

# Chandrabhas

☎ (+91) 9945337554 | ✉ dewangan.chandrabhas@gmail.com | 🏠 chandrabhasd.github.io | 📷 chandrabhas | 🌐 dewanganchandrabhas | 📧 chandrabhas

## Summary

I am broadly interested in methods for Knowledge Graph (KG) creation and expansion, and application of such background KGs for end tasks such as Question Answering and Document Classification. I am also interested in the analysis and interpretability of these models. My past research focused on analysing and improving KG completion methods and their application on densifying Open KGs extracted from a text corpus. Currently, I am working on modular language models that can separate volatile world knowledge from the invariant linguistic knowledge, enabling easier model adaptation with changing world facts.

## Interests

Knowledge Graphs, Deep Learning (NLP), Natural Language Understanding, Machine Learning, Model Interpretability.

## Work Experience

### Google Research

#### VISITING RESEARCHER

Bangalore, India

Sep. 2021 - Present

- Working on developing large language models that work well on knowledge intensive tasks.

### Facebook

#### INTERN

London, UK

Sep. 2018 - Nov. 2018

- Worked on search query recommendation, and came up with new methods for query recommendation which improved user engagement on search result page.

### IBM Research Lab

#### RESEARCH INTERN

Bangalore, India

Jun. 2016 - Aug. 2016

- Worked on Task Specific Knowledge Graph (KG) Construction methods where the final structure (nodes and edges) of KG is determined by an end task, like classification.

### Veveo R&D, Rovi Corporation

#### SOFTWARE ENGINEER

Bangalore, India

Aug. 2013 - Jul. 2015

- Worked on conversation based search on entertainment domain.
- It involved problems such as user intent detection, dialog detection, and context management during natural language conversation.

## Education

### Indian Institute of Science, Bangalore

**PH.D.** COMPUTER SCIENCE AND ENGINEERING - ADVISED BY **PROF. PARTHA PRATIM TALUKDAR**

*Thesis* - Analysis and Methods for Knowledge Graph Embeddings

Aug. 2015 - Jul. 2021

CGPA - 7.0/8.0

### Indian Institute of Science, Bangalore

**M.E.** COMPUTER SCIENCE AND ENGINEERING - ADVISED BY **PROF. SHIVANI AGARWAL**

*Thesis* - Learning Score Systems for Predicting Patient Mortality in ICUs

Aug. 2011 - Jul. 2013

CGPA - 6.7/8.0

### Bhilai Institute of Science, Durg

**B.E.** COMPUTER SCIENCE AND ENGINEERING

*Final Year Project* - Expert Examination System: An automated question paper generation system

Aug. 2007 - Jun. 2011

CGPA - 8.8/10.0

## Publications

- Chandrabhas, Partha Pratim Talukdar. *OKGIT: Open Knowledge Graph Link Prediction with Implicit Types*, Findings of the ACL: ACL-IJCNLP 2021.
- Chandrabhas, Tathagata Sengupta, Cibi Pragadeesh, Partha Pratim Talukdar. *Inducing Interpretability in Knowledge Graph Embeddings*, ICON 2020.
- Chandrabhas, Nilesh Agrawal, Partha Pratim Talukdar. *Learning to Interact: An Adaptive Interaction Framework for Knowledge Graph Embeddings*, ICON 2020.
- Chandrabhas, Aditya Sharma, Partha Pratim Talukdar. *Towards Understanding the Geometry of Knowledge Graph Embeddings*, ACL 2018.
- Srinivas Ravishankar, Chandrabhas, Partha Pratim Talukdar. *Revisiting Simple Neural Networks for Learning Representations of Knowledge Graphs*, AKBC 2017.
- Aadirupa Saha, Chandrabhas, Hari Krishna Narasimhan, Sriram Sampath, Shivani Agarwal. *Learning Score Systems for Predicting Patient Mortality in ICUs via Orthogonal Matching Pursuit*, ICMLA 2014.

## Talks and Tutorials

---

- Tutorial on **TensorFlow** at *Natural Language Understanding Course 2018* at IISc. [Link](#).
- Talk on **Representation Learning for Text** at *CSA Summer School 2016*.
- Talk on **Introduction to Machine Learning** at *CSA Summer School 2013*.

## Skills

---

<b>Programming Languages</b>	Python, C, C++, Java, Shell Scripting, $\text{\LaTeX}$
<b>ML/DL/NLP Frameworks</b>	PyTorch, TensorFlow, HuggingFace, NumPy, SciPy
<b>Web Development</b>	HTML, CSS, JavaScript, Python-Flask, Jinja2, Bootstrap, JQuery
<b>Applications</b>	Vi/Vim, Visual Studio Code, Git, MongoDB
<b>Operating Systems</b>	Linux, Mac OSX, Windows, Android
<b>Spoken Languages</b>	English (fluent), Hindi (native tongue)

## Positions of Responsibility

---

- **Reviewer** for EMNLP 2022, EMNLP 2021, NAACL 2021, AKBC 2021, EMNLP 2020, and ICON 2020.
- **Teaching Assistant** for UGE-101 (Algorithms and Programming) Course.
- **Student Volunteer** for EMNLP 2020, ACL 2018 and 2020.
- **Publicity Team Lead** for the department (CSA) Open-days 2016, 2013, and CSA Summer School 2013.

## Projects

---

- **Study of Parallel Coordinate Descent Algorithms:** Coordinate Descent Algorithms form a class of simple optimization algorithms which has received attention of many researchers in last decade. There has been significant advancements in adapting these algorithms in parallel (multi-core) settings. In this project, we focused on studying parallel versions of Coordinate Descent Algorithms. We also implemented and conducted experiments with some of these algorithms. [\[Code\]](#).
- **Entity Linking:** Entity linking(EL) is a process of mapping textual mentions of named-entities in text to an entity in some knowledge base. EL is used in numerous areas of natural language processing to automate structured information retrieval from raw corpus. In this project, we focused on D2W (Disambiguation to Wikipedia) task, where we map textual mentions to corresponding Wikipedia pages. Specifically, we studied the effects of co-reference resolution (using Stanford CoreNLP) on the performance of Wikifier system for D2W task.
- **Null Dereference Analysis in Java Programs:** Null dereference is a common bug in programs. This project applies the abstract interpretation framework for the analysis of null dereferences in Java programs using Soot framework.
- **Expert Examination System: An automated question paper generation system:** This project automates the question paper generation process for examinations. It covers the process of creation of questions database, selection of questions for exams meeting certain criteria and generation of encrypted paper and its decryption.
- **Implementation of a Tetrahedral Mesh Viewer:** The aim of the project was to implement a basic viewer which can render tetrahedral meshes read from a file using OpenGL. It also supports rendering of individual meshes and group of meshes at different scaling levels.

## Awards and Achievements

---

- Received **Google Travel Grant** for attending ACL 2018.
- Received **Special Recognition Award** while working at Veveo R&D.
- Secured **All-India Rank 44** in GATE-2011.
- Secured **Honors** in Bachelor of Engineering.
- Received **Certificate of Excellence in Mathematics** in Higher Secondary (12th).

## Extra Curricular Activities

---

- *Hobbies:* Playing Guitar, Keyboard, and Drums, Board Games.
- *Sports:* Swimming, Badminton, Table Tennis.

## References

---

1. Dr. **Partha Pratim Talukdar** (Staff Research Scientist, Google Research India), [partha@google.com](mailto:partha@google.com).
2. Dr. **Pradeep Shenoy** (Researcher, Google Research India), [shenoypradeep@google.com](mailto:shenoypradeep@google.com).
3. **Ahmed Nizam Mohaideen** (Senior Software Engineer, Google India), [nizamsp@google.com](mailto:nizamsp@google.com).
4. Dr. **Harikrishna Narasimhan** (Senior Research Scientist, Google Research Mountain View), [hnnarasimhan@google.com](mailto:hnnarasimhan@google.com).
5. Prof. **Shivani Agarwal** (Associate Professor, University of Pennsylvania), [ashivani@seas.upenn.edu](mailto:ashivani@seas.upenn.edu).