

Hrishikesh Rajesh Terdalkar

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CURRENT AFFILIATION

BharatGen, Indian Institute of Technology Kanpur, India

SUMMARY

My research lies at the intersection of *Computational Linguistics*, *Natural Language Processing*, and *Graph Databases*, with a focus on low-resource languages like Sanskrit and other Indian languages. I aim to tackle the unique linguistic and computational challenges they present, advancing language understanding and knowledge extraction from unstructured data. Drawing on my interdisciplinary background, I'm committed to build impactful, real-world solutions. My broader interests include *Databases*, *Software*, *Information Retrieval*, *Artificial Intelligence*, *Human-Computer Interaction*, and *Data Mining*.

EDUCATION

Ph.D. in Computer Science and Engineering

Indian Institute of Technology Kanpur
CGPA: 8.67

2014 – 2023
Kanpur, Uttar Pradesh, India

M.Sc. in Computer Science

Chennai Mathematical Institute
CGPA: 8.88

2011 – 2013
Chennai, Tamil Nadu, India

B.Sc. (Hons.) in Mathematics and Computer Science

Chennai Mathematical Institute
CGPA: 7.69

2007 – 2010
Chennai, Tamil Nadu, India

Higher Secondary School Certificate (Standard XII)

Maharashtra State Board of Secondary and Higher Secondary Education
Percentage: 86.50

2007
Maharashtra, India

Secondary School Certificate (Standard X)

Maharashtra State Board of Secondary and Higher Secondary Education
Percentage: 95.33

2005
Maharashtra, India

THESES

Ph.D. Thesis

Sanskrit Knowledge-based Systems: Annotation and Computational Tools

Supervisor: Arnab Bhattacharya

- Development of *knowledge-based systems for Sanskrit* with the ultimate goal of question-answering.
- Contributions include: a framework for the automated construction of knowledge graphs; two web-based annotation tools: (1) *Sangraha*: for knowledge-graph focused annotation and querying, and (2) *Antarlekha*: for general purpose natural language annotation of multiple tasks in a sequential manner; a system to identify Sanskrit meters and utilize Sanskrit prosody for post-OCR correction; several web-interfaces including three ancient Indian alpha-numeric systems; tools including a Telegram bot for Sanskrit grammar, and software libraries related to computational aspects of Sanskrit.
- All contributions available at <https://sanskrit.iitk.ac.in>

M.Sc. Thesis

On Symmetric Key Cryptography

Supervisor: Rajeeva Karandikar

- Study and implementation of various stream ciphers and block ciphers. (RC4, HC128, RC5, IDEA).

PUBLICATIONS

- "A Case Study of Cross-Lingual Zero-Shot Generalization for Classical Languages in LLMs". V S D S Mahesh Akavarapu, **Hrishikesh Terdalkar**, Prमित Bhattacharyya, Shubhangi Agarwal, Vishakha Deulgaonkar, Chaitali Dangarikar, Pralay Manna, Arnab Bhattacharya. **TO APPEAR** In Proceedings of the 63rd Annual Meeting of the Association for Computational Linguistics (ACL), Vienna, Austria, July 2025. Association for Computational Linguistics (ACL).

- “Graph Repairs with Large Language Models: An Empirical Study” . **Hrishikesh Terdalkar**, Angela Bonifati, Andrea Mauri. **TO APPEAR** In Proceedings of the 8th Joint Workshop on Graph Data Management Experiences & Systems (GRADES) and Network Data Analytics (NDA) @ SIGMOD/PODS 2025, Berlin, Germany, June 2025. Association for Computing Machinery (ACM).
- “Aganittiyam: Learning Tamil Grammar through Knowledge Graph based Templated Question Answering” . Mithilesh K, Amarjit Madhumalararungeethayan, Dharanish Rahul S, Abhijith Balan, C Oswald, **Hrishikesh Terdalkar**. In Proceedings of the 38th Pacific Asia Conference on Language, Information and Computation (PACLIC), Tokyo, Japan, December 2024. Association for Computational Linguistics (ACL).
- “Samanvaya: An Interlingua for Unity of Indian Languages” . Chaitali Dangarikar, Arnab Bhattacharya, Karthika N J, **Hrishikesh Terdalkar**, Pramit Bhattacharyya, Annarao Kulkarni, Chaitanya S Lakkundi, Ganesh Ramakrishnan, Shivani V. ISBN: 978-93-48435-21-7. October 2024. Central Sanskrit University. **[Book]**
- “Antarlekhaka: A Comprehensive Tool for Multi-task Natural Language Annotation” . **Hrishikesh Terdalkar**, Arnab Bhattacharya. In Proceedings of the 3rd Workshop for NLP Open Source Software (NLP-OSS) @ EMNLP, Singapore, December 2023. Association for Computational Linguistics (ACL).
- “Chandojnanam: A Sanskrit Meter Identification and Utilization System” . **Hrishikesh Terdalkar**, Arnab Bhattacharya. In Proceedings of the Computational Sanskrit & Digital Humanities: Selected papers presented at the 18th World Sanskrit Conference (WSC), pages 113–127, Canberra, Australia, January 2023. Association for Computational Linguistics (ACL).
- “Semantic Annotation and Querying Framework based on Semi-structured Ayurvedic Text” . **Hrishikesh Terdalkar**, Arnab Bhattacharya, Madhulika Dubey, Ramamurthy S, Bhavna Naneria Singh. In Proceedings of the Computational Sanskrit & Digital Humanities: Selected papers presented at the 18th World Sanskrit Conference (WSC), pages 155–173, Canberra, Australia, January 2023. Association for Computational Linguistics (ACL).
- “A Novel Multi-Task Learning Approach for Context-Sensitive Compound Type Identification in Sanskrit” . Jivnesh Sandhan, Ashish Gupta, **Hrishikesh Terdalkar**, Tushar Sandhan, Suvendu Samanta, Laxmidhar Behera, Pawan Goyal. In Proceedings of the 29th International Conference on Computational Linguistics (COLING), pages 4071–4083, Gyeongju, Republic of Korea, October 2022. International Committee on Computational Linguistics.
- “Sangrahaka: A Tool for Annotating and Querying Knowledge Graphs” . **Hrishikesh Terdalkar**, Arnab Bhattacharya. In Proceedings of the 29th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), pages 1520–1524, Athens, Greece, August 2021. Association for Computing Machinery (ACM).
- “Framework for Question-Answering in Sanskrit through Automated Construction of Knowledge Graphs” . **Hrishikesh Terdalkar**, Arnab Bhattacharya. In Proceedings of the 6th International Sanskrit Computational Linguistics Symposium (ISCLS), pages 97–116, IIT Kharagpur, India, October 2019. Association for Computational Linguistics (ACL).

TALKS, POSTERS AND DEMONSTRATIONS

- “Vedapāṭhapaddhati: A Tool to Generate Prakṛtipāṭha and Vikṛtipāṭha forms of Sanskrit Text” . **Hrishikesh Terdalkar**, Arnab Bhattacharya. The 7th International Sanskrit Computational Linguistics Symposium, 2024.
- “Āyurjñānam: Exploring Āyurveda with Knowledge Graphs” . **Hrishikesh Terdalkar**, Vishakha Deulgaonkar, Arnab Bhattacharya. National Youth Conference on Indian Knowledge Systems (NYCIKS), 2023. **Best Poster Award.**
- “Vaiyyākaraṇaḥ: A Sanskrit Grammar Bot for Telegram” . **Hrishikesh Terdalkar**, Mahesh A V S D S, Shubhangi Agarwal, Arnab Bhattacharya. The 18th World Sanskrit Conference (WSC), 2023.
- “PyCDSL: A Programmatic Interface to Cologne Digital Sanskrit Dictionaries” . **Hrishikesh Terdalkar**, Arnab Bhattacharya. The 18th World Sanskrit Conference (WSC), 2023.
- “Jñānasaṅgrahaḥ: A Collection of Computational Applications related to Sanskrit” . **Hrishikesh Terdalkar**, Arnab Bhattacharya. The 18th World Sanskrit Conference (WSC), 2023.
- “KaTaPaYadi System” . **Hrishikesh Terdalkar**, Arnab Bhattacharya. The 6th International Sanskrit Computational Linguistics Symposium (ISCLS), 2019.

TEACHING

Instructor <i>École Normale Supérieure de Lyon</i> <ul style="list-style-type: none">• Program: Master 1 Informatique (ICA)• Course: Databases and Data Mining	Feb 2025 – Apr 2025
Instructor <i>Claude Bernard University Lyon 1</i> <ul style="list-style-type: none">• Program: M2: Data and Intelligence for Smart Systems (DISS)• Course: Natural Language Processing	Jan 2025 – Mar 2025
Senior Tutor <ul style="list-style-type: none">• Managed (Prutor) backend administration for 5 semesters at IIT Kanpur.• Duties also involved heading the tutor team, setting question papers and grading.	Jan 2017 – Nov 2020
Teaching Assistant (MOOC) <i>NPTEL</i> <ul style="list-style-type: none">• NOC17-CS33: Fundamentals of Database Systems	May 2017 – Sep 2017
Teaching Assistant <ul style="list-style-type: none">• CS315: Principles of Database Systems (Jan-Apr 2019, Jan-Apr 2021)• CS685: Data Mining (Aug-Nov 2018)• CS774: Optimization Techniques (Aug-Nov 2016)• ESC101: Introduction to Programming (Aug-Nov 2014)	Aug 2014 – Nov 2020
Academic Mentor <ul style="list-style-type: none">• Provided support to students in need of academic assistance	Jul 2018 – Apr 2020

EXPERIENCE

Data Engineer <i>BharatGen, CSE, IIT Kanpur</i> <ul style="list-style-type: none">• Project: 'BharatGPT: A Suite of Generative AI Tech for India'.• Funding Agency: Department of Science and Technology (DST), Government of India.	May 2025 – present
Postdoctoral Researcher <i>LIRIS Research Lab, Claude Bernard University Lyon 1</i> <ul style="list-style-type: none">• Research: Large Language Models for Knowledge Graph Repair• Project: 'Human Factors in Data-Intensive Applications for Health' (CPJ Data4Health).	May 2024 – Apr 2025
Project Scientist <i>CSE, IIT Kanpur</i> <ul style="list-style-type: none">• Project: 'An Interpretable Unified Framework Text-to-text Translation among Indian Languages using Sanskrit-based Interlingua Representation'.• Funding Agency: Ministry of Electronics and Information Technology (MeitY), Government of India.	Jan 2024 – Apr 2024
Senior Student Research Associate <i>CSE, IIT Kanpur</i> <ul style="list-style-type: none">• Project: 'An Interpretable Unified Framework Text-to-text Translation among Indian Languages using Sanskrit-based Interlingua Representation'.• Funding Agency: Ministry of Electronics and Information Technology (MeitY), Government of India.	Aug 2022 – Dec 2023
Project Associate <ul style="list-style-type: none">• Worked on the project 'Localization in Wireless Sensor Networks' at CSE, IIT Kanpur.	Jul 2013 – Apr 2014

ADMINISTRATIVE EXPERIENCE

Program Committee Member	2025 – present
<ul style="list-style-type: none">GRADES-NDA Workshop @ SIGMOD/PODS (2025), ICWE (2025), TGD Workshop @ EDBT/ICDT (2025)	
Reviewer	2022 – present
<ul style="list-style-type: none">ARR (2022, 2023, 2024, 2025)	
Web Chair	Jan 2023 – Feb 2024
<ul style="list-style-type: none">Created and managed the website and the proceedings for the conference ISCLS 2024.	
External Reviewer	2020-2023
<ul style="list-style-type: none">CoDS-COMAD (2020, 2021, 2023), CIKM (2021, 2022), AAI (2022), DASFAA (2022)	
Webmaster	Dec 2014 – Jan 2016
<ul style="list-style-type: none">Managed website of CSE Department, IIT Kanpur.	

PROJECTS

NLTM Interlingua	ongoing
<ul style="list-style-type: none">Interlingua-based Translation among Indian Languages.Bhasini Consortium Project. MeitY.	



ACHIEVEMENTS


- Best Software Award** at the 57th Convocation, Indian Institute of Technology Kanpur, 2024.
- Best Poster Award** at National Youth Conference on Indian Knowledge Systems 2023 **NYCIKS 2023** (Roorkee).
- Financial support** from Research-I Foundation to attend **ISCLS 2019** (Kharagpur) and **WSC 2023** (Online).
- Financial support** under ACM SIGSOFT CAPS Virtual Program to attend **ESEC/FSE 2021**.
- Travel grants** from ACM India to attend **CoDS-COMAD 2017** (Goa), **CoDS-COMAD 2018** (Kolkata) and **CoDS-COMAD 2019** (Hyderabad).
- TCS Research Scholar Program** Fellowship (Cycle 11), 2015.


TECHNICAL SKILLS

Languages	: Python, C, C++, Shell Scripting, Haskell, R, PHP, JavaScript, HTML, CSS
Databases	: MySQL, Neo4j, MongoDB
Libraries	: Flask, SQLAlchemy, Pandas, Scikit-learn, Gensim, NLTK, spaCy, PyTorch, NumPy
Dev Tools	: git, Python packaging, Make, docker
Typesetting	: LaTeX, Markdown, reStructuredText

RESEARCH SOFTWARE AND TOOLS

GitHub Profile Statistics	★ 150+ 🍴 45+ 🔄 3000+	 hrishikeshrt
PyPI Profile		 hrishikeshrt

Antarlekhaka	 Antarlekhaka/code
<ul style="list-style-type: none">Annotation of a comprehensive set of computational linguistic tasks.General purpose, multi-task, sequential annotation.	

Sangrahaka	 hrishikeshrt/sangrahaka
<ul style="list-style-type: none">Annotation towards creation of knowledge graphs.Querying of knowledge graphs using natural language query templates.	

Jnanasangraha	 https://sanskrit.iitk.ac.in/jnanasangraha
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- Collection of several web-based Sanskrit computational tools.
- Includes three of ancient Indian alpha-syllabic numeral systems, a Sankrit prosodical meter identification and utilization system and various utility functions related to Sanskrit alphabet.

Vaiyyakarana

📧 [vyakarana_bot](#)

- Telegram bot for the learners of Sanskrit grammar.

Sanskrit Audio Alignment

🌐 https://hrishikeshrt.github.io/audio_alignment

- Interface for Sanskrit corpus recitation using forced-alignment to align text and audio.

EXTRACURRICULAR

- I am a frequent blood donor with 45 donations so far and actively promote blood donation. I have also served as the Overall Co-ordinator and PG Wing Head of *Raktarpan*, IIT Kanpur and helped organize more than 20 blood donation camps in and around campus.
- I am interested in Sanskrit language and grammar. I hold a Diploma in Sanskrit Language under the Non-Formal Sanskrit Education programme offered by Central Sanskrit University. I have also completed Kovida, an advanced-level correspondence course offered by Samskrita Bharati.
- I love bicycling and have completed multiple 50km and 100km rides.

REFERENCES

Arnab Bhattacharya

Professor, Indian Institute of Technology Kanpur, India

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Angela Bonifati

Distinguished Professor, Claude Bernard University Lyon 1, France

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Pawan Goyal

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Amba Kulkarni

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