Kaustav Bhattacharjee

Ph.D. Candidate, New Jersey Institute of Technology
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Research

Bhattacharjee, Kaustav, Min Chen, and Aritra Dasgupta. "Privacy-Preserving Data Visualization: Reflections on the State of the Art and Research Opportunities." STAR 39.3 (2020) (DOI: 10.1111/cgf.14032)
Focuses on the systemic analysis of the approaches, methods and techniques used for handling data privacy in visualization; Identifies the gaps and the future research opportunities in this area

Bhattacharjee, Kaustav, Akm Islam, Jaideep Vaidya, and Aritra Dasgupta. "PRIVEE: A visual analytic workflow for proactive privacy risk inspection of open data." In 2022 IEEE Symposium on Visualization for Cyber Security (VizSec), pp. 1-11. IEEE, 2022.
Develops a workflow to help data defenders inspect disclosure risk through visual analytic interventions

Bhattacharjee, Kaustav, and Aritra Dasgupta. "Power to the Data Defenders: Human-Centered Disclosure Risk Calibration of Open Data." 2023 Symposium on Usable Security and Privacy (USEC)(2023)
Highlights disclosure vulnerabilities in the open data ecosystem

Bhattacharjee, Kaustav, and Aritra Dasgupta. "VALUE: Visual Analytics driven Linked data Utility Evaluation." In Proceedings of the Workshop on Human-In-the-Loop Data Analytics, pp. 1-7. 2023.
Develops a visual analytic workflow to ascertain the utility of joining open datasets

Yuan, Jun, Kaustav Bhattacharjee, Akm Zahirul Islam, and Aritra Dasgupta. "TRIVEA: Transparent Ranking Interpretation using Visual Explanation of Black-Box Algorithmic Rankers." The Visual Computer (2023): 1-17.
Develops explanable AI (XAI) methods to visualize contributions of different factors to black-box ranking models

Professional Skills

- Python, Jupyter, Gephi, Neo4j, R *(Data Analysis & Graph Mining)*
- Tableau, D3.js, Plotly, Dash, Axure *(Data Visualization)*
- NLTK, TextBlob, Flair, sklearn, tf-idf, LSTM, t-SNE, tensorflow, Numpy, Pandas *(Machine Learning)*
- HTML, CSS, JavaScript, Docker, Flask, React.js, Material UI (MUI), REST API, Git, Postman, Heroku, MySQL, Postgres, SQLAlchemy *(*Web & API Development)
- Selenium, AWS EC2, AWS Route 53, Twilio *(Web Mining and Automation)*
- Security Information & Event Management(SIEM) Administration, Implementation and Design using *ArcSight*
- Malware Detection and Primary Analysis with tools like *x64Dbg, CEF Explorer, Regshot* etc.
- Also trained in Big Data Analytics with Hadoop and Map Reduce and interested in Blockchain technologies.

Education

- Pursuing **PhD** in Data Science from New Jersey Institute of Technology (NJIT) with GPA 3.95/4.0 (2019 - Present)
    - Courses: Data Visualization (IS 698), Machine Learning (CS 675), Data Analytics (IS 665), Data Privacy (Rutgers), Social Media (IS 735), Web Systems Development (IS 601), User Experience Design (IS 661) and others

- Completed **B.Tech** in Information Technology from Institute of Engineering & Management with DGPA 9.13/10 (2012 - 2016)
  - Courses: Database Management System (IT601), Cloud Computing (IT704B), Computer Networking (IT692), Software Engineering (IT 693) and others

Professional Experience

Pacific Northwest National Laboratory (PNNL)   **July 2022 To Present**
Ph.D. Intern

Responsibilities:
- Developed a visual analytic interface to predict day-ahead electric load in areas with large amounts of behind-the-meter solar penetration
- Performed sensitivity analysis of the deep learning based net load prediction model against different input variables

New Jersey Institute of Technology (NJIT)   **August 2019 To Present**
Teaching Assistant (TA)

Courses:
- IS 117 : Introduction to Website Development, Spring 2020 (30 students)
- IS 218: Building Web Applications, Spring 2021 (30 students)
- IS 219: Advanced Website Development, Spring 2020 (30 students)
- IS 601: Web Systems Development, Summer 2020 (20 students), Fall 2020, Spring 2021 and Summer 2021 (60 students), Fall 2021 (40 students)
- IS 690: Web Services and Middleware, Summer 2020 (20 students)

Other Responsibilities:
- Developed a privacy-preserving pipeline to find and triage datasets from open data portals, process them using a **Flask API**, visually **analyze disclosure risks** and ascertain the leak of sensitive information, if any.

- Designed a score to quantify the utility of joining open datasets and demonstrated its efficacy through a visual analytic dashboard.

- Developed an interface in **React and D3.js** in order to demonstrate the **interpretability** of different Machine learning models like Random Forest, Co-ordinate Ascent, LambdaMART, Lambda Rank and others.

- Improved a **visual analytics** platform which helps understand the correlation between different metrics, models and variables of various datasets related to climate science.

- Developed an interactive **dashboard** in order to identify how **energy consumption** varies across different weather conditions, home appliances and different time parameters using relevant datasets.

- Performed multiple **Machine Learning projects** for spam email detection, product sales prediction, cancer detection using feature extraction and others

- Developed a **web crawler** in R which crawled and indexed web pages based on certain topic keywords.

- Authored several Medium posts about **data collection** through social media websites like Twitter and reddit and relevant data analysis and network analysis (https://kaustavbhattacharjee.medium.com/)

PricewaterhouseCoopers Private Limited (PwC)   **August 2016 To August 2019**
Consultant, Cyber Security   **(April 2018 to August 2019)**
Senior Analyst, Cyber Security   **(August 2016 to March 2018)**

Responsibilities:

- Worked in **Managed Security Services (MSS)** projects for banking, pharmaceutical and mining clients, focussing on detection and analysis of different security incidents related to firewalls, antivirus, servers, along with availability monitoring and anti-virus and patch compliance monitoring.

- Worked successfully as a Security Information and Event Management (**SIEM) Administrator** (HPE ArcSight) , responsible for integrating and maintaining client's SIEM appliance by ensuring that all SIEM deployment devices are working properly, efficiently and with desired performance.

- Completed a project to set up incident monitoring lifecycle using **RSA Archer SecOps** module and provided training to other analysts in order to provide complete incident management through this tool.

- Completed a project to set up **malware analysis lab**, provisioned to focus on malware detection, analysis and to provide first response to malware outbreaks. Proficient in tools like OllyDbg, x64Dbg, CEF Explorer, PEid, Strings64, Regshot, Trid32 etc.

- Worked on the development and management of the proprietary **Global Threat Intelligence Platform** of the employer firm along with the deployment of Honeypot servers and baits in the network.

- Successfully implemented the **Malware Information Sharing Platform (MISP)** in the network in order to gather malware and other threat information from the massive open threat sharing community.

- Completed a project to implement a **visualization dashboard** for client management stakeholders, using SQL for data processing and other Web Technologies for front-end.

Analyse Technology Solutions   **June 2015 To July 2015**
Intern

Responsibilities:

- Completed an Internship Project on analyzing Twitter Datasets, including **hashtags analysis** and **sentiment analysis,** using Map Reduce (**Java**), titled "Sentiment Analysis And Related Big Data Analyses on Huge Datasets of Tweets on Celebrities".

Certification & Awards

- Awarded **NSF Travel Grant** to attend Symposium on Usable Privacy and Security (SOUPS) 2023

- Won the Best Presentation Award at NJIT GSA **Research Day** 2023

- Delivered a **lightning talk** at the Symposium of Usable Privacy and Security (SOUPS) 2023

- Received GSA Travel Grant to attend the Workshop on Human In the Loop Data Analytics (**HILDA**) 2023

- Certified as HPE ArcSight Admin Analyst 6.11 and in HPE User Behavior Analytics (**UBA**).

- Completed a specialization course with New York University Tandon School of Engineering (**Coursera**) titled 'Introduction to Cyber Security", along with a specialization on Blockchain technologies from the State University of New York, Buffalo, also offered by Coursera.

- Awarded **Gold medal** from Tata Consultancy Services (TCS) for overall performance in both studies and co-curricular activities in the year 2016.

- Received **A.P.J. Abdul Kalam Techno-Wiz** award for excellent contribution to the annual college technical fest Innovación 2015.

- Co-authored a research paper titled "Network Intrusion Detection using Snort", accepted for oral presentation at IEEE UEMCON 2016 (#157029209)