

James A. Scharf

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EDUCATION

The Johns Hopkins University – Baltimore, MD

May 2022

- Master of Science in Engineering, Computer Science
- **Master's Project:** *Morphological Annotation of Unseen Lexica by Zero-Shot Generalization of Monolingual Analyzers and Bilingual Morphological Embeddings*

The Johns Hopkins University – Baltimore, MD

May 2021

- Bachelor of Arts, Political Science; Minor, Computer Science
- Coursework in natural language processing, artificial intelligence, machine translation, and parallel programming
- **GPA:** 3.56 (General Honors)

BOOKS

Giovanna Maria Dora Dore, Arya D. McCarthy, & **James A. Scharf**. A Free Press, If You Can Keep It—What Natural Language Processing Reveals about Freedom of the Press in Hong Kong, Springer Briefs in Political Science—Springer Nature (2023).

BRIEFS, PUBLICATIONS, PRESENTATIONS, & REFERRED ABSTRACTS

Adam Sheingate, **James A. Scharf**, & Conner Delahanty. (2022). Digital Advertising in U.S. Federal Elections, 2004-2020. Journal of Quantitative Description: Digital Media, 2. <https://doi.org/10.51685/jqd.2022.026>

Arya D. McCarthy, **James A. Scharf**, and Giovanna Maria Dora Dore. A Mixed-Methods Analysis of Western and Hong Kong-based Reporting on the 2019–2020 Protests. Computational Linguistics for Cultural Heritage, Social Sciences, Humanities and Literature 2021.

James A. Scharf, Arya D. McCarthy, and Giovanna Maria Dora Dore. Characterizing News Portrayal of Civil Unrest in Hong Kong, 1998–2020. CASE 2021.

Arya D. McCarthy, **James A. Scharf**, and Giovanna Maria Dora Dore. Characterizing News Portrayal of Civil Unrest in Hong Kong 2019–2020. Midwest Political Science Association (MPSA) Annual Conference 2022. (To appear)

Arya D. McCarthy, **James A. Scharf**, and Giovanna Maria Dora Dore. Measuring Differences in News Portrayal of the 2019–2020 Hong Kong Protests. New Directions in Analyzing Text as Data (TADA) 2021.

James A. Scharf, Giovanna Maria Dora Dore, and Arya McCarthy. Evolution and Bias: News Portrayal of Civil Unrest in Hong Kong, 1998-2020. Politics and Computational Social Science (PaCSS) 2021.

David Yarowsky, Arya D. McCarthy, Garrett Nicolai, Winston Wu, Aaron Mueller, Dylan Lewis, Yingqi Ding, Abhinav Nigam, Emre Ozgu, Debanik Purkayastha, **James A. Scharf** and Kenneth Zheng. A 1000-language Collaborative Universal Dictionary and Universal Translator. UNESCO Language Technologies for All (LT4All) 2019.

EMPLOYMENT & RESEARCH EXPERIENCE

The Johns Hopkins University Applied Physics Lab (APL), Research & Exploratory Development Division (REDD), Artificial Intelligence Group (RQC) – Laurel, MD

July 11 – Present

Associate Professional Staff I

Joint MISO WebOps Center (JMWC), U.S. Special Operations Command – Tampa, FL

Summer 2021

Telesis Civic Digital Fellow, Data Science

- Created the Named Entity Recognition (NER) and Text Classification machine learning backend for the in-house annotation platform with the Huggingface Transformers, SpaCy, Scikit-Learn, and FlairNLP Python libraries
- Personally designed and implemented a two-path model pipeline for training customized neural and non-neural models based on finetuned BERT-based transformers and conditional random field models
- Added the capability to bootstrap statistical NER, text classification models in a multilingual setting
- Confirmed that trained models could be redeployed and re-trained/finetuned for future objectives

The Johns Hopkins University – Baltimore, MD

Spring 2020 & Spring 2021

Head Course Assistant for Information Retrieval and Web Agents

- Assistant and grader for a course in machine learning, information extraction and web scraping
- Helped students with projects in sense disambiguation, word embeddings and vector models of information retrieval

Department of East Asian Studies, Johns Hopkins University – Baltimore, MD

Summer 2020 – Fall 2021

Computational Research Assistant for Dr. Giovanna Maria Dora Dore

- Built probabilistic models of 4000 news articles with the Causalnex and Scikit-Learn libraries
- Generated plots with Seaborn and Matplotlib to compare news coverage in Hong Kong by year

Center for Language and Speech Processing (CLSP), Johns Hopkins University – Baltimore, MD

Summer 2020

Intern for Dr. David Yarowsky's Low-Resource Languages Lab ([LoReLab](#))

- Utilized Facebook's Fairseq Sequence-to-Sequence (Seq2Seq) library for G2P tasks
- Scraped and parsed foreign language webpages into structured data with Pandas, Selenium and BeautifulSoup

Department of Political Science, Johns Hopkins University – Baltimore, MD

September 2018 – October 2019

Research Assistant for Prof. Adam Sheingate

- Used Python and R to analyze F.E.C. data related to elections from 2010 to 2016
- Built a natural language classifier using the Scikit-learn machine learning framework, pattern matching and query-expansion

ODN (formerly Open Data Nation) – New York, NY

Summer 2019

Data Science Intern

- Programmed statistical analyses of roadway and car crash data with Pandas and Scikit-learn
- Cleaned and prepared geospatial datasets for machine learning models

SKILLS & QUALIFICATIONS

Clearance: Secret

Programming Languages: Python, C/C++, Java, Go, JavaScript, HTML, Bash/Unix

Toolkits: PyTorch, Scikit-Learn, SpaCy, FlairNLP, Pandas, PySpark, Dask, Matplotlib, OpenNMT