

Karthik Shivaram

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EDUCATION

Tulane University

Ph.D. in Computer Science | GPA: 3.916/4.00

New Orleans, LA

Aug. 2018 – May. 2023

- **Advisor:** Dr. Aron Culotta
- Thesis/Dissertation : **Computational Models of User Engagement with Online News**
- Transferred from Illinois Institute of Technology with Advisor in 2020
- Relevant Coursework: Artificial Intelligence, Computer Vision, Theory of Computation, Distributed Systems, Operating Systems, Deep Learning, Programming Languages and Translators

Illinois Institute of Technology

M.S. in Computer Science | GPA: 3.5/4.00

Chicago, IL

Aug. 2015 – May. 2017

- Relevant Coursework: Design and Analysis of Algorithms, Natural Language Processing, Machine Learning, Online Social Network Analysis, Information Retrieval, Advance Database Organization, Object Oriented Design Programming

BMS Institute of Technology

B.E. in Mechanical Engineering

Bangalore, India

Sep. 2009 – Aug. 2013

INDUSTRY EXPERIENCE

Pacific Northwest National Laboratory (PNNL)

PhD Research Intern

Richland, WA

Summer 2019 and Summer 2020

- Researched and developed Representational Learning Models to improve Causal Inference Estimations to evaluate the effectiveness of Non-Pharmaceutical Interventions for COVID-19
- Developed an ensemble framework for Causal Relationship Models to improve Causal Discovery Results.

Accenture Digital

Artificial Intelligence Engineer

Chicago, IL

Aug. 2017 - May. 2018

- Designed and developed deep learning based sequence prediction models for DNA sequencing
- Developed Failure Detection models for Oil Pipelines using Boosted Decision Trees
- Developed large scale data ingestion platform using a micro-services based framework architecture

Datacubes Inc.(Currently Convr)

Data Scientist Intern

Schaumburg, IL

May 2017 - July 2017

- Developed machine learning based Risk Assessment Models for Insurance Underwriting
- Designed and developed large scale web scraping framework to extract licensure and permit based data sources

Accenture

Software Engineering Analyst

Bangalore, India

Dec 2013 - July 2015

- Developed an NLP Engine that performed information extraction from cybersecurity threat advisories, using semi-supervised models for pattern extraction.
- Developed an platform that extracts important multi-term based phrases to aid information extraction systems

PUBLICATIONS

1. **Karthik Shivaram**, Ping Liu , Matthew A Shapiro, Mustafa Bilgic and Aron Culotta. “**Reducing Cross-Topic Political Homogenization in Content-Based News Recommendation**” In Proceedings of the 16th ACM conference on Recommender Systems 2022 (RecSys). (Acceptance Rate - 17%) | Keywords : **Recommendation Systems** , **Filter Bubbles** , **Multitask-learning** , **Neural Attention**
2. Liu, Ping, **Karthik Shivaram**, Aron Culotta, Matthew A. Shapiro, and Mustafa Bilgic. “**The Interaction between Political Typology and Filter Bubbles in News Recommendation Algorithms.**” In Proceedings of the Web Conference 2021 (TheWebConf). (Acceptance Rate - 20.6%) | Keywords : **Recommendation Systems** , **Filter Bubbles** , **Fairness**
3. Radfar, Bahar, **Karthik Shivaram**, and Aron Culotta. “**Characterizing variation in toxic language by social context.**” In Proceedings of the International AAAI Conference on Web and Social Media 2020 (ICWSM). (Acceptance Rate - 23%) | Keywords : **Toxicity Detection** , **Text Classification**
4. Saldanha, Emily, Robin Cosbey, Ellyn Ayton, Maria Glenski, Joseph Cottam, **Karthik Shivaram**, Brett Jefferson, Brian Hutchinson, Dustin Arendt, and Svitlana Volkova. “**Evaluation of algorithm selection and ensemble methods for causal discovery.**” In Causal Discovery & Causality-Inspired Machine Learning Workshop at Neural Information Processing Systems (NeurIPS) 2020 | Keywords : **Causal Discovery** , **Ensemble Modeling**
5. Volkova, Svitlana, Dustin Arendt, Emily Saldanha, Maria Glenski, Ellyn Ayton, Joseph Cottam, Sinan Aksoy, Brett Jefferson, and **Karthik Shivaram**. “**Explaining and predicting human behavior and social dynamics in simulated virtual worlds: reproducibility, generalizability, and robustness of causal discovery methods.**” Computational and Mathematical Organization Theory 2021 | Keywords : **Causal Discovery**
6. Ramnani, Roshni R., **Karthik Shivaram**, and Shubhashis Sengupta. “**Semi-automated information extraction from unstructured threat advisories.**” In Proceedings of the 10th Innovations in Software Engineering Conference 2017 (ISEC). (Acceptance Rate - 28%) | Keywords : **Semi-Supervised Learning** , **Information Extraction**

SKILLS

- **Programming Languages:** Python, Java, Javascript, Bash
- **Deep Learning Frameworks:** Pytorch, Tensorflow, Keras
- **Web Frameworks:** Flask , Django
- **Databases:** MySQL, Postgress, MongoDB
- **Cloud Technologies:** AWS, Nervana Cloud
- **Libraries:** Numpy, Scipy, Pandas, NLTK, Scikit-Learn, Spacy, Matplotlib, Plotly, H5py

TEACHING AND RESEARCH

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|---|-------------------------|
| • Research Assistant at Tulane University
<i>Performing NLP based research at TAPI (Text Analytics for Public Interest) Lab</i> | Fall 2020 - Spring 2023 |
| • Teaching Assistant at Tulane University
<i>Introduction to data science (CMPS3160/6160)</i> | Fall 2022 - Spring 2023 |
| • Research Assistant at Illinois Institute of Technology
<i>Performing NLP based research at TAPI (Text Analytics for Public Interest) Lab</i> | Fall 2018 - Spring 2020 |
| • Teaching Assistant at Illinois Institute of Technology
<i>Online Social Network Analysis (CS579) and Object Oriented Programming (CS115)</i> | Fall 2019 - Spring 2020 |