

SWATI RAJWAL



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EDUCATION

Emory University, USA PhD, Computer Science & Informatics	2023 - 2028 CGPA: 3.959/4
Netaji Subhas University of Technology Master of Technology (M.Tech.) Computer Science	2020 - 2022 Dept. Rank 1, Gold Medalist
Indira Gandhi Delhi Technical University for Women Bachelor of Technology (B.Tech.) Computer Science & Engineering	2014-2018 First Class with Distinction

ACADEMIC POSITIONS

University of Cambridge <i>Engineering Dept., Research Assistant w/ Dr. Mancini</i>	United Kingdom Jan - Aug 2023
<ul style="list-style-type: none">* Investigated fluctuating values of statistical learning in chronic back pain and endogenous pain regulation* Designed PsychoPy task to record pain & clinical data (STarT, PHQ-9, BPI, PCS, GAD-7) via Qualtrics.* Computationally (Python & RSTAN) processed data recorded from a 3-armed bandit algo-based task* Facilitated EPSRC grant application that awarded our team 1,216,800 CPU & 1,000 GPU hours	
University of Oxford <i>Saïd Business School, Research Assistant</i>	United Kingdom Aug - December 2022
<ul style="list-style-type: none">* Research on the applications of Generative adversarial networks (GANs) in marketing & ads.* Under the guidance of Dr. Efremova, Prof. Hadi, Prof. Andrew, and WPP as the industry partner* Implemented technical architecture for automating image processing using the StyleGAN3 model in Python.	

CURRENT PROJECTS

Natural Language Processing and LLMs for Social Determinants of Health <i>w/ Cornell & Harvard Colleagues</i>	Atlanta, USA August 2024 - ongoing
<ul style="list-style-type: none">* Prospero 2024: CRD42024578082, Research Protocol: preprints.66094* Experimental comparative analysis on SOTA NLP & recent LLM for SDOH extraction in Emory EHR.	
Social Isolation-related Suicide Circumstances within NVDRS <i>w/ Centers for Disease Control and Prevention</i>	Atlanta, USA Sept. 2023 - ongoing
<ul style="list-style-type: none">* NLP-based approach to track trends in suicide circumstances using NVDRS (paper under review at PNAS)* Identified social determinants of health to find trends within marginalized communities and subgroups	

PUBLICATIONS

- * Das, S., Ge, Y., Guo, Y., **Rajwal, S.**, et al. 2024. Two-layer retrieval augmented generation framework for low-resource medical question-answering: proof of concept using Reddit data. under review at JMIR. [[Preprint](#)]
- * **Rajwal, S.**, Pandey, A., et al. 2024. Unveiling Voices: Identification of Concerns in a Social Media Breast Cancer Cohort via NLP. In CL4Health Workshop at **LREC-COLING 2024**. [[Paper](#)], [[Code](#)]
- * **Rajwal, S.**, Eugene Agichtein, Abeed Sarker. 2024. Knowledge-Enhanced Few-Shot In-Context Learning for Medical Error Detection & Correction. In Clinical NLP workshop at **NAACL'24**. [[Paper](#)], [[Code](#)]

- * Guo, Y., **Rajwal, S.**, et al. (2023) Generalizable Natural Language Processing Framework for Migraine Reporting from Social Media. AMIA Jt Summits Transl Sci Proc. [[Paper](#)], [[Code](#)]
- * S Das, D Walker, **Rajwal S.**, et al. (2024) Emerging Trends of Self-Harm Using Sodium Nitrite in an Online Suicide Community: Observational Study Using NLP Analysis. JMIR Mental Health. [[Paper](#)], [[Code](#)]
- * **Rajwal, S.** (2023) LiHiSTO: A Comprehensive List of Hindi Stopwords. Springer.[[Paper](#)], [[Code](#)]
- * **Rajwal, S.** (2023). Design of a Chatbot for Children Based on Emotional Intelligence. In Intl. Conference on Innovative Computing & Communications, Springer. [10.1007/978-981-19-2821-5_57](#)
- * **Rajwal, S.**, & Aggarwal (2023). CNN-Based EEG Signal Analysis: A Systematic Review. In Archives of Computational Methods in Engineering. Springer Science & Business Media LLC. [10.1007/s11831-023-09920-1](#)
- * **Rajwal, S.**, & Chakraborty, P. Application of AI in Compiler Design. [Best paper Award](#) at 41st National Conference on Recent Trends in 5G Technology & Artificial Intelligence. [Paper link](#).

INDUSTRY EXPERIENCE

Eaton Corporation

Associate Software Engineer, Full Time

Pune, India

2018 - 2020

- * Spearheaded R&D team to finalize lab layout for Software validation & Root cause analysis (RCA)
- * Implemented Google smart home intents to provide user control of Eaton devices via voice commands
- * Created Angular dashboard (Node.js functions) to push Eaton's manufacturing line data to Cosmos DB.
- * Developed an [app](#) for wireless devices and implemented CRUD operations for 'routines' in smart devices.
- * Carried out cross-group collaboration b/w Eaton & Amazon's Dev team to work on technical challenges.

Accenture Research Lab

Innovations for Sustainability, R&D Senior Analyst Intern

Bangalore, India

February - August 2022

- * Designed and developed a mechanism to determine and measure the frugality of a software solution
- * Frugal factors considered are affordability, simplicity, quality, sustainability, security, and accessibility
- * Tool also recommends best practices with trade-off analysis for a frugal software solution
- * Presented the project results and demonstrated the PoC amongst the stakeholders and research team

SCHOLARSHIPS

Women in Machine Learning Travel Funding

National Science Foundation (NSF)

Vancouver, Canada

December 2024

- * Funding granted to present abstract at WiML Workshop, NeurIPS 2024.

Women in Natural Sciences Fellowship

Emory University

Atlanta, USA

August 2023

- * Academic achievement based financial award to support PhD in Computer Science.

Summer School Scholarship

Mediterranean Machine Learning Summer School (M2L)

Milan, Italy

Sept 2022

- * Grant awarded to [attend](#) the school and present research paper poster.

Post Graduate Scholarship

All India Council for Technical Education (AICTE)

New Delhi, India

2020 - 2022

- * Recipient of a merit-based academic scholarship by AICTE, the Government of India.

REVIEWING ACTIVITIES

- * 13th International Conference on Learning Representations (ICLR) 2025
- * WiML workshop co-located with NeurIPS in 2024 (Canada) and 2021 (Virtually)
- * Journal of the American Medical Informatics Association (JAMIA) 2024
- * 9th Social Media Mining for Health Research and Applications (#SMM4H) [[Overview paper](#)]
- * MEDIQA-CORR@ ClinicalNLP (NAACL) 2024

EXTRA-CURRICULAR

- * Member and Mentor at [Rewriting the Code](#) since 2019
- * Member of Cohere For AI Open Science Community and *Global Exam* project contributor
- * Published an [Amazon Alexa Skill](#) for Alexa enabled devices
- * Selected as [Google's Women Techmakers Ambassador](#) in the Cohort of 2022
- * Authored technical articles for [Towards Data Science](#), [Geek Culture](#), & AV Data Science Blogathon [10](#), [13](#), [15](#)
- * Amongst the [Top 25 Winners](#) at 2021 edition of Microsoft Azure Developer Stories contest

RELEVANT COURSEWORK

- * BMI-500: Intro. to Ethical Data Science & Informatics (Profs. Gari Clifford and Matthew Reyna)
- * BMI-510: Biostatistics for Machine Learning (Prof. J Lucas McKay)
- * BMI-550: Applied Biomedical Natural Language Processing (Prof. Abeed Sarker)
- * CS-557: Artificial Intelligence; CS-572: Information Retrieval (Prof. Eugene Agichtein)
- * CS-571: Natural Language Processing (Prof. Fei Liu)
- * CS-534: Machine Learning (Prof. Joyce Ho)

TEACHING EXPERIENCES

- * CS-534: Machine Learning w/ Prof. Agichtein (Emory, Fall 2024)
- * CS-325: Artificial Intelligence w/ Prof. Agichtein (Emory, Spring 2024)
- * ICCSC-05: Data Structures w/ Prof. Chakraborty (NSUT, Fall 2021)

SESSIONS CONDUCTED

- * Hosted a [session](#) with Dr. Alpana Dubey (Sr. Tech. Researcher) to discuss R&D career
- * [Text Classification](#): Predicting 'Good' or 'Bad' Statements using NLP at DeepLearning.ai platform
- * [Demonstrated a chatbot](#) application using Dialogflow, flask, and Python at DeepLearning.ai session
- * [Customer churn prediction model](#) in Python using Azure ML as Microsoft Learn Student Ambassador
- * [Application of Reinforcement Learning in Financial Markets](#): build a Self-Learning Trading Agent w/ Azure
- * [Getting Started with MS Azure](#): Hands-on for various AI APIs using Microsoft's Intelligent Kiosk platform.