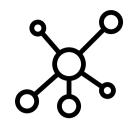
Team A7143

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 decisionmaking 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.

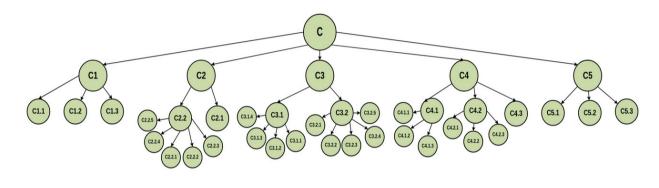


Use-Inspired Convergence Research

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.



C2.2:Certain people should not get vaccines

C2.2.4:Certain gender, C2.2.5:Other factors

C3.2.4:Autism, C3.2.5:Short term vaccine injury

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

C2.2.1:Pregnant women, C2.2.2:Sick children, C2.2.3:Children too young,

C3.2.1:Disease (e.g. HPV), C3.2.2:Disability, C3.2.3:Death (e.g. SIDS),

C2:Attack on vaccination practices C2.1:Multiple/frequent vaccinations overload the immune system

C3:Attack on vaccine safety

C3.1:Harmful ingredients C3.1.1:Thimerosal, C3.1.2:Formaldehyde, C3.1.3:Adjuvants (e.g. alumninum), C3.1.4:Other

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

C5:Appeal to individual freedom

C5.1:Right to choose - e.g. against school-mandated vaccines C4.2:Government and industry conspiracy and/or special interest C4.2.1:Government, C4.2.2:Pharma, C4.2.3:Media

C3.2:Side effects

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

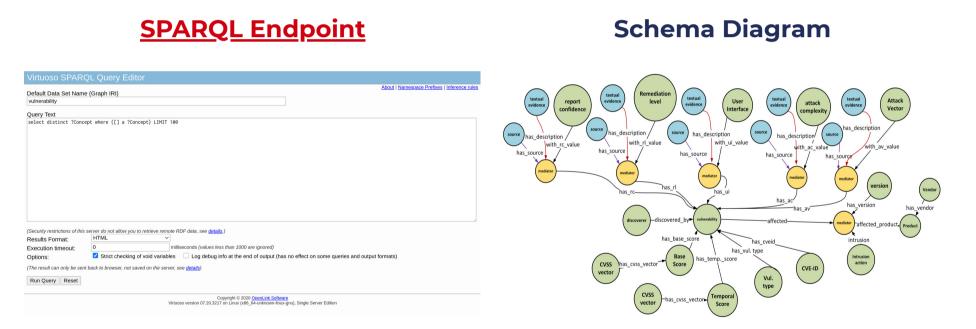


C5.2:Religious belief

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.



Request the Knowledge Graph

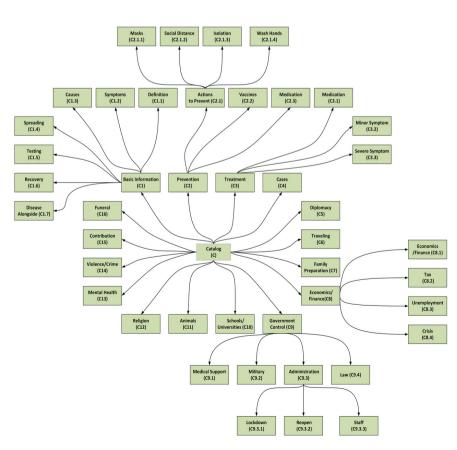
Available in Turtle, N-Triples, Notation3, and RDF/XML



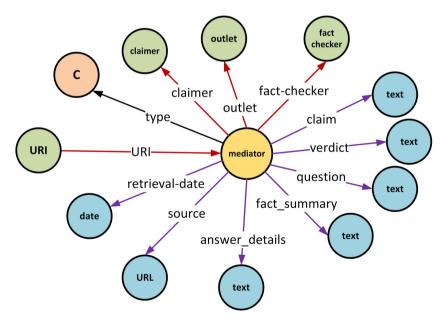
A Knowledge Graph and Taxonomy of COVID-19 Related Misinformation

A knowledge graph of misinformation on the Internet surrounding the ongoing COVID-19 pandemic which will help debunk widespread myths and answer frequently asked questions about COVID-19. It contains the information about myths, facts, and frequently-asked questions and answers, as well as their taxonomy, about COVID-19 from multiple websites.

Taxonomy



Schema Diagram





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

SPARQL Endpoint	SPA	RQL	_ En	d	poi	nt
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Virtuoso SPARQL Query Editor	
Default Data Set Name (Graph IRI)	About Namespace Prefixes Inference rules
covid 19	
Query Text	
select distinct ?Concept where {[] a ?Concept} LIMIT 100	
	1
(Security restrictions of this server do not allow you to retrieve remote RDF data, see <u>details</u> .) Results Format:	
Execution timeout: 0 milliseconds (values less than 1000 are ignored)	
Coptions: Strict checking of void variables C 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)	
Run Query Reset	
Copyright © 2020 <u>OpenLink Software</u> Virtures version 07.20.2377 on Linux (v86, Baumknown-Jinux-onu), Single Server Edition	

Request the Knowledge Graph

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



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.

Search by statement or keywords:	Vaccines cause autism? False	Vaccines cause autism? False	Vaccines cause autism? False
Vaccines cause auti	Counter Points Andrew Wakefield, who claimed MMR caused	Other patient/parent concerns: 3.1.3. Concerns about safety: Harmful here diverse thereine adjusted	Other patient/parent concerns: 4. Distrust in authority
Vaccines cause autoimmune disorders? Or select a concern from taxonomy:	autism, falsified data in his research Read More Papers suggesting links between thimerosal and autism have been retracted/discredited Read More Rea	Ingredients: Aluminum adjuvant 4.2. Distrust in authority: Government/industry conspiracy/special interest Add More from Taxonomy 	Add More from Taxonomy Personalize using EPIC data: Demographics
 2. Concerns about practices 3. Concerns about safety 3.1. Harmful ingredients 3.2. Side-effects 	Research shows no link between autism and vaccines (either antigens or ingredients) Read More MORE HISTORY	Personalize using EPIC data: Demographics Learning/language preferences Immunization history	Learning/language preferences Immunization history
 3.2.1. Disease (e.g., HPV) 3.2.2. Disability 3.2.3. Death (e.g., SIDS) 3.2.4. Autism 	General Resources	Personalized Resources	Personalized Resources MMR vaccine not linked to autism, even in high-risk kids (video), Fox News
3.3.5. Short-term injury 4. Distrust in authority	Vaccines and Autism: What You Should Know, Children's Hospital of Philadelphia	Christopher Shaw (neroscientist), Wikipedia	
Is COVID-19 treatable with aspirin and Q coagulant?	Do Vaccines Cause Autism? The College of Physicians of Philadelphia Vaccines Do Not Cause Autism, CDC	Torturing more mice in the name of antivaccine pseudoscience: PubPeer versus antivaxers, David Gorsk	Vaccine Safety (video), VYF
Do flu shots cause false positives for COVID- Q 19 tests? Is the "Plandemic" documentary credible? Q	MORE PERSONALIZE		
MORE		MORE	MORE

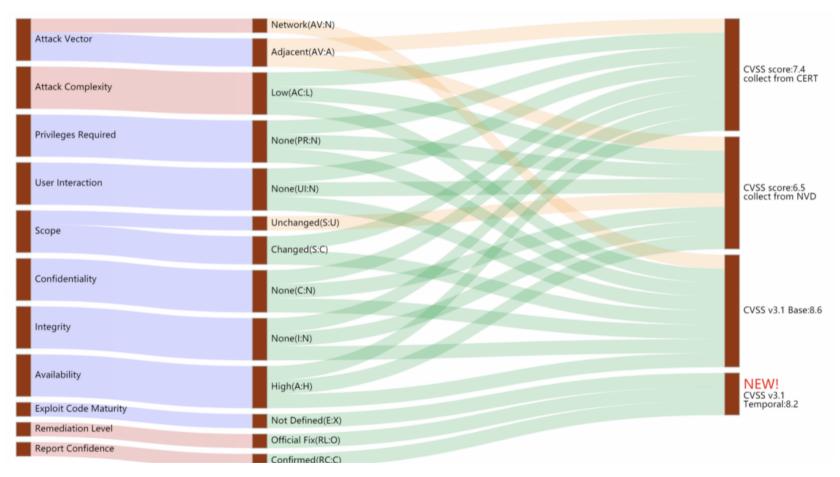


Deliverables: Decision-Making Tools for Professionals

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

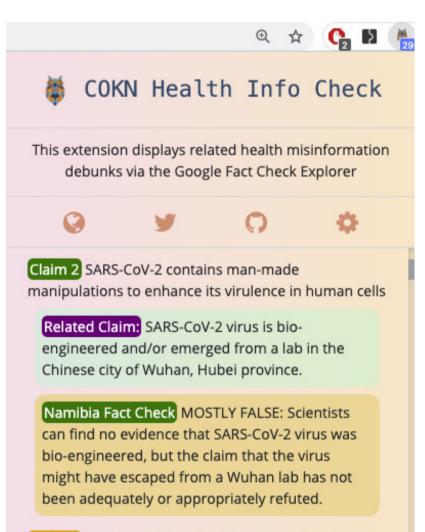




Browser Plugin for Mitigating Health Misinformation

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 Chrome the Web Store (currently temporarily https://tinyurl.com/idirat before cokn-ext-temp, it becomes available in official Chrome Store).



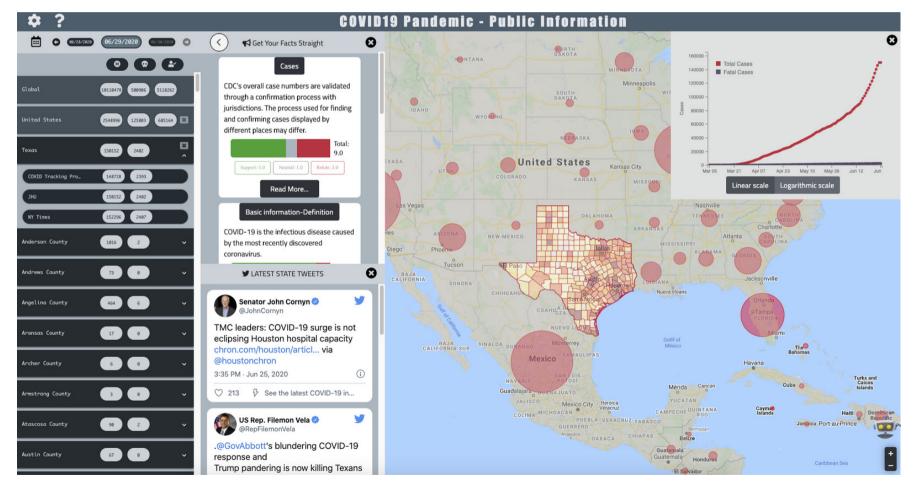
Claim 3 Five Australian scientists concur that the

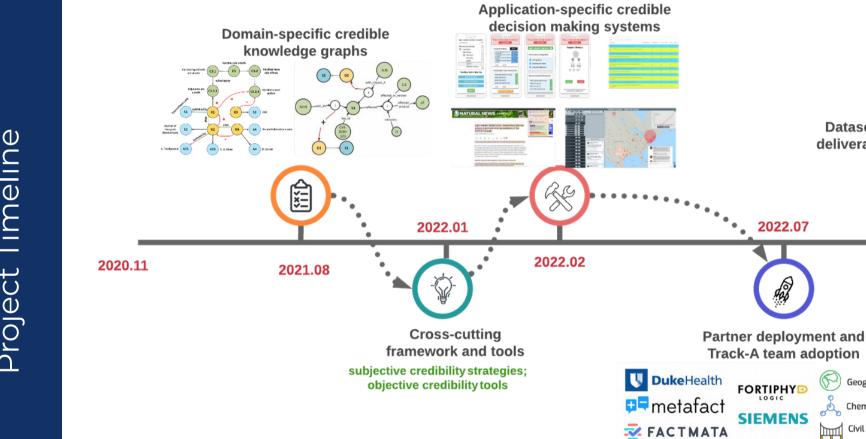


COVID-19 Information Dashboard

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





COKN

Dataset/code releasing;

deliverables maintainance

P

F

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2022.10

Geographic Information Systems (A6677)

Chemical & materials systems (A7017)

Civil infrastructure (A7115)





metafact

Rensselaer

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



