Richard Sear

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Selected Publications

FIND MORE ON ORCID OR GOOGLE SCHOLAR!

- "How U.S. Presidential elections strengthen global hate networks", *NPJ Complexity* Oct 2024
- "Adaptive link dynamics drive online hate networks and their mainstream influence", *NPJ Complexity* Apr 2024
- "Offline events and online hate", *PLOS One* Jan 2023
- "Connectivity between Russian information sources and extremist communities across social media platforms" Jun 2022

Work Experience

SENIOR PROGRAMMER & DATA ADMIN | RESEARCHER | GWU DYNAMIC ONLINE NETWORKS LAB **SEP 2018 – PRESENT**

- Working with Dr. Neil Johnson's research team, studying many-body physics in online extremist movements
- Performed ML NLP analysis on text data for threat and risk assessment (e.g. dynamic topic modeling, text classification)
- Actively maintain a social media database of 220+ million posts on 11 platforms (fringe and mainstream)
- Created and actively maintain extensive framework of code for constructing hyperlink networks across 33 platforms
- Developed automated pipelines to yield GenAI insights from massive datasets, including a proof-of-concept dashboard

RESEARCH CONSULTANT | CLUSTRX LLC **MAY 2020 – APR 2023**

- Trained ML NLP models to identify levels and types of hate/extremism, working closely with subject matter experts
- Designed robust software pipelines for capturing data from social media platforms
- Presented work to Google Jigsaw representatives, ClustrX partners, and other ClustrX clients

STUDENT RESEARCHER | JOHNS HOPKINS HLTCOE SCALE PROGRAM **MAY 2019 – AUG 2019**

- Project goal: investigate transfer learning between NLP tasks across languages, including Russian and Chinese
- Iteratively fine-tuned Google's BERT model in TensorFlow using a series of language processing tasks

CTO RESEARCH AND DEVELOPMENT INTERN | BUCHANAN & EDWARDS, INC. **MAY 2018 – AUG 2018**

- Project goal: create proof-of-concept system to improve security services using facial expressions
- Delivered Azure webapp built in Flask and CNTK to analyze uploaded images and videos of faces using emotion recognition

Skills & Abilities

TECHNICAL SKILLS

- Cyber Threat Intelligence: large-scale social media ecosystem collection, OPSEC-aware analysis, adversary TTP research
- Software: Git, Docker, Wireguard, Traefik, Cloudflare Tunnels, REST APIs, Generative AI tools, log monitoring
- Proficient in Python, LaTeX, PostgreSQL, R; experienced with Bash, Java, C; familiar with PHP, MATLAB

LEADERSHIP/TEAMWORK

- Project Manager, DON Lab Data Science Masters student research contribution projects Mar 2022-Feb 2023
- Learning Assistant, Intro to Engineering for Undeclared Majors (APSC 1001) Aug-Dec 2020

Education

B.S., MAJOR IN COMPUTER SCIENCE, MINORS IN MATH & PHYSICS | MAY 2021 | THE GEORGE WASHINGTON UNIVERSITY

- University Honors Program completion | GPA: 3.90 | Summa Cum Laude | Tau Beta Pi Honor Society