

# Rohan Das

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## EDUCATION

### UNIVERSITY OF COLORADO BOULDER | Ph.D. in Computer Science

Jan 2024 - Dec 2027 (expected) | Boulder, Colorado

- Advisor: Dr. Maria L. Pacheco
- Research focused on Natural Language Processing and Computational Social Science.

### UNIVERSITY OF COLORADO BOULDER | M.S. in Computer Science

Research Track | Aug 2021 - May 2024 | Boulder, Colorado

- Advisors: Dr. Katharina von der Wense and Dr. Maria L. Pacheco
- Research and coursework focused on Natural Language Processing, Computational Linguistics, and Cognitive Science.
- Fully funded through Teaching Assistantships.

### INSTITUTE OF ENGINEERING & MANAGEMENT | B.Tech. in Information Technology

Maulana Abul Kalam Azad University of Technology | Aug 2011 - Jun 2015 | Kolkata, India

- Coursework focused on Computer Science and Mathematics.

## RESEARCH EXPERIENCE

### UNIVERSITY OF COLORADO BOULDER | Graduate Researcher

Jul 2023 – Present | Boulder, Colorado

- Graduate Researcher in Dr. Maria L. Pacheco's group at CU Boulder. Working on problems in narrative understanding and computational discourse.

Sep 2021 – Sep 2023 | Boulder, Colorado

- Graduate Researcher in Dr. Katharina von der Wense's group at CU Boulder. Built tools for low-resource languages by grounding large language models in linguistic theory for downstream tasks like machine translation and coreference resolution.

## PUBLICATIONS

1. Rohan Das, Aditya Chandra, I-Ta Lee and Maria Leonor Pacheco. "Media Framing through the Lens of Event-Centric Narratives". In: Proceedings of the 6th Workshop on Narrative Understanding 2024. doi: <https://doi.org/10.18653/v1/2024.wnu-1.15>.
2. Dananjay Srinivas\*, Rohan Das\*, Saeid Tizpaz-Niari, Ashutosh Trivedi and Maria Leonor Pacheco. "On the Potential and Limitations of Few-Shot In-Context Learning to Generate Metamorphic Specifications for Tax Preparation Software". In: Proceedings of the Natural Legal Language Processing Workshop 2023. doi: [10.18653/v1/2023.nllp-1.23](https://doi.org/10.18653/v1/2023.nllp-1.23).

## PRESENTATIONS

1. Aditya Chandra, Rohan Das, Chih-Hao Fang, I-Ta Lee and Maria Leonor Pacheco. A Narrative Graph Approach for Analyzing Framing in News Articles. Text as Data (TADA) 2023.

## RESEARCH PROJECTS

### NARRATIVE-GUIDED OPEN-DOMAIN EVENT TYPE INDUCTION Jul 2023 - Present

- Utilizing rich, graph-based narrative representation of long articles to support open-domain event-type induction.
- Investigating the role of these induced event types to enhance the graph representation and improve high-level, end-tasks such as frame prediction.

### COREFERENCE RESOLUTION WITH EXPLICIT MORPHOLOGICAL FEATURES Aug 2022 - Sep 2023

Investigating the role of explicit morphological information in end-to-end neural coreference resolution systems for morphologically-rich languages, especially in the low-resource setting.

## **A STUDY OF MBART FOR ANAPHORIC PRONOUN TRANSLATION** Feb 2022 - May 2022

Evaluated mBART - a multilingual translation model for its ability to tackle discourse phenomena. Explored continued pre-training using a masked pronoun objective and explicit discourse markers that facilitate better anaphoric pronoun translation in context-aware neural machine translation.

## **NEURAL MULTI-CHANNEL REVERSE DICTIONARY** Mar 2022 - May 2022

Built a neural reverse dictionary model with linguistic predictors, inspired by how humans infer words from descriptions. The model uses contextualized embeddings from RoBERTa along with multiple linguistically motivated predictors that aim to overcome the issues of sparsity and polysemy.

## **PATRONIZING AND CONDESCENDING LANGUAGE DETECTION** Nov 2021 - Dec 2021

Built a system for Task 4 at SemEval 2022 to detect patronizing and condescending languages using a fine-tuned RoBERTa-based architecture that comfortably beat the competition baseline.

## INDUSTRY EXPERIENCE

### **HYLAND | Developer 3**

Jul 2015 – Jun 2021 | Kolkata, India

- Worked as a Full Stack Developer on an industry-leading suite of products in the Financial Process Automation (FPA) domain that generated an annual revenue of over USD 50 million.
- Built Hyland's microservices-based FPA Services layer, on an event-based architecture leveraging domain-driven design and command-query separation principles with multi-tenancy and multi-ERP support.
- Built an end-to-end Accounts Payable automation product suite by integrating Infor APiA and Infor Financials and Supply Management with Perceptive Content and OnBase, Hyland's flagship ECM products.
- Designed and built from scratch an integration of the in-house capture product, Brainware with Perceptive Content (ECM).
- Contributed to Hyland UI, a proprietary Angular-based UI framework. Built a feature-rich, advanced data grid, with no lag, and smooth scrolling for unlimited columns and rows of data.

## TEACHING EXPERIENCE

### **UNIVERSITY OF COLORADO BOULDER | Graduate Teaching Assistant**

Aug 2021 – Present | Boulder, Colorado

- Teaching Assistant for CSCI 4308/4318: Software Engineering Project.
- Teaching Assistant for CSCI 3308: Software Development Methods and Tools.

### **UNIVERSITY OF COLORADO BOULDER | Graduate Instructor**

May 2022 – Jul 2022 | Boulder, Colorado

- Primary Instructor of Record for CSCI 3308: Software Development Methods and Tools. Taught fundamentals of software development and industry best practices. This is one of seven required foundation courses for the BS in Computer Science degree program at CU Boulder.

## HONOURS AND AWARDS

### **DEPARTMENTAL SUMMER RESEARCH FELLOWSHIP | University of Colorado Boulder**

Mar 2025 | Boulder, Colorado

- Departmental research funding for Summer 2025. (\$6000)

### **LLOYD BOTWAY FELLOWSHIP | University of Colorado Boulder**

Apr 2023 | Boulder, Colorado

- Awarded by the Computer Science department to an outstanding Master's student for excellence in academics, research, teaching, and service. (\$400)

### **COMPUTER SCIENCE ENDOWED FOUNDER'S FELLOWSHIP | University of Colorado Boulder**

Nov 2022 | Boulder, Colorado

- Awarded to stellar graduate students for excellence in academics, research, teaching, and service to the department. (\$500)

### **OUTSTANDING SERVICE AWARD | University of Colorado Boulder**

Apr 2023 | Boulder, Colorado

- Recognition for outstanding service to the Computer Science department. (\$500)

### **ACCOUNT AGGREGATOR HACKATHON | DigiSahamati Foundation**

Aug 2020 | Kolkata, India

- Responsible for end-to-end architecture and complete backend development for Knox, a secure, Function-as-a-Service (FaaS) based virtual data room provider for the Account Aggregator Framework. Won in the special interest category at

India's inaugural Account Aggregator Hackathon in August 2020. Received attention from VCs interested in productizing the prototype. For details see the project page at: [cutt.ly/knox-aa](https://cutt.ly/knox-aa). (₹50,000)

## TRAVEL GRANTS

- New Directions in Analyzing Text as Data (TADA), 2023. (\$800)

## SERVICE

### UNIVERSITY OF COLORADO BOULDER | Executive Committee

Aug 2022 – Jul 2023 | Boulder, Colorado

- Graduate student representative on the Executive Committee of the Computer Science department. The executive committee deals with all department issues such as budgets, space, and promotions.

### UNIVERSITY OF COLORADO BOULDER | Search Committee

Dec 2022 – Apr 2023 | Boulder, Colorado

- Graduate student representative on the Search Committee of the Computer Science department. The committee reviews applications from prospective new faculty members.

### PEER REVIEW

Reviewer

- ACL Rolling Review 2024

Secondary Reviewer

- EACL 2024

## SKILLS

### PROGRAMMING

Proficient

Java • Python

Familiar

C# • JavaScript

### LIBRARIES & FRAMEWORKS

Libraries:

PyTorch • Huggingface • NumPy • scikit-learn

Frameworks:

Angular • REST • SOAP

Tools:

Git • TFS • Jenkins • Docker • Kubernetes •

Eclipse • VS Code • PyCharm

## REFERENCES

- Dr. Maria L. Pacheco | Assistant Professor of Computer Science | [Maria.Pacheco@colorado.edu](mailto:Maria.Pacheco@colorado.edu)
- Dr. Katharina von der Wense | Assistant Professor of Computer Science | [Katharina.Kann@colorado.edu](mailto:Katharina.Kann@colorado.edu)
- Dr. Alexis Palmer | Associate Professor of Linguistics | [Alexis.Palmer@colorado.edu](mailto:Alexis.Palmer@colorado.edu)