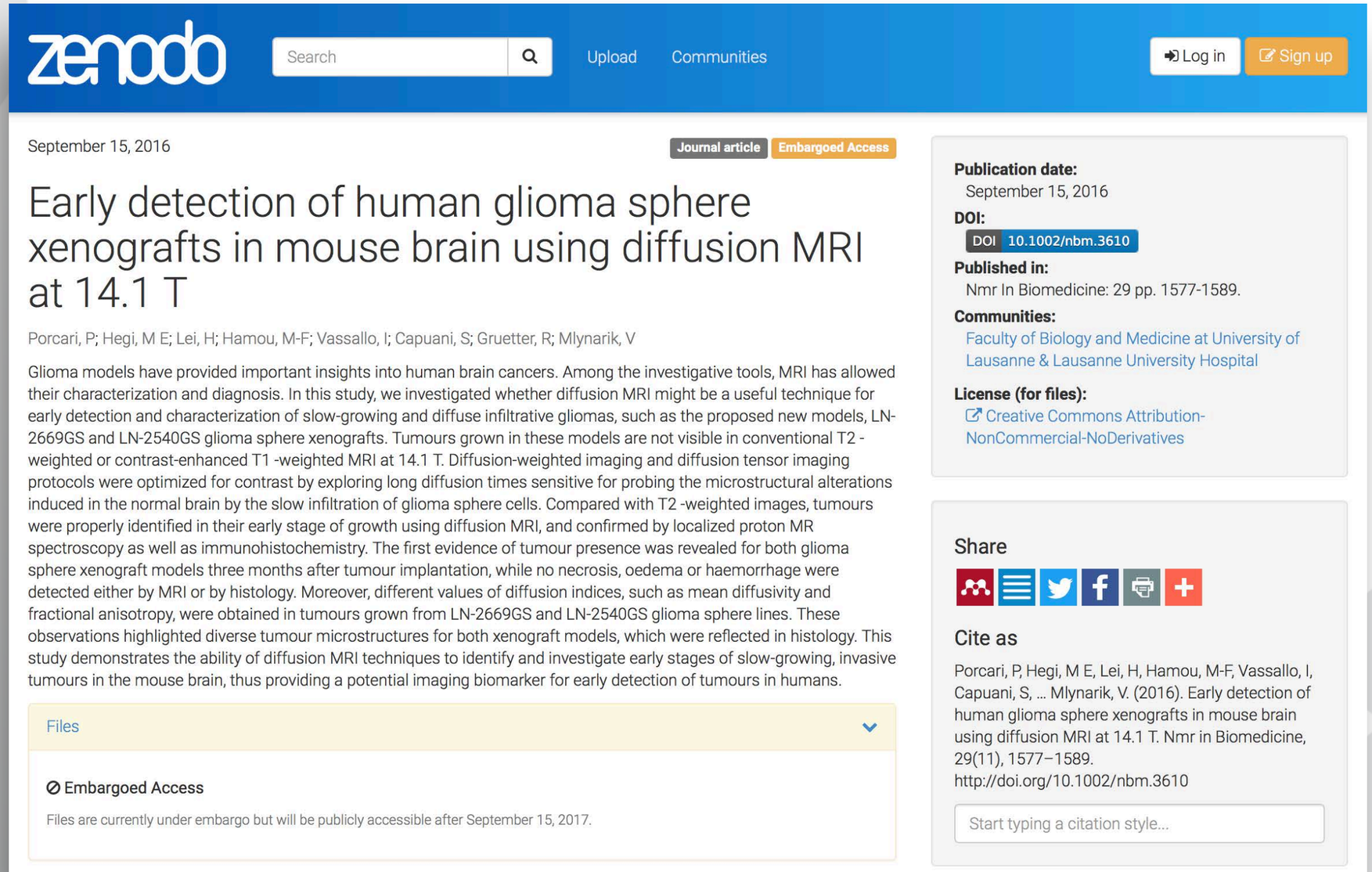

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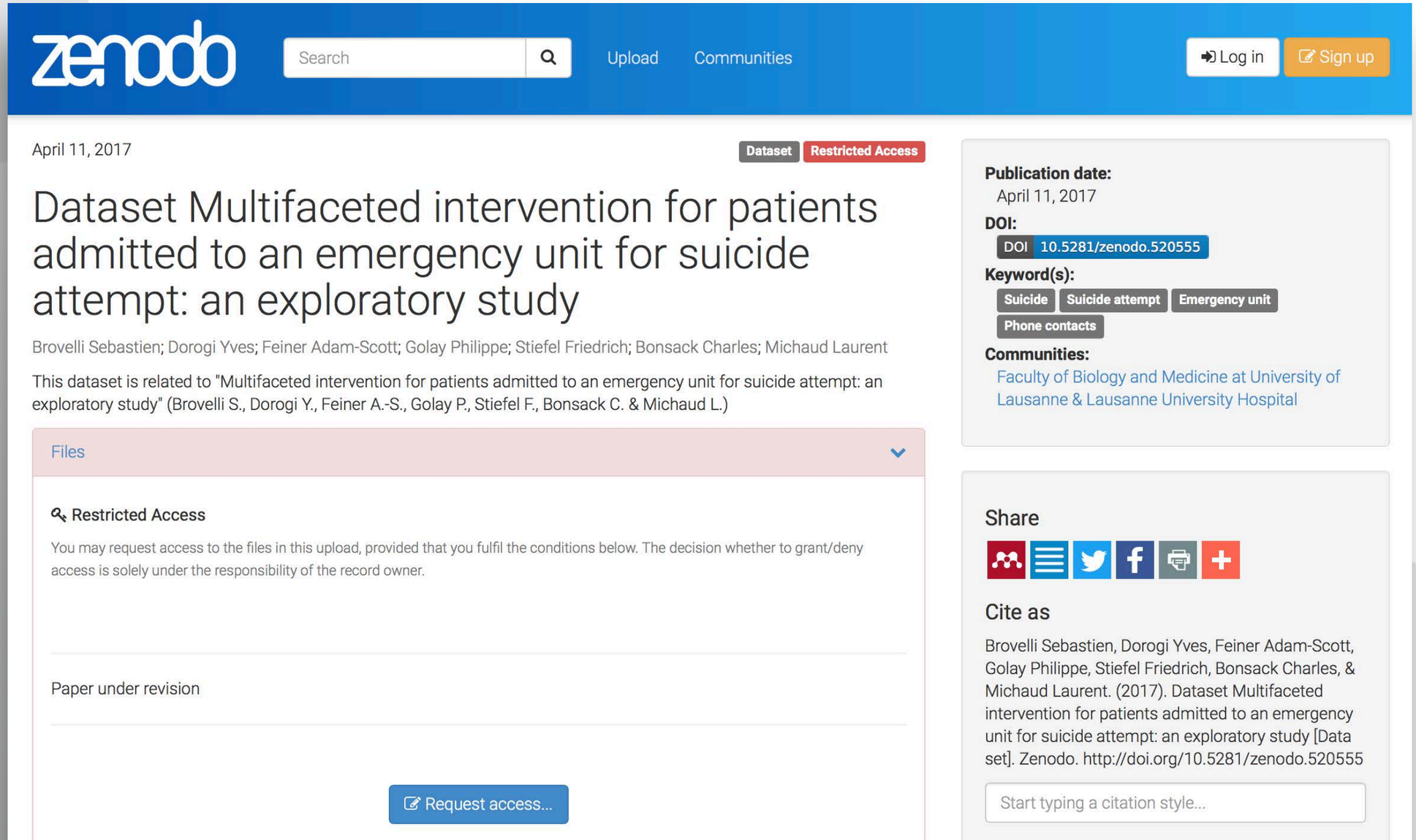

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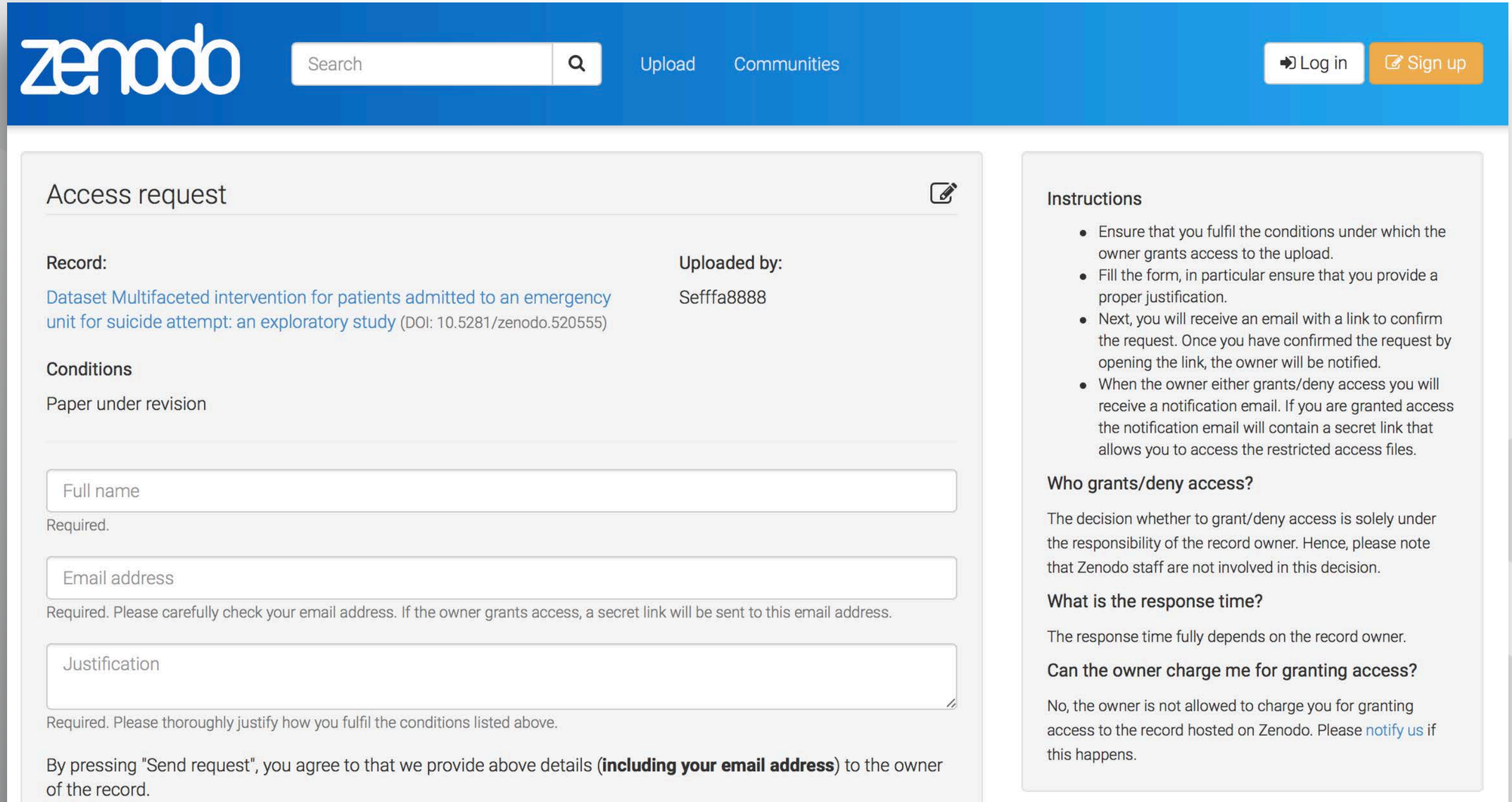

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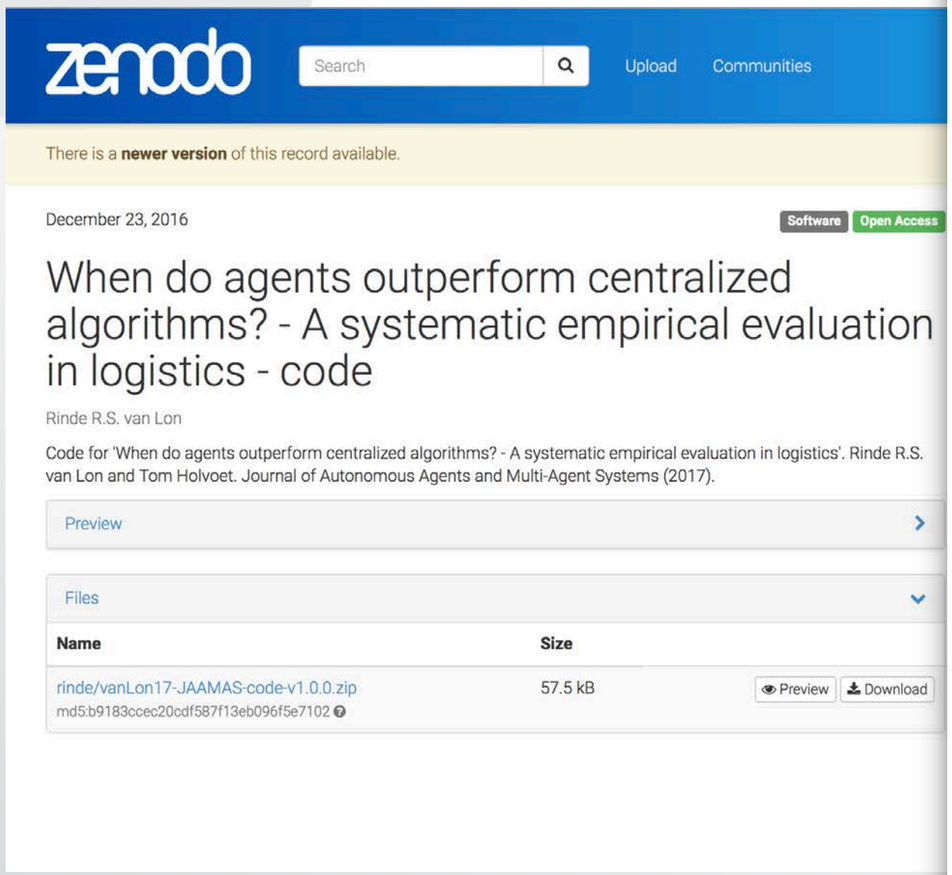

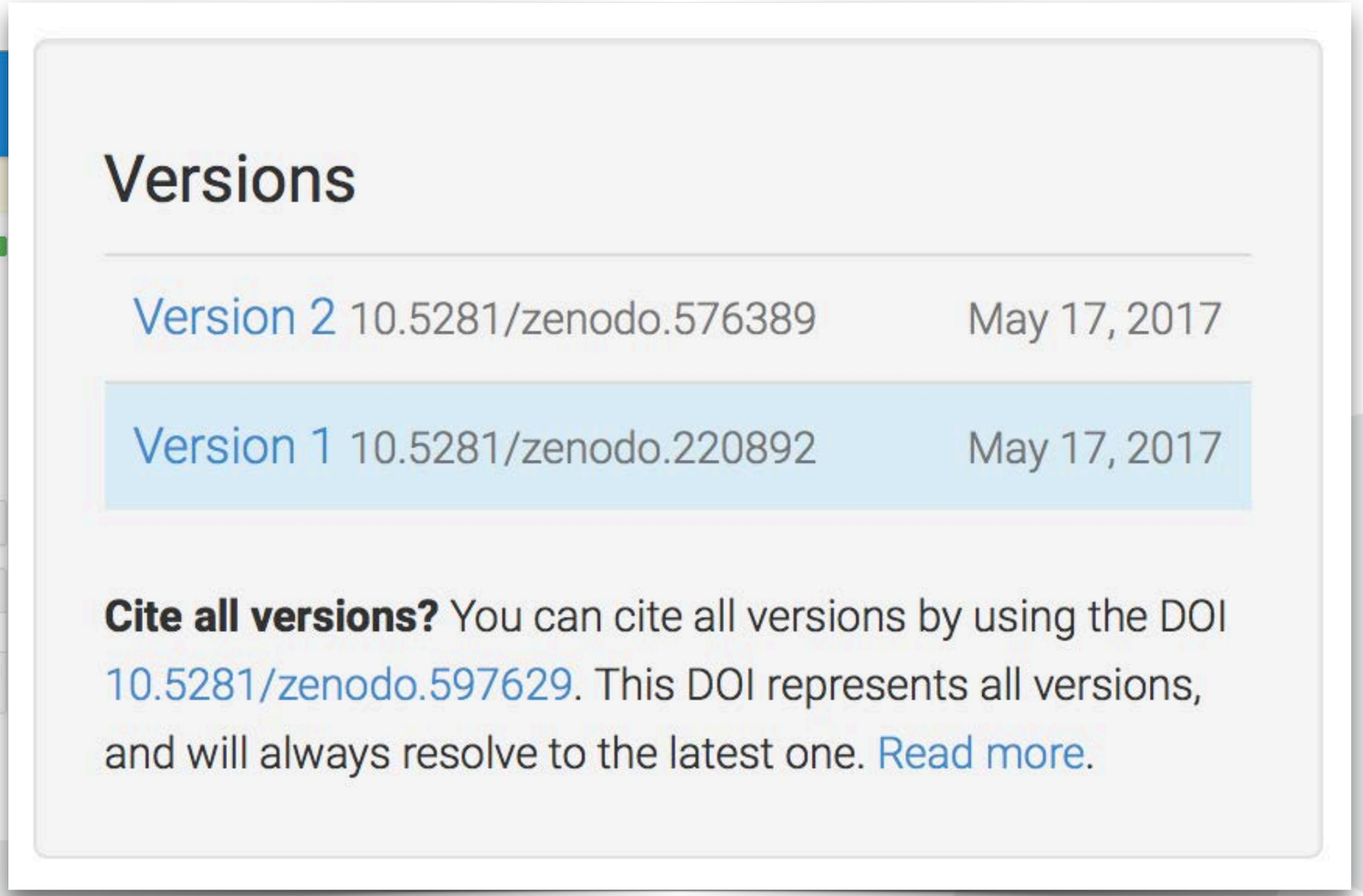

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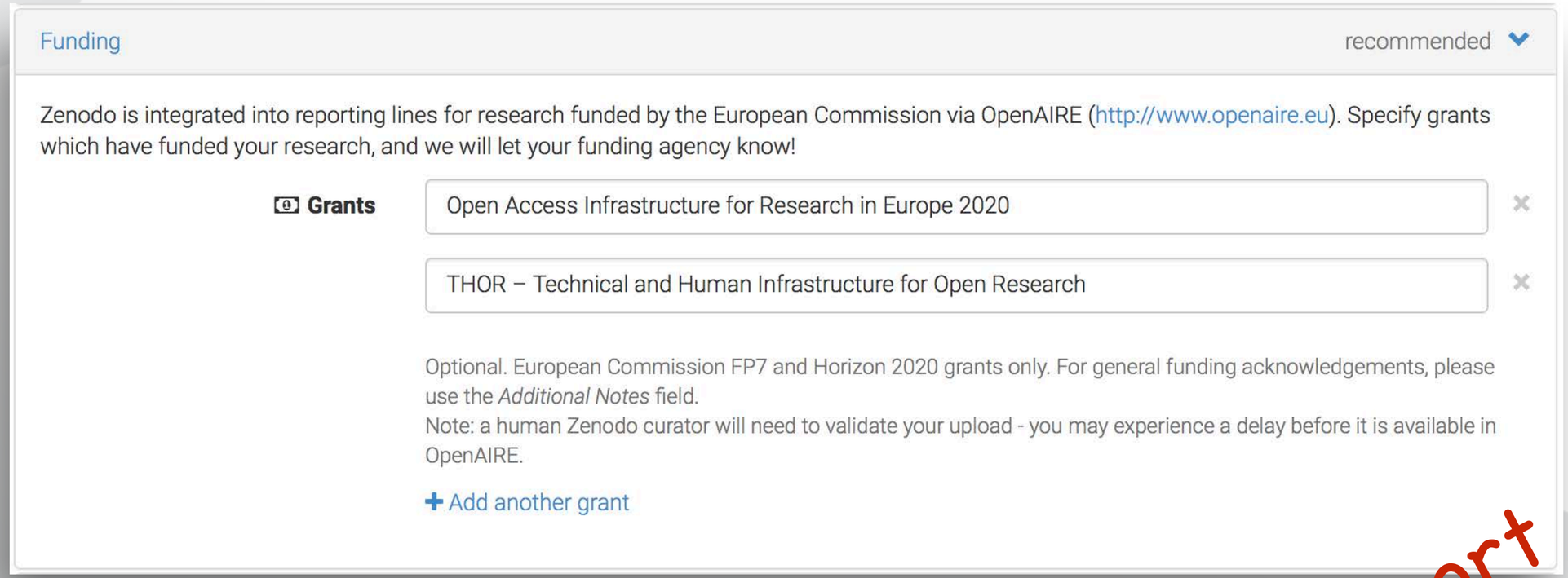

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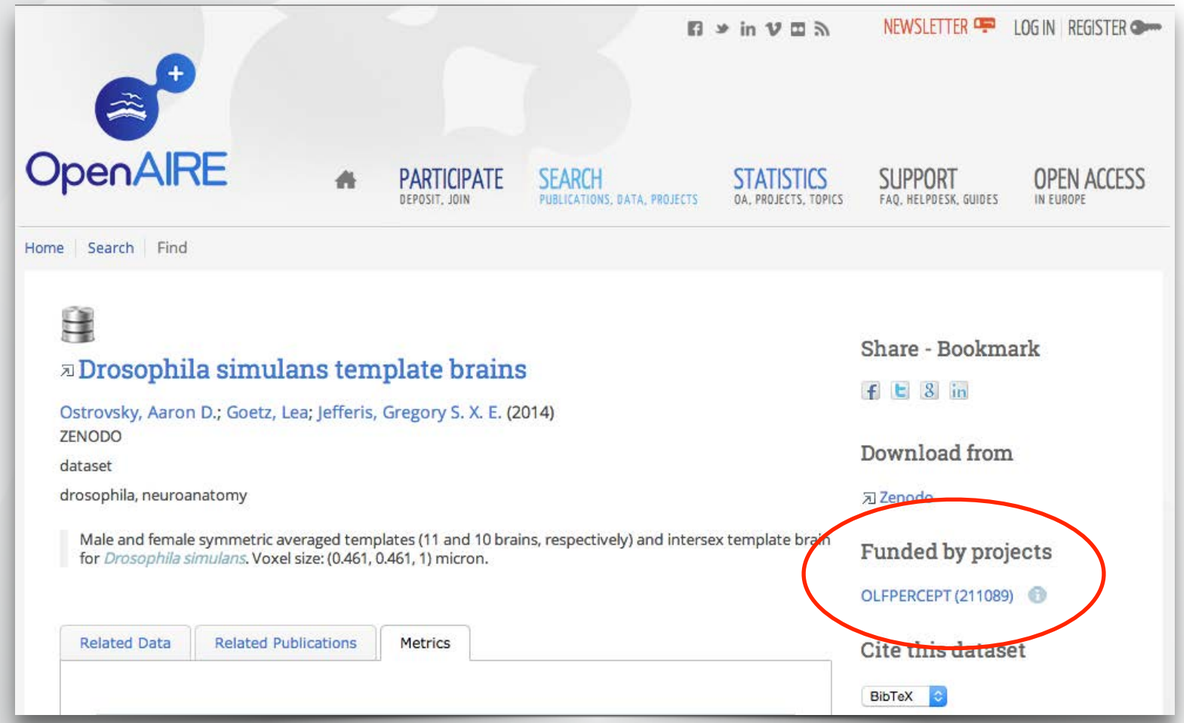
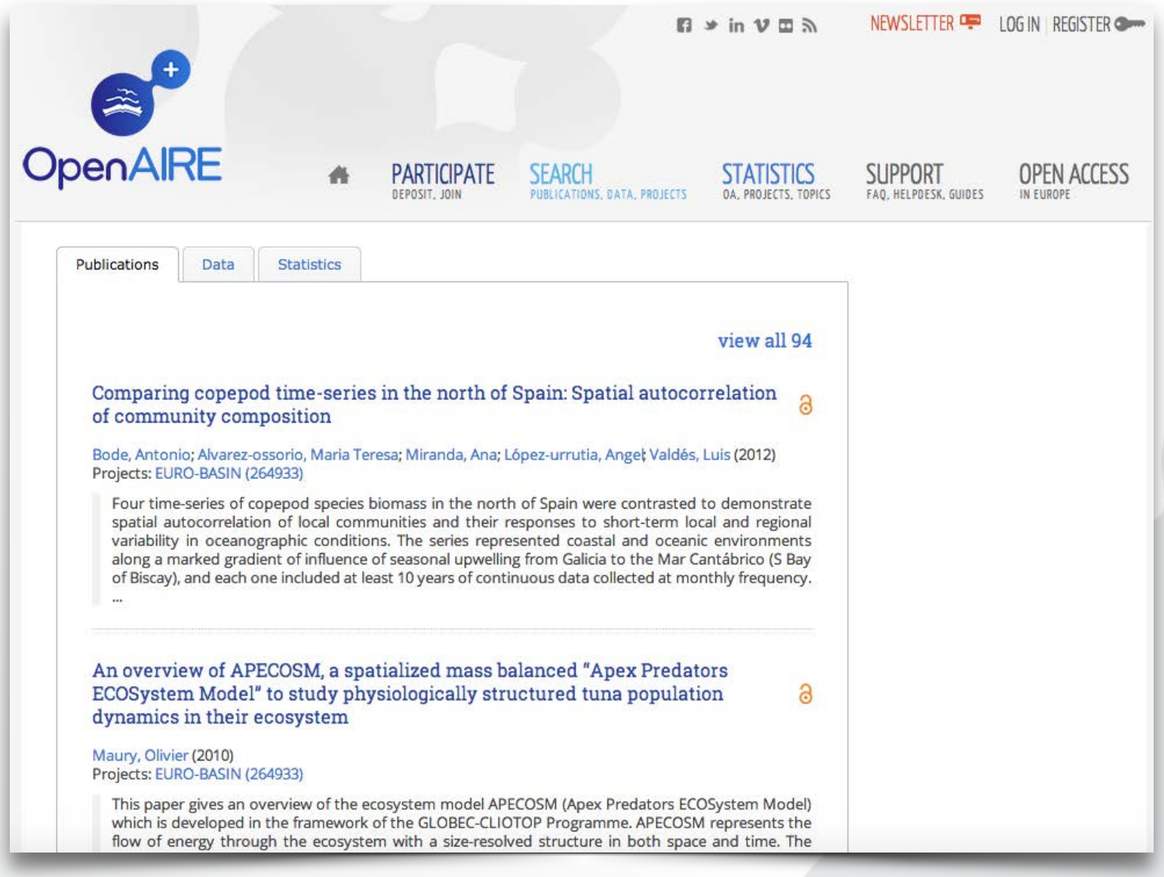
Horizon 2020





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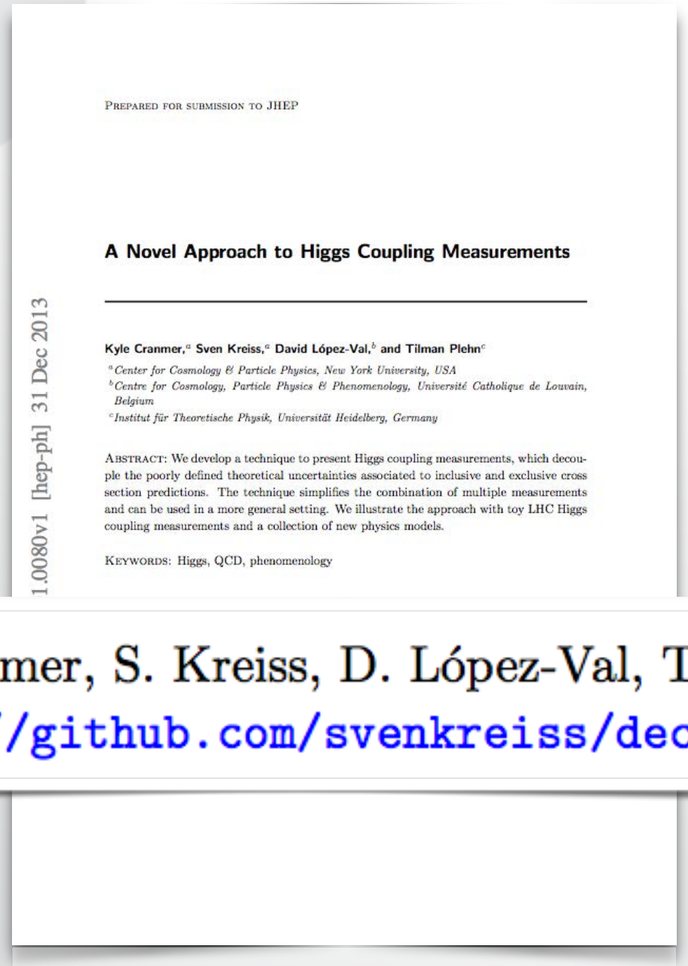


PREPARED FOR SUBMISSION TO JHEP

A Novel Approach to Higgs Coupling Measurements

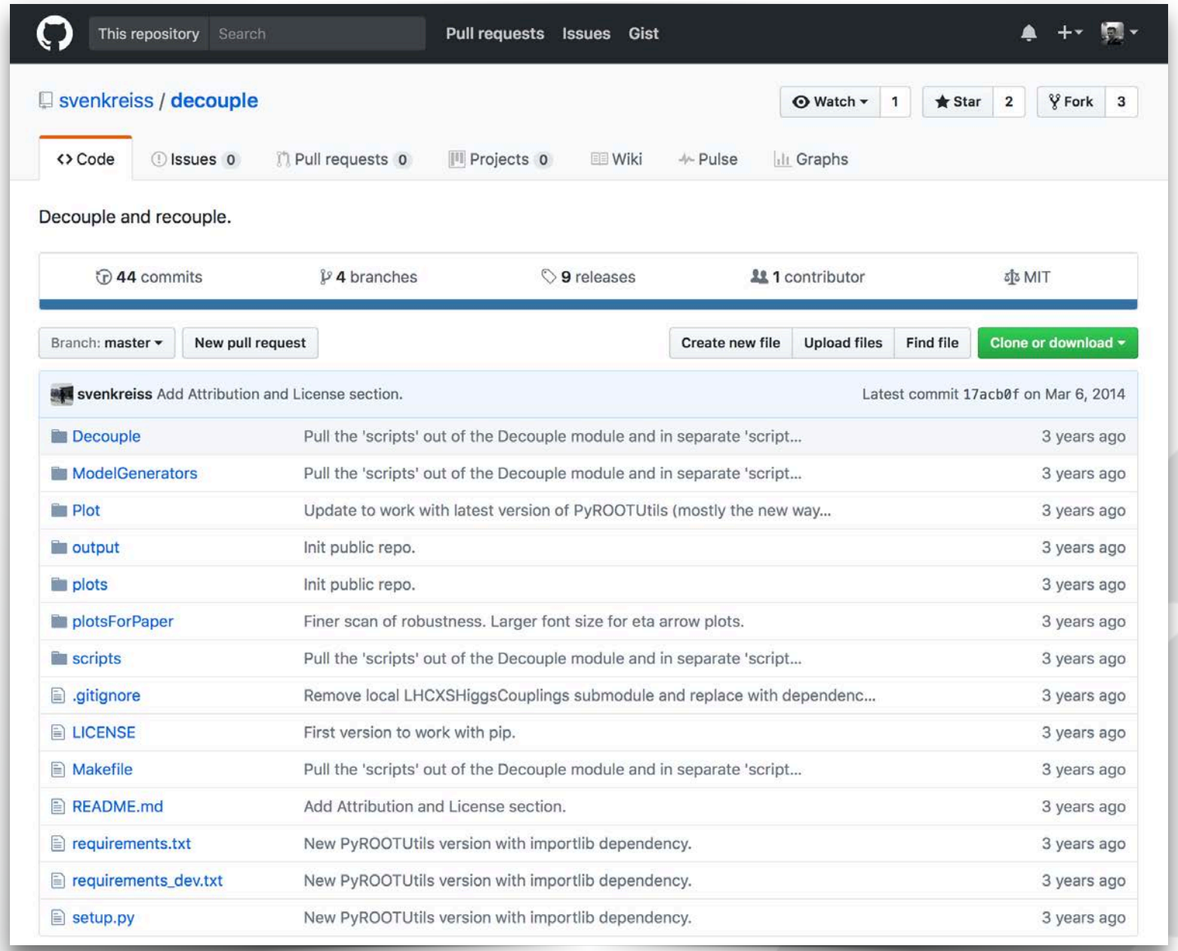
Kyle Cranmer,[a] Sven Kreiss,[c] David López-Val,[b] and Tilman Plehn[c]

[a] *Center for Cosmology & Particle Physics, New York University, USA*
[b] *Centre for Cosmology, Particle Physics & Phenomenology, Université Catholique de Louvain, Belgium*
[c] *Institut für Theoretische Physik, Universität Heidelberg, Germany*

ABSTRACT: We develop a technique to present Higgs coupling measurements, which decouple the poorly defined theoretical uncertainties associated to inclusive and exclusive cross section predictions. The technique simplifies the combination of multiple measurements and can be used in a more general setting. We illustrate the approach with toy LHC Higgs coupling measurements and a collection of new physics models.

KEYWORDS: Higgs, QCD, phenomenology

[25] K. Cranmer, S. Kreiss, D. López-Val, T. Plehn, https://github.com/svenkreiss/decouple.



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svenkreiss Add Attribution and License section. Latest commit 17acb0f on Mar 6, 2014

Decouple	Pull the 'scripts' out of the Decouple module and in separate 'script...	3 years ago
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Plot	Update to work with latest version of PyROOTUtils (mostly the new way...	3 years ago
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Makefile	Pull the 'scripts' out of the Decouple module and in separate 'script...	3 years ago
README.md	Add Attribution and License section.	3 years ago
requirements.txt	New PyROOTUtils version with importlib dependency.	3 years ago
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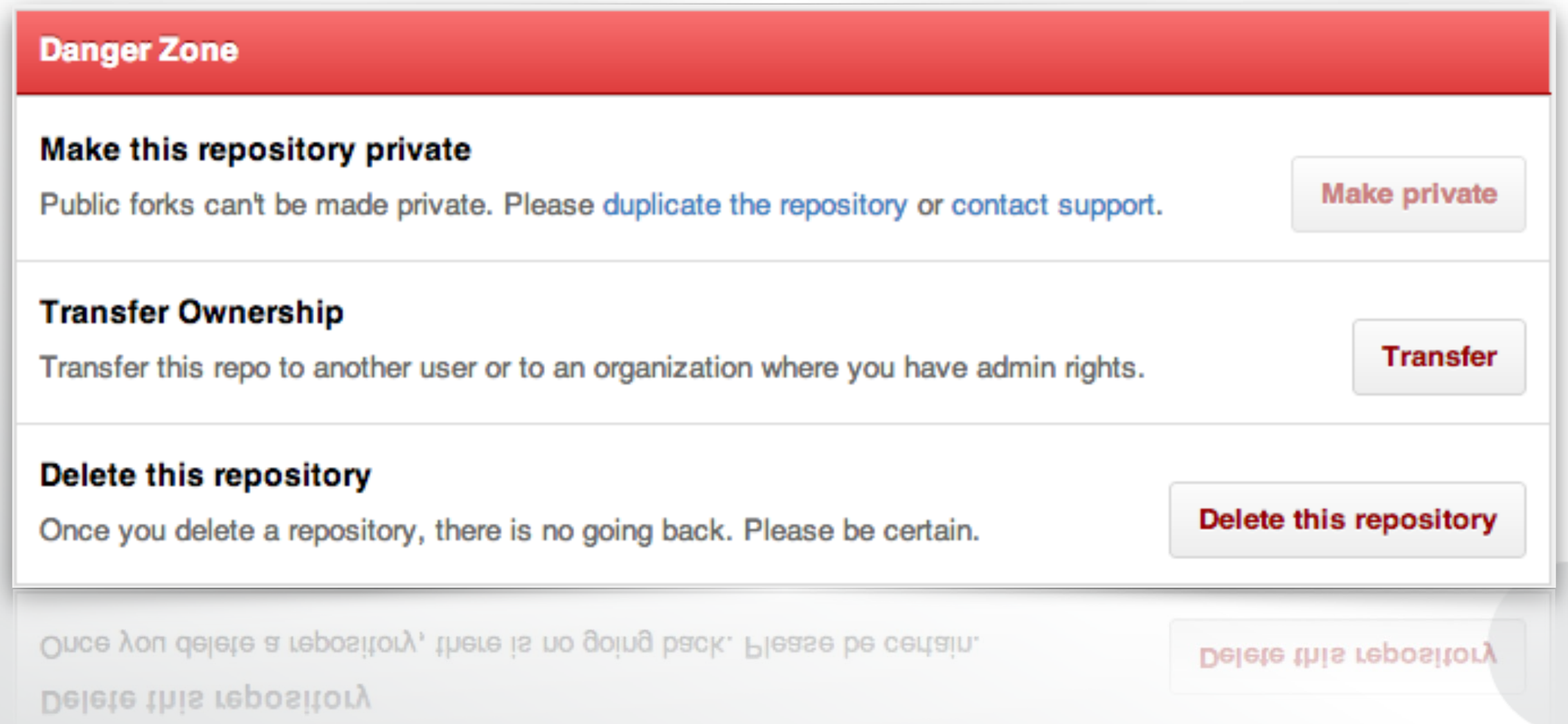

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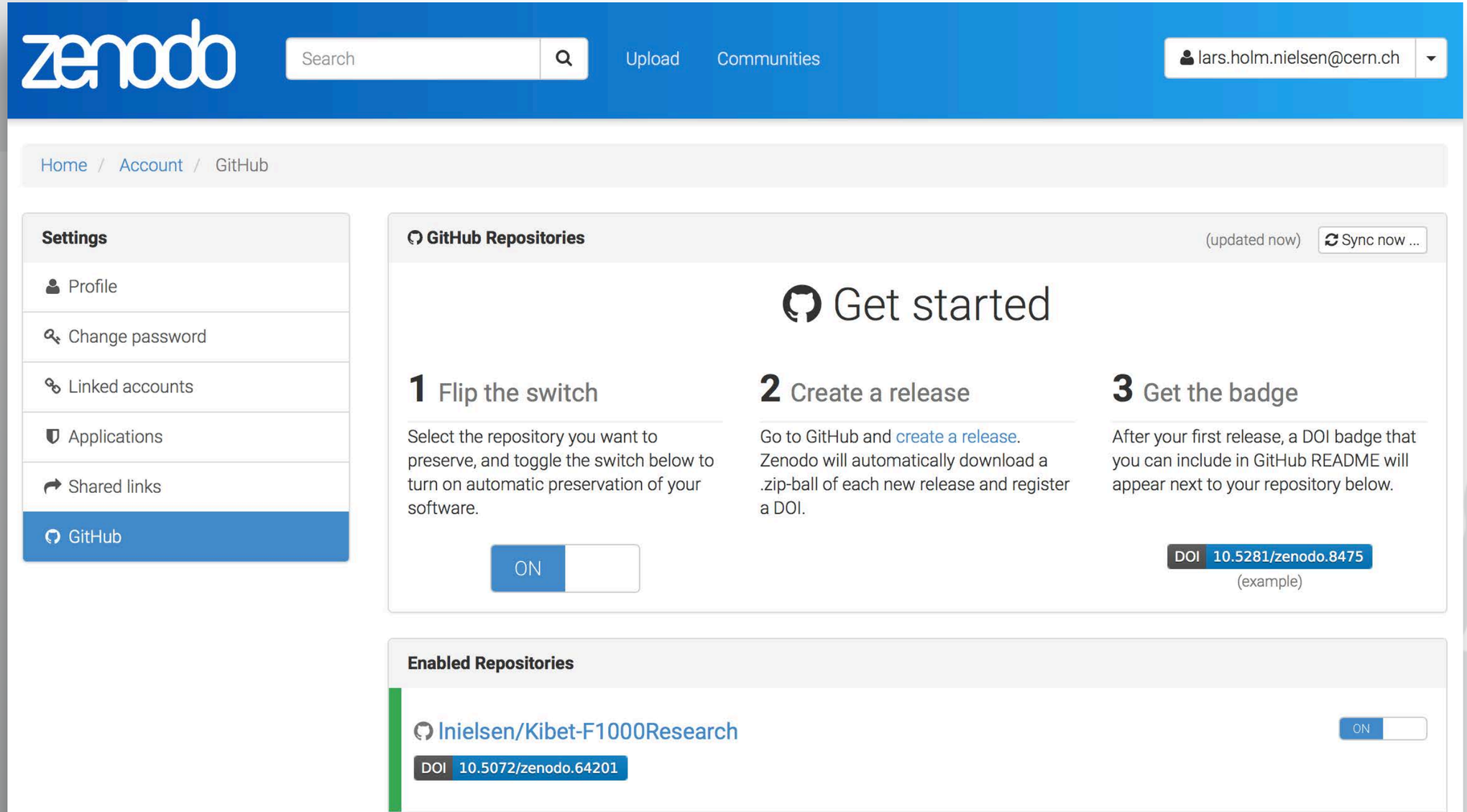

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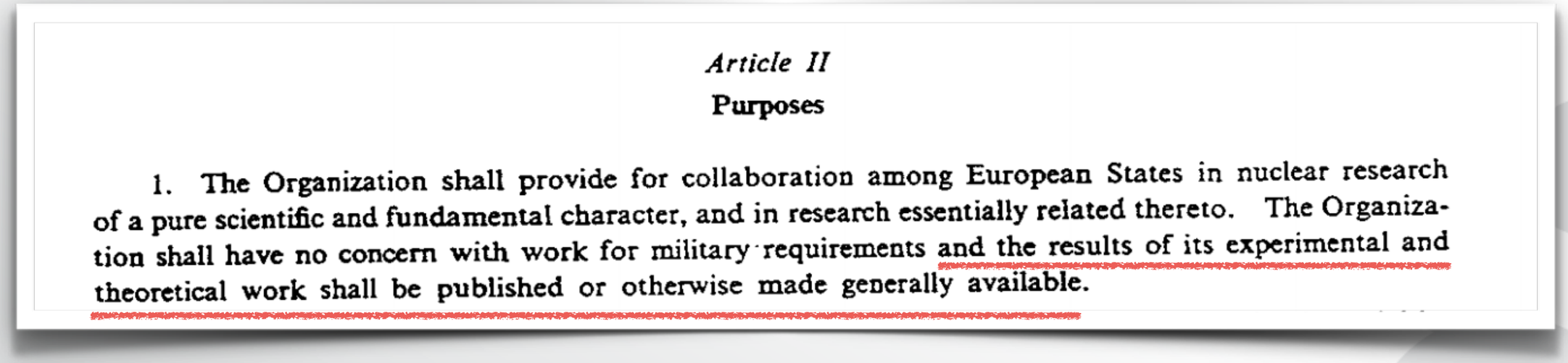

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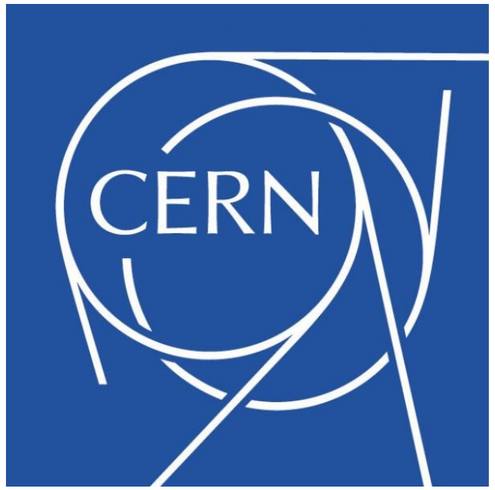

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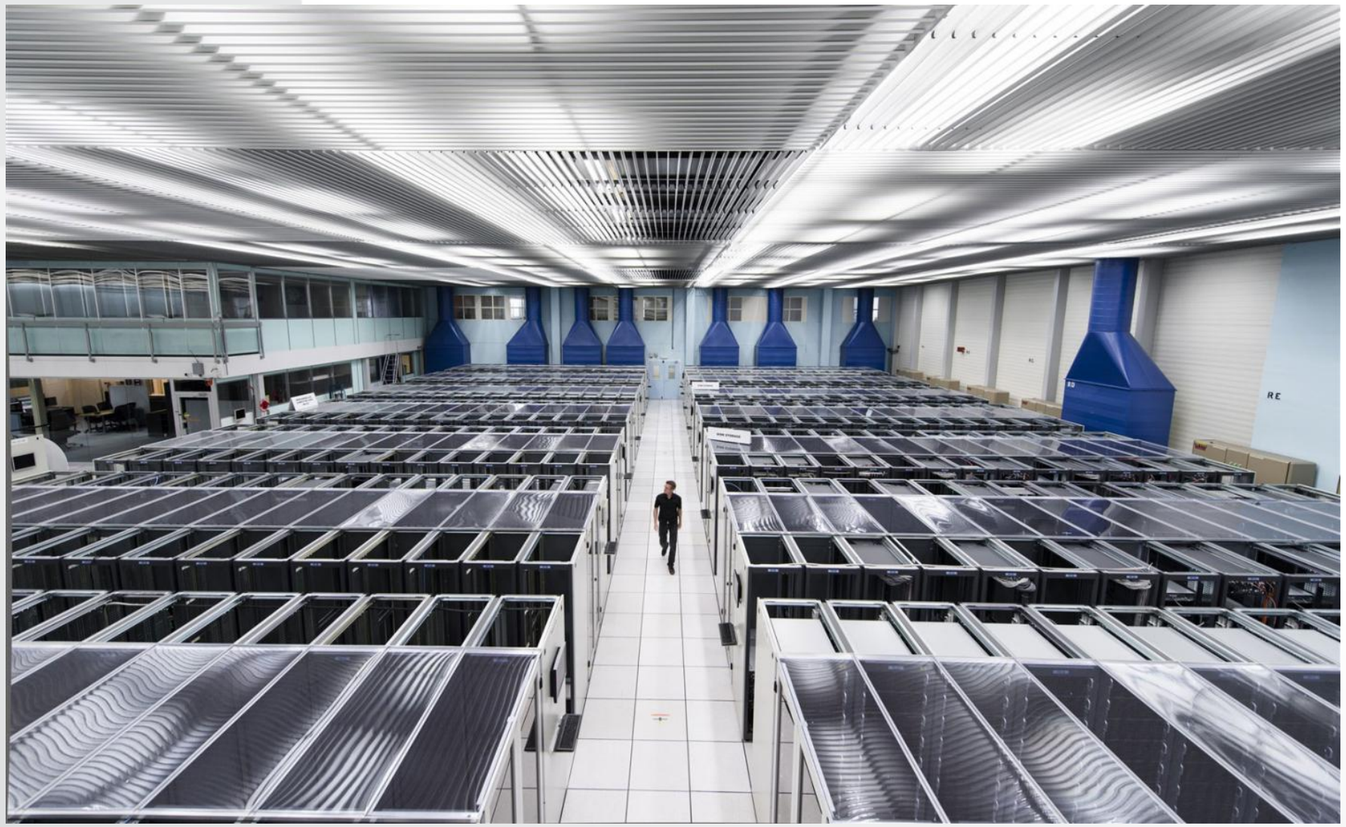

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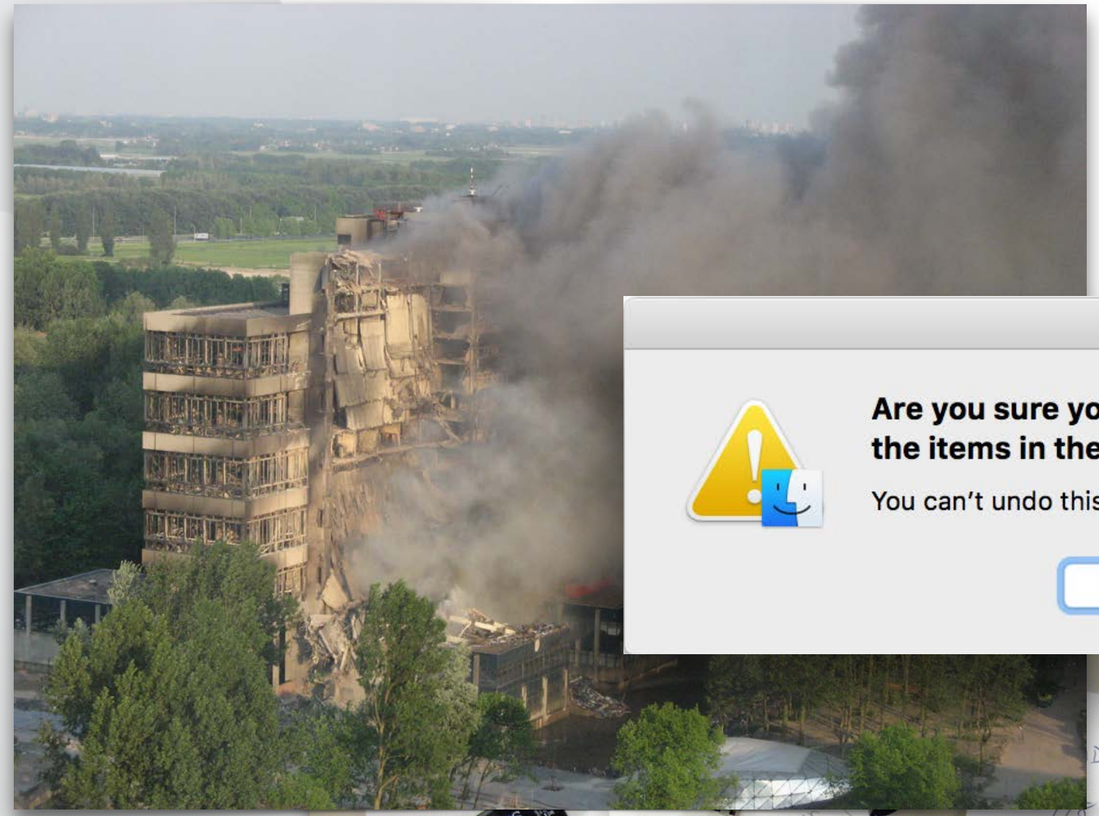

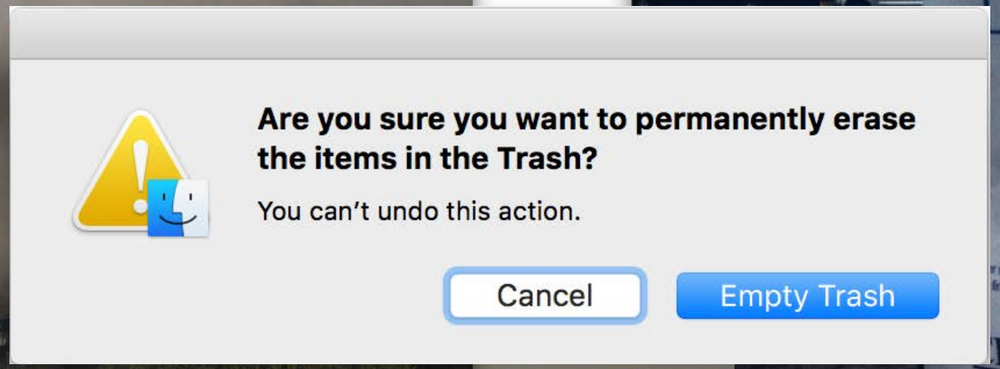

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