



# Alpha Presentation

## Making STEM Papers Accessible to ASL Users

### The Capstone Experience

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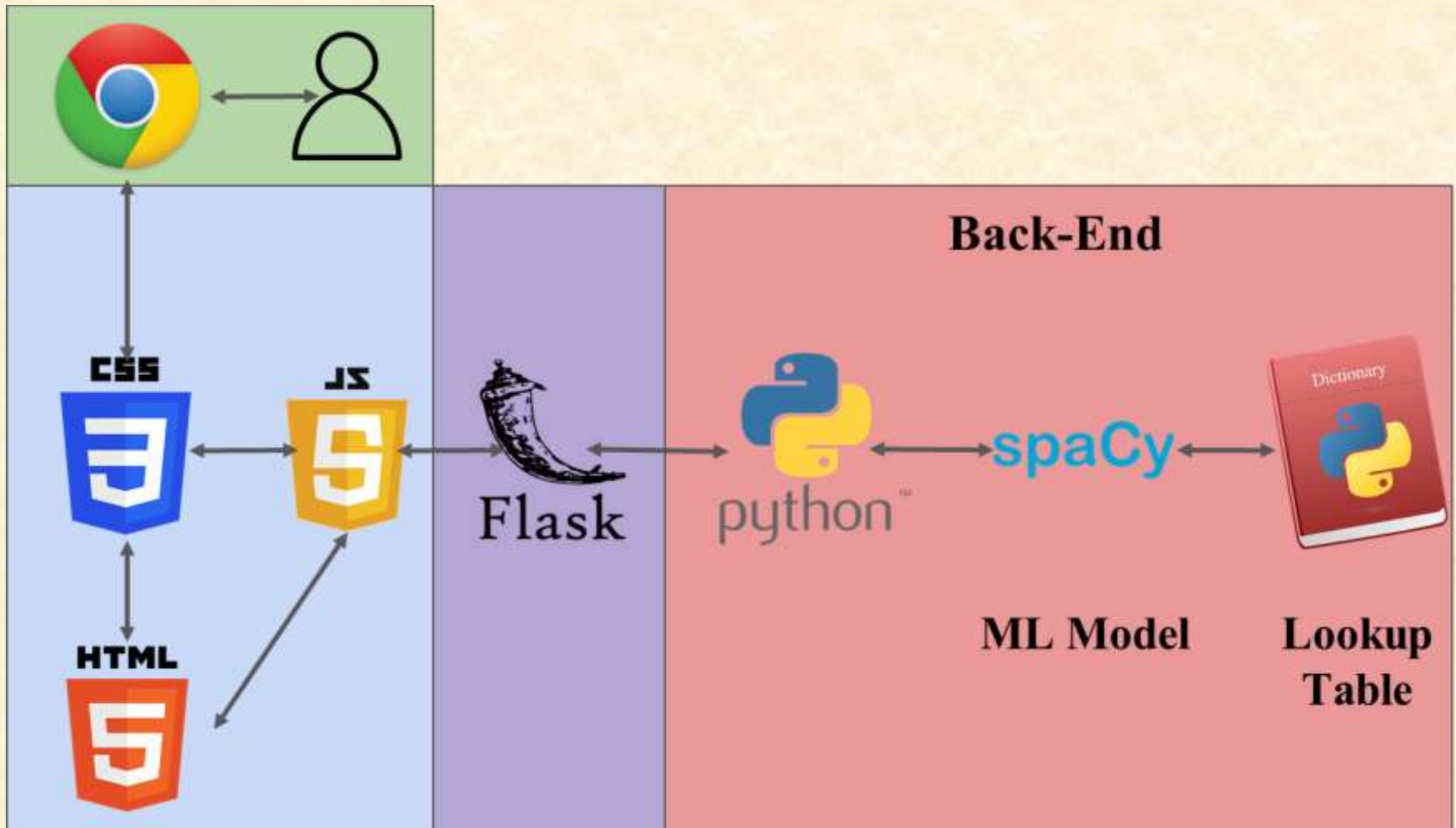
*From Students...  
...to Professionals*

# Project Overview

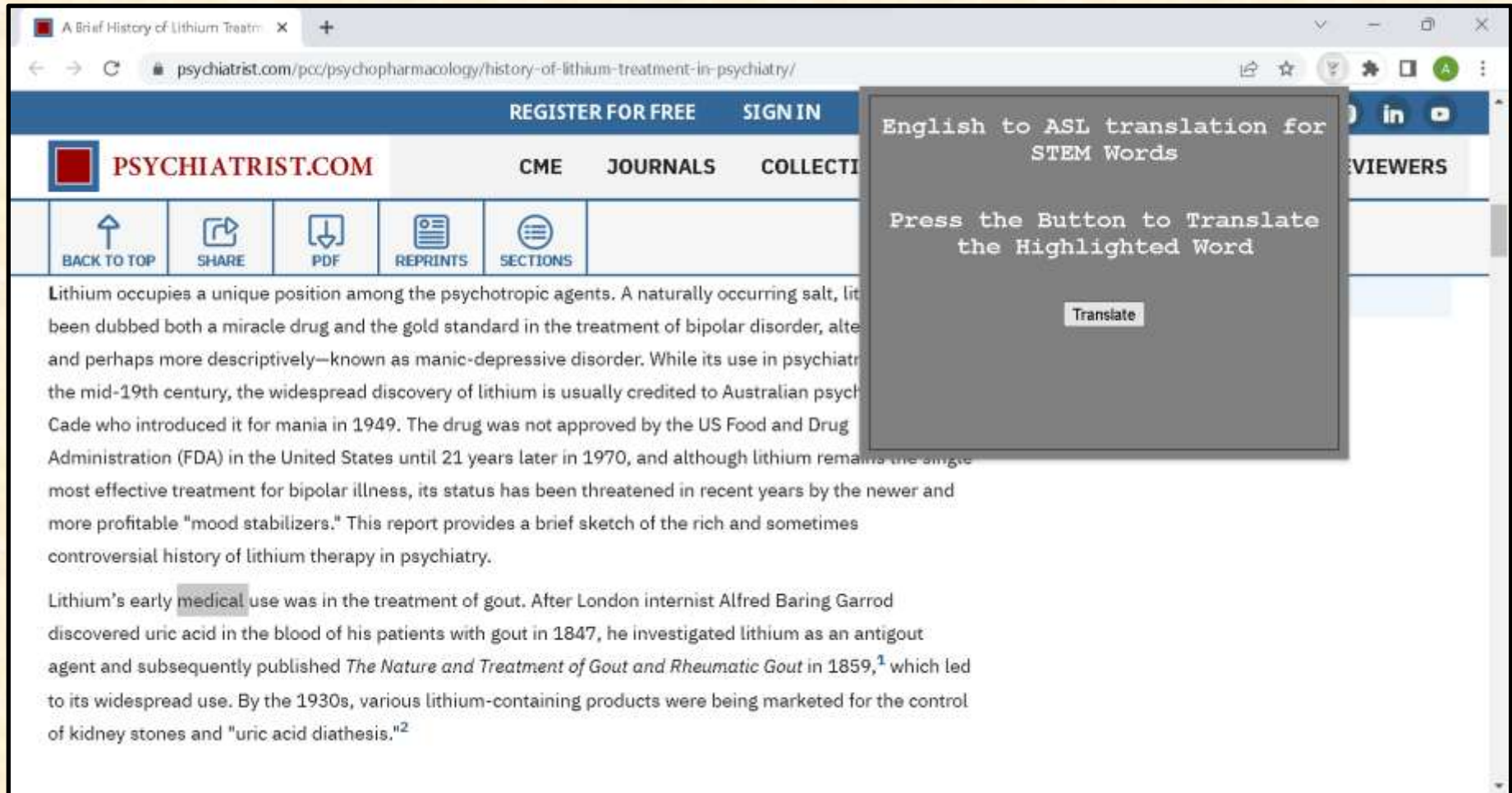
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- Enable ASL users to interpret STEM papers
- By making a translation reading tool
- Accessible as a Chrome extension

# System Architecture



# Input for a single word



A Brief History of Lithium Treatment x +

psychiatrist.com/pcc/psychopharmacology/history-of-lithium-treatment-in-psychiatry/

REGISTER FOR FREE SIGN IN

PSYCHIATRIST.COM CME JOURNALS COLLECTION

BACK TO TOP SHARE PDF REPRINTS SECTIONS

Lithium occupies a unique position among the psychotropic agents. A naturally occurring salt, lithium has been dubbed both a miracle drug and the gold standard in the treatment of bipolar disorder, although perhaps more descriptively—known as manic-depressive disorder. While its use in psychiatry dates back to the mid-19th century, the widespread discovery of lithium is usually credited to Australian psychiatrist John Cade who introduced it for mania in 1949. The drug was not approved by the US Food and Drug Administration (FDA) in the United States until 21 years later in 1970, and although lithium remains the single most effective treatment for bipolar illness, its status has been threatened in recent years by the newer and more profitable "mood stabilizers." This report provides a brief sketch of the rich and sometimes controversial history of lithium therapy in psychiatry.

Lithium's early **medical** use was in the treatment of gout. After London internist Alfred Baring Garrod discovered uric acid in the blood of his patients with gout in 1847, he investigated lithium as an antigout agent and subsequently published *The Nature and Treatment of Gout and Rheumatic Gout* in 1859,<sup>1</sup> which led to its widespread use. By the 1930s, various lithium-containing products were being marketed for the control of kidney stones and "uric acid diathesis."<sup>2</sup>

English to ASL translation for STEM Words

Press the Button to Translate the Highlighted Word

Translate

# Output for a single word

The screenshot shows a web browser window with the address bar displaying `psychiatrist.com/pcc/psychopharmacology/history-of-lithium-treatment-in-psychiatry/`. The page header includes navigation links: REGISTER FOR FREE, SIGN IN, CME, JOURNALS, and COLLECTIONS. Below the header is a navigation bar with icons for BACK TO TOP, SHARE, PDF, REPRINTS, and SECTIONS. The main content area features a paragraph about lithium's history in psychiatry, with the word "medical" highlighted in the second paragraph. A grey overlay box is positioned on the right side of the page, containing the text "English to ASL translation for STEM Words" and "Press the Button to Translate the Highlighted Word". Below this text is a "Translate" button and a video player showing a person signing, with the text "Sign for 'Medicine'" overlaid on the video.

A Brief History of Lithium Treatment

psychiatrist.com/pcc/psychopharmacology/history-of-lithium-treatment-in-psychiatry/

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English to ASL translation for STEM Words

Press the Button to Translate the Highlighted Word

Translate

Sign for 'Medicine'



# Input for several words

The screenshot shows a web browser window with the URL [ed.gov/stem](http://ed.gov/stem). The page header includes the U.S. Department of Education logo and navigation links for Student Loans, Grants, and Laws. The main heading is "Science, Technology, Engineering, and Math, including Computer Science". A "Table of Contents" section lists various links such as "Background", "Department Offices that Support STEM", and "Open ED Funding and Other Opportunities". A right sidebar contains a list of topics including "College accreditation", "Every Student Succeeds Act (ESSA)", and "FERPA".

Overlaid on the right side of the page is a grey box with the following text:

English to ASL translation for  
STEM Words

Press the Button to Translate  
the Highlighted Word

Translate

# Output for several words

The screenshot shows a web browser window displaying the U.S. Department of Education's STEM page. The URL is [ed.gov/stem](http://ed.gov/stem). The page features the department's logo and navigation links for Student Loans, Grants, and Laws. The main heading is "Science, Technology, Engineering, and Math, including Computer Science". Below this is a "Table of Contents" with links to various resources. A grey overlay on the right side of the page contains the text "Press the Button to Translate the Highlighted Word" and a "Translate" button. Below the button are three video thumbnails labeled "Science", "technology", and "Engineering", each with a red play button icon. The "Engineering" thumbnail also has a green letter 'a' in a circle. The browser's address bar and various icons are visible at the top of the window.

Science, Technology, Engineering, and Math, including Computer Science

Table of Contents

- [Background](#)
- [Department Offices that Support STEM](#)
- [Open ED Funding and Other Opportunities](#)
- [Examples of the Department's discretionary grants that can support STEM](#)
- [Grant Applicant Resources](#)
- [Call for Peer Reviewers](#)
- [America's Strategy for STEM Education](#)
- [Secretary's STEM Priority](#)
- [U.S. Department of Education STEM Newsletter](#)
- [Archived STEM Newsletters](#)
- [STEM Education Briefings](#)
- [Upcoming STEM Briefings](#)
- [Archived STEM Briefings](#)

Press the Button to Translate the Highlighted Word

Translate

Science

technology

a Engineering

# What's left to do?

- Stack models for increased accuracy
  - Other cross-lingual entity linking
  - BERT model
  - String difference
- List of similar words upon output
- Activate extension with right click
- Display YouTube search results to front-end
- PDF compatibility



# Questions?

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