



Credible
Open
Knowledge
Network

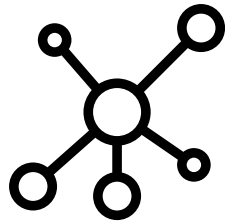
38

Experts

20

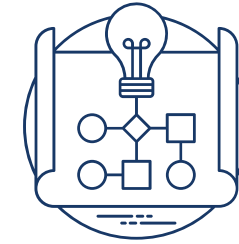
Organizations





Credible Open Knowledge Network

We are building a framework and tools to help software developers and domain experts to ensure the credibility of their decision-making software powered by knowledge graphs.



Data-driven Decision-Making Applications

We are developing data-driven decision-making applications to mitigate health misinformation and to provide assessments for cybersecurity vulnerabilities.



Credible Open Knowledge Network

We are curating and make available knowledge graphs of cybersecurity vulnerabilities as well as vaccine and COVID-19 related misinformation and facts.

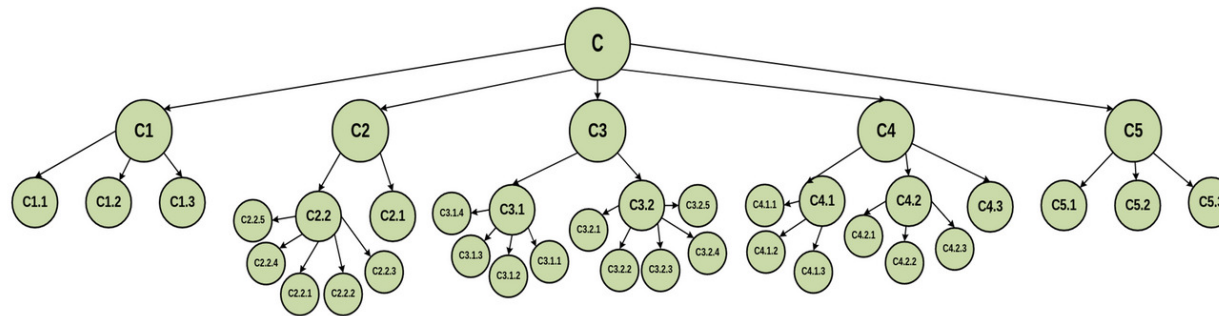


Use-Inspired Convergence Research

The project is informed by 23 interviews with 3 physicians, 3 nurses/nurse practitioners, 2 parents, 1 librarian, 1 historian, 9 cybersecurity experts, 6 professionals in the field of fact-checking, and 3 experts at a pharmaceutical company.

A Knowledge Graph and Taxonomy of Vaccine-Related Misinformation

A taxonomy of high-level concerns about vaccination, credibility profiles of information sources, corpora of vaccine misinformation and of intervention materials, and how they relate to other and to the high-level concerns.



C1: Attack on vaccine benefits

C1.1: Vaccines are ineffective

C1.2: Natural immunity is better

C1.3: Other advances (e.g. treatment, sanitation) helped, not vaccines

C2: Attack on vaccination practices

C2.1: Multiple/frequent vaccinations overload the immune system

C2.2: Certain people should not get vaccines

C2.2.1: Pregnant women, C2.2.2: Sick children, C2.2.3: Children too young, C2.2.4: Certain gender, C2.2.5: Other factors

C3: Attack on vaccine safety

C3.1: Harmful ingredients

C3.1.1: Thimerosal, C3.1.2: Formaldehyde, C3.1.3: Adjuvants (e.g. aluminum), C3.1.4: Other

C3.2: Side effects

C3.2.1: Disease (e.g. HPV), C3.2.2: Disability, C3.2.3: Death (e.g. SIDS), C3.2.4: Autism, C3.2.5: Short term vaccine injury

C4: Distrust in authority

C4.1: Science and research

C4.1.1: Lack of research, C4.1.2: Research not fail-safe (proven wrong before), C4.1.3: Poorly conducted research

C4.2: Government and industry conspiracy and/or special interest

C4.2.1: Government, C4.2.2: Pharma, C4.2.3: Media

C4.3: Healthcare (i.e., I know better than doctors what best for me/my child)

C5: Appeal to individual freedom

C5.1: Right to choose - e.g. against school-mandated vaccines

C5.2: Religious belief

C5.3: My choice has no impact on others

A Knowledge Graph of Cybersecurity Vulnerabilities

A knowledge graph of 2,071 vulnerabilities from industrial control system devices. This will help drive applications like the vulnerability prioritization tool.

SPARQL Endpoint

Virtuoso SPARQL Query Editor

Default Data Set Name (Graph IRI)
vulnerability

Query Text
select distinct ?Concept where {[] a ?Concept} LIMIT 100

(Security restrictions of this server do not allow you to retrieve remote RDF data, see [details](#))

Results Format:

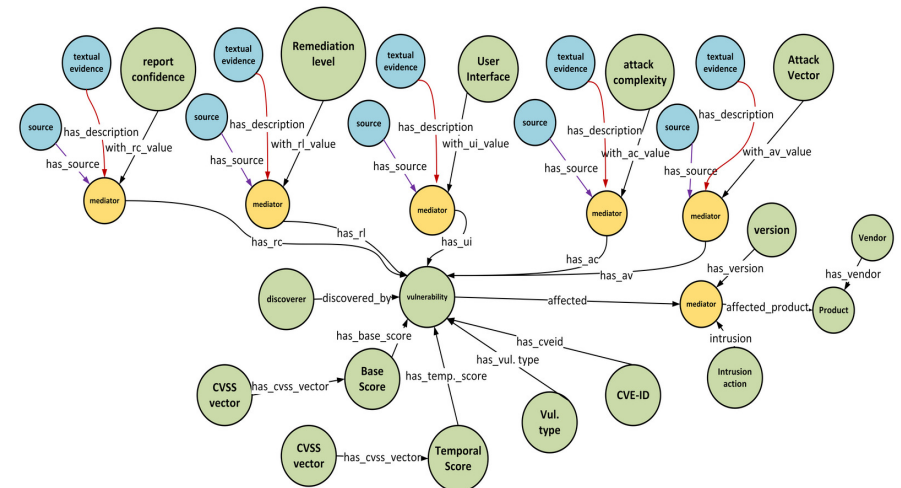
Execution timeout: milliseconds (values less than 1000 are ignored)

Options: ☒ Strict checking of void variables ☐ Log debug info at the end of output (has no effect on some queries and output formats)

(The result can only be sent back to browser, not saved on the server, see [details](#))

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Virtuoso version 07.20.3217 on Linux (x86_64-unknown-linux-gnu), Single Server Edition

Schema Diagram



Request the Knowledge Graph

Available in Turtle, N-Triples, Notation3, and RDF/XML



A Knowledge Graph and Taxonomy of COVID-19 Related Misinformation (cont.)

SPARQL Endpoint

Virtuoso SPARQL Query Editor [About](#) | [Namespace Prefixes](#) | [Inference rules](#)

Default Data Set Name (Graph IRI)

Query Text

```
select distinct ?Concept where {[ ] a ?Concept} LIMIT 100
```

(Security restrictions of this server do not allow you to retrieve remote RDF data, see [details](#).)

Results Format:

Execution timeout: milliseconds (values less than 1000 are ignored)

Options: ☒ Strict checking of void variables ☐ Log debug info at the end of output (has no effect on some queries and output formats)

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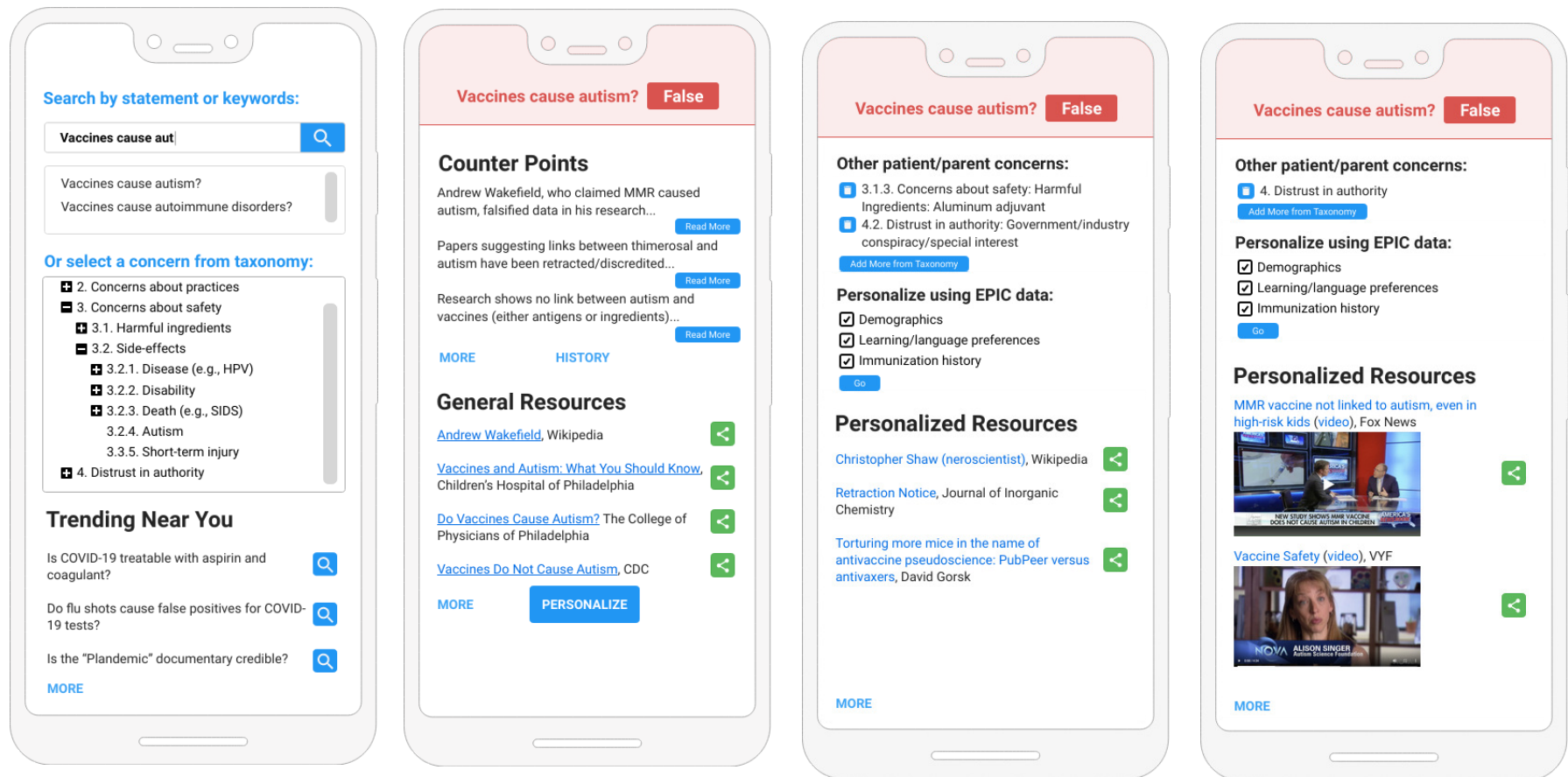
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Request the Knowledge Graph

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An App for Personalized Interventions Against Vaccine Misinformation (mock-up interface)

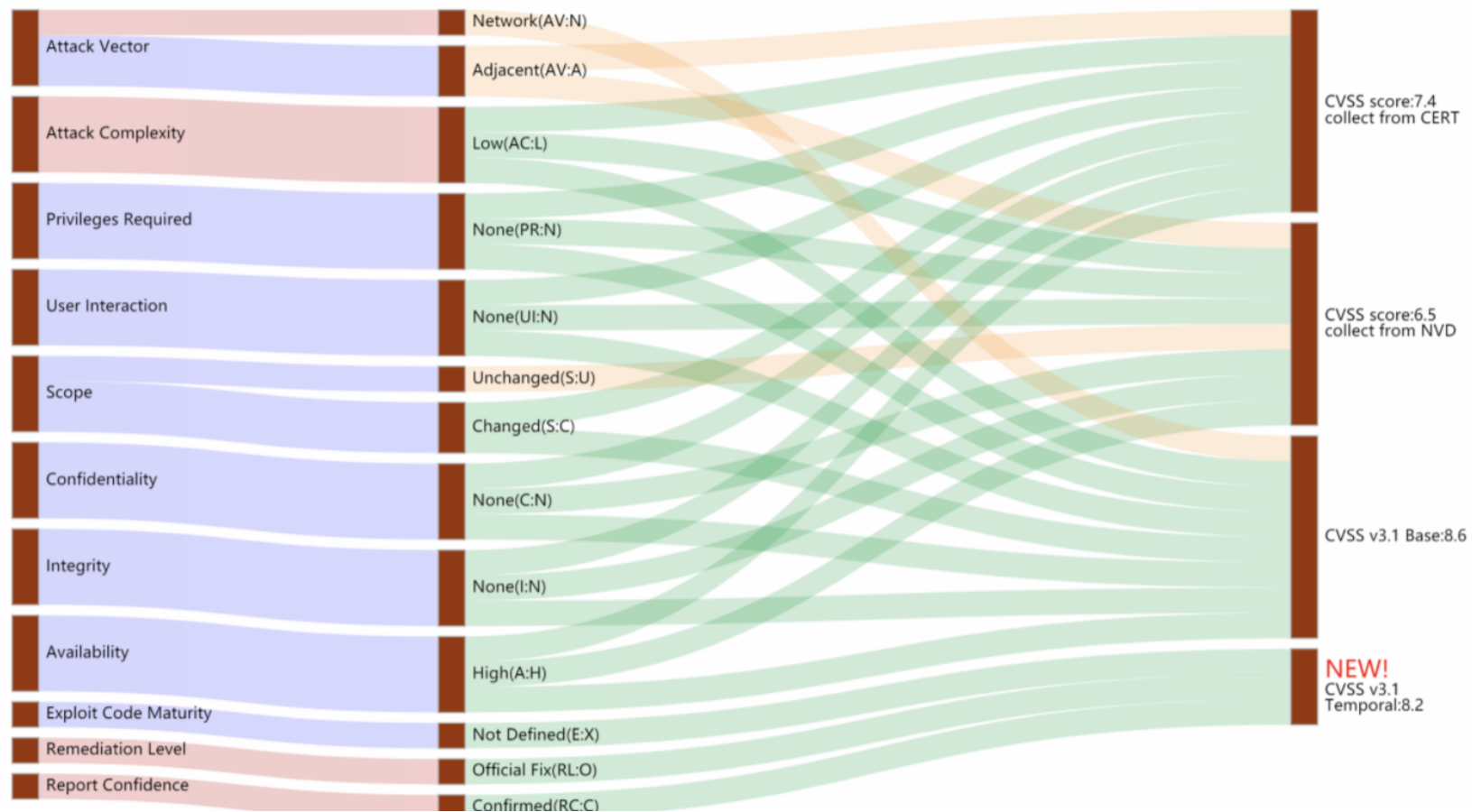
An app to help doctors and nurses work with hesitant parents, by suggesting counter points and information resources that are credible to them and speak to their specific concerns.



Vulnerability Prioritization Tool

The tool is designed to credibly rank industrial control system security vulnerabilities based on severity level, while providing relevant information cues from public vulnerability repositories for vulnerability severity assessment.

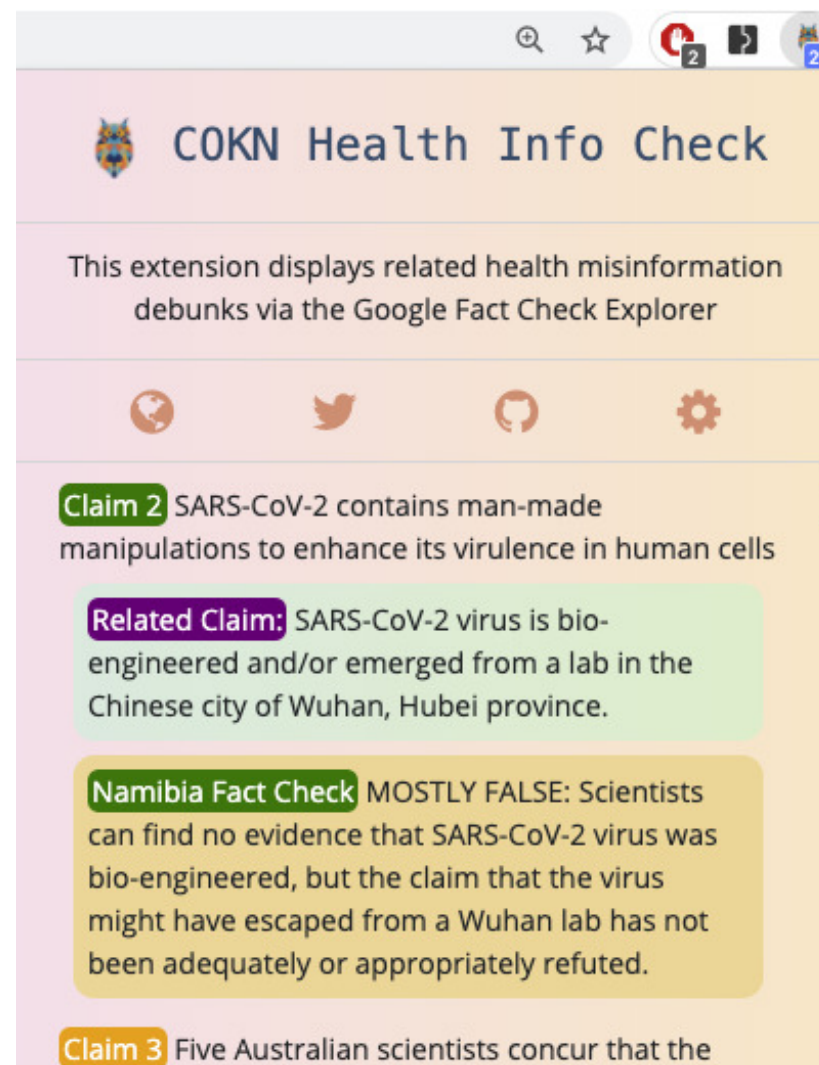
Prioritization tool, Video



Browser Plugin for Mitigating Health Misinformation

COKN Health Info Check is a Google Chrome Web Browser Extension that helps mitigate health-related misinformation by bringing relevant fact checks to Chrome users.

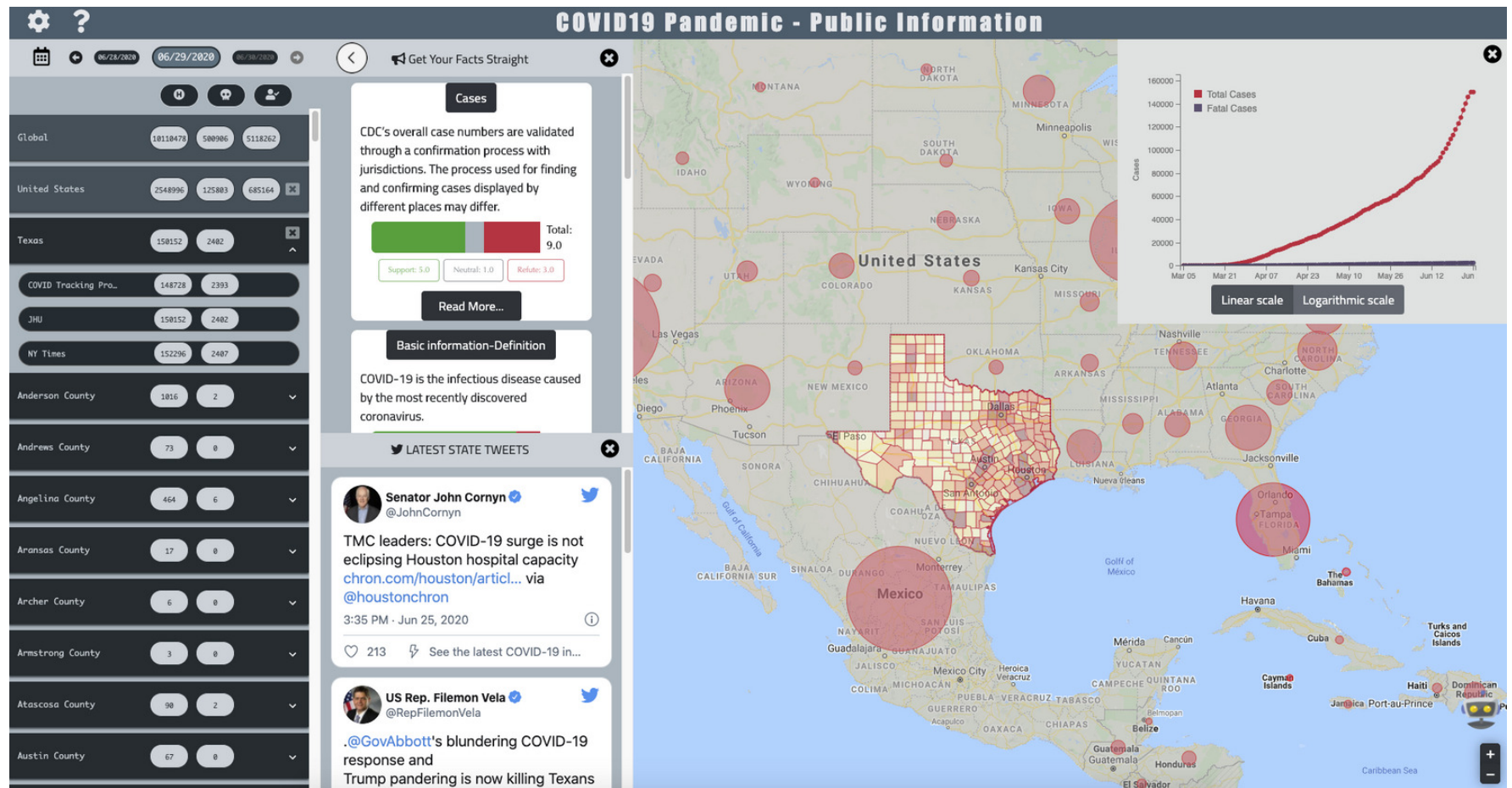
This extension automatically 1) highlights check-worthy factual claims on webpages using the [ClaimBuster API](#) and 2) displays professional fact checks that are relevant to the highlighted claims by using [Google Fact Check Explorer API](#). The beta version of this extension can be downloaded from the Chrome Web Store (currently temporarily at <https://tinyurl.com/idir-cokn-ext-temp>, before it becomes available in official Chrome Store).



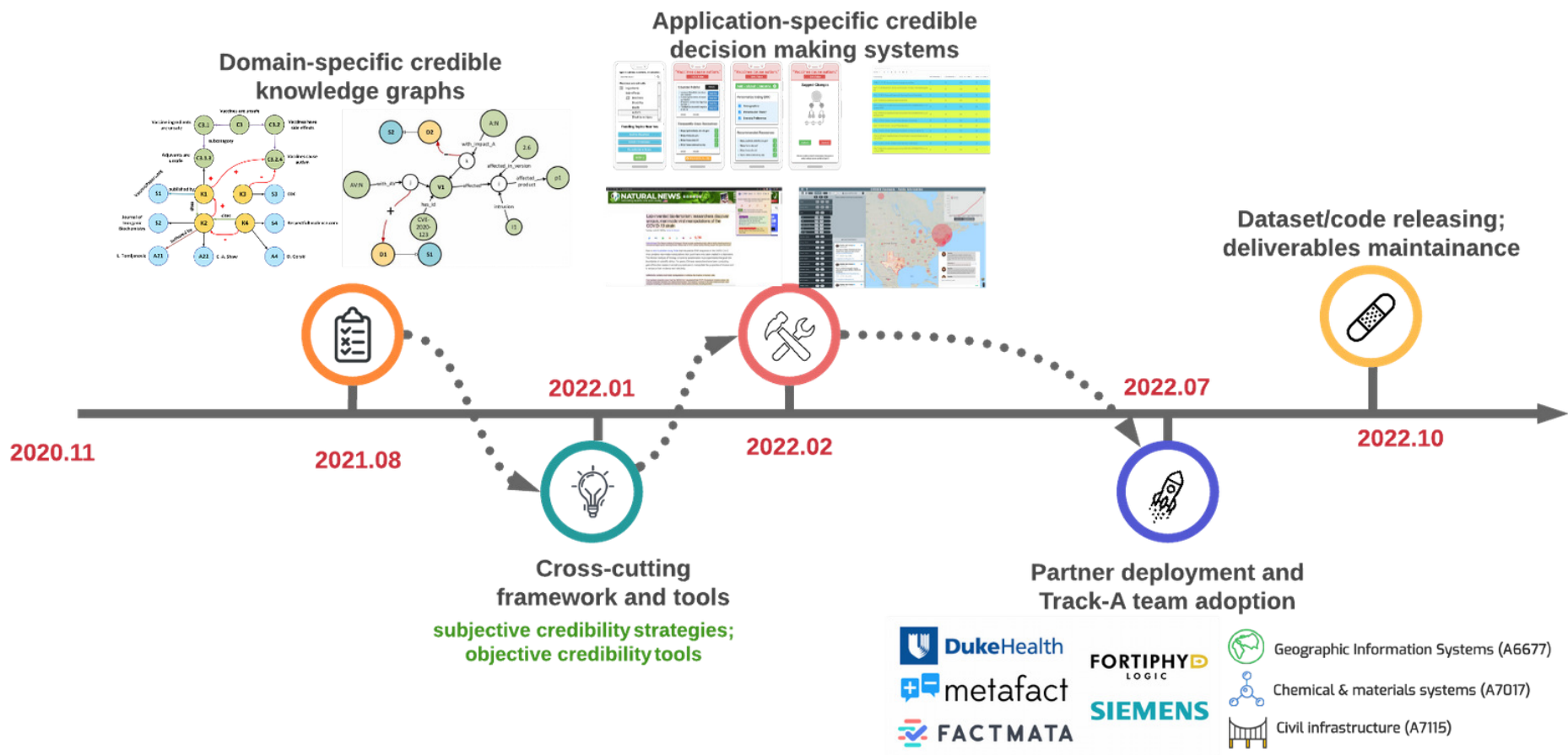
COVID-19 Information Dashboard

An information dashboard surrounding the ongoing COVID-19 pandemic. It shows figures from different sources to provide a holistic view of the pandemic as it develops. It also includes a chatbot to assist with commonly asked questions, and relevant tweets and fact-checks localized for maximum impact.

COVID-19 Dashboard, Video



Project Timeline



COKN



ACCESS PRELIMINARY RELEASE
OF TOOLS, DATASETS, AND
MORE INFORMATION at
<https://cokn.org/>

