# Olli

## Accessible Data Visualization for Blind / Low Vision Users
*mitvis.github.io/olli*
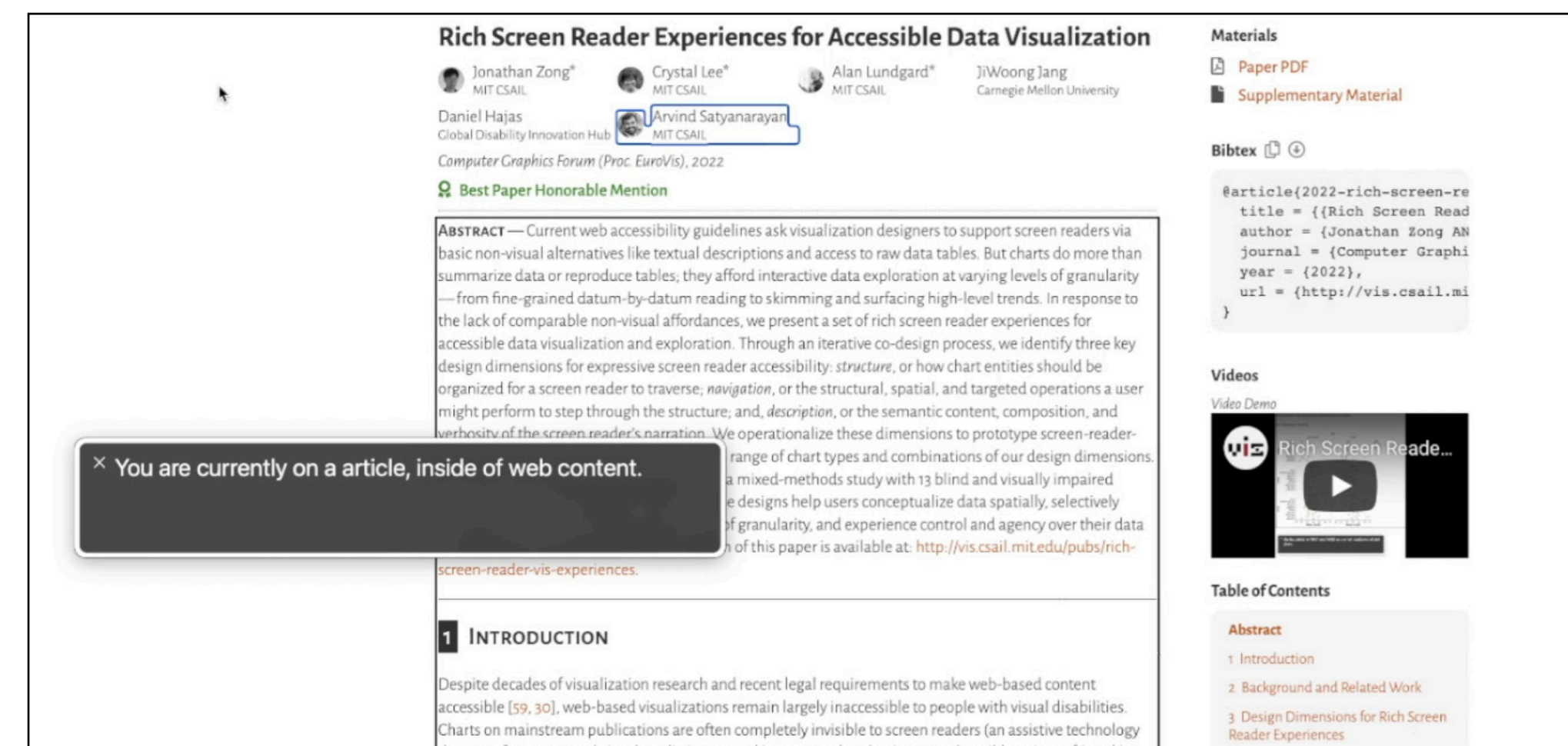
MIT CSAIL

## 7 million+
U.S. adults with a visual disability
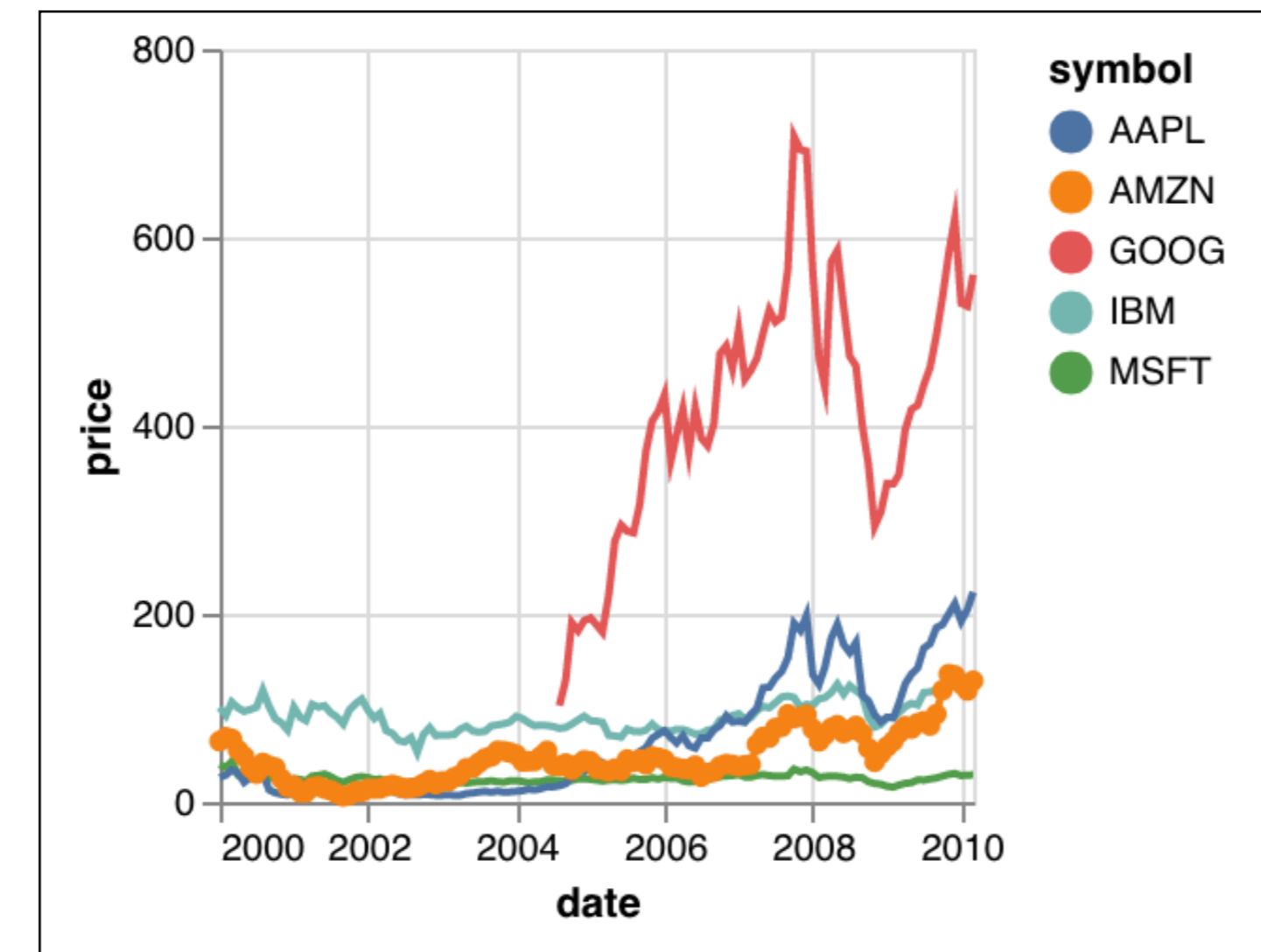
## 96.8%
of top million websites inaccessible

## Screen Readers

- Assistive technology for blind / low vision users

- Keys move cursor, which reads text as speech

- Images require "alternative text" description



## Navigable Text Structures

Olli generates **keyboard-navigable text structures** from existing visualizations, with descriptions at varying levels of detail



A multi-series line chart showing stock prices of 5 tech companies over time.
  1 of 5. Line titled MSFT with axes 'date' and 'price'.
  2 of 5. Line titled AMZN with axes 'date' and 'price'.
    1 of 2. X-axis titled 'date' with values from '2000' to '2...
    2 of 2. Y-axis titled 'price' with values from $0 to $800...
  3 of 5. Line titled IBM with axes 'date' and 'price'.
  4 of 5. Line titled GOOG with axes 'date' and 'price'.
  5 of 5. Line titled AAPL with axes 'date' and 'price'.

Jan 1, 2004 to Jan 1, 2006. 24 values. "AMZN".
Jan 1, 2006 to Jan 1, 2008. 24 values. "AMZN".
Jan 1, 2008 to Jan 1, 2010. 24 values. "AMZN".
Jan 1, 2010 to Jan 2, 2012. 3 values. "AMZN".

| price | date | symbol |
|---|---|---|
| 125.41 | Jan 1, 2010 | AMZN |
| 118.4 | Feb 1, 2010 | AMZN |
| 128.82 | Mar 1, 2010 | AMZN |

## AI-Assisted Description

LLM-generated descriptions can provide interpretations incorporating **current events** and **social context**

4 of 8. From '2003' to '2004'. 19 values. Amazon's stock price saw an overall upward trend from May 2003 to June 2004, with a peak in October 2003 before a gradual decline. Current events during this period included **the launch of Amazon's "A9" search subsidiary and the company's entry into the Chinese market**.

7 of 8. From '2008' to '2009'. 19 values. Between February 2008 and August 2009, Amazon's stock price experienced some fluctuations, however, overall Amazon's stock price increased. During this time period, **the global financial crisis occurred**, which could have influenced Amazon's stock price.

## Open Source

- Supports major visualization toolkits

- Extensible plugins to convert charts from other toolkits

- Consistent user experience can inform design standards