

Rishi Hazra

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Education

- **Ph.D. in Machine Reasoning**, 2021–Present
Örebro University & WASP, Sweden
Research Topic: Reasoning & Decision Making with LLMs
Supervisor: Luc De Raedt
- **M.Tech in Artificial Intelligence**, 2017–2019
Indian Institute of Science, Bangalore, India
Grade: 8.10/10
Research Topic: Active Learning in Sequence Tagging
Supervisor: Ambedkar Dukkipati
- **B.Tech in Electrical Engineering**, 2013–2017
Birsa Institute of Technology, India
Grade: 8.03/10
Supervisor: Pankaj Kumar Rai

Research & Professional Experience

- **Research Science Intern**, August 2024 – February 2025
FAIR (Meta), London, UK
Topics: Language Grounding in Images, Multiagent Evolutionary Frameworks
- **Research Science Intern**, July 2022 – December 2022
Meta Reality Labs Research, Redmond, USA
Topic: Vision and Language-based Task Tracking
- **Data Scientist**, April 2020 – September 2020
Amazon Alexa-AI, Bangalore, India
Topic: NLU Metrics in Alexa
- **Research Associate**, June 2019 – March 2020
Statistics and Machine Learning Group, Indian Institute of Science, Bangalore
Topic: Multi-Agent Reinforcement Learning

Publications

1. **SAT Solving using Multi-agent Evolutionary Search with Large Language Models**,
[R Hazra](#), D Nathani, Y Bachrach
under review
2. **LEXICON 1.0: a Simulator for Constrained Decision Making with Natural Language**,
[R Hazra](#), PZD Martires, L De Raedt
under review
3. **REvolve: Reward Evolution with Large Language Models using Human Feedback**,
[R Hazra](#)^{*}, A Sygkounas^{*}, A Persson, A Loutfi, PZD Martires (* equal contribution)
International Conference on Learning Representations (ICLR) 2025 [[website](#)][[pdf](#)][[code](#)]
4. **Can Large Language Models Reason? A Characterization via 3-SAT Phase Transitions**,
[R Hazra](#), G Venturato, PZD Martires, L De Raedt
under review [[pdf](#)]
5. **Evaluating Efficiency and Engagement in Scripted and LLM-Enhanced Human-Robot Interactions**,
T Schreiter, JV Rüppel, [R Hazra](#), A Rudenko, M Magnusson, AJ Lilienthal
IEEE/ACM International Conference on Human-Robot Interaction (HRI 2025) (Late Breaking Report)
6. **Bidirectional Intent Communication: A Role for Large Foundation Models**,
T Schreiter^{*}, [R Hazra](#)^{*}, JV Rüppel, A Rudenko (* equal contribution)
Workshop at the 33rd IEEE International Conference on Robot and Human Interactive Communication (IEEE RO-MAN 2024) [[pdf](#)]

7. **SayCanPay: Heuristic Planning with Large Language Models using Learnable Domain Knowledge**,
[R Hazra](#), PZD Martires, L De Raedt
Association for the Advancement of Artificial Intelligence (AAAI 2024) [[website](#)][[pdf](#)] [[code](#)]
8. **EgoTV: Egocentric Task Verification from Natural Language Task Descriptions**,
[R Hazra](#), B Chen, A Rai, N Kamra, R Desai
International Conference on Computer Vision (ICCV 2023) [[website](#)] [[pdf](#)] [[code](#)]
9. **Deep Explainable Relational Reinforcement Learning: A Neuro-Symbolic Approach**,
[R Hazra](#), L De Raedt
European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD 2023) [[pdf](#)]
10. **Active² Learning: Actively reducing redundancies in Active Learning methods for Sequence Tagging and Machine Translation**,
[R Hazra](#), P Dutta, S Gupta, MA Qaathir, and A Dukkupati
Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT 2021) [[pdf](#)][[code](#)][[video](#)][[poster](#)]
11. **Networked Multi-Agent Reinforcement Learning with Emergent Communication**
S Gupta*, [R Hazra](#)*, and A Dukkupati (* Equal Contribution)
International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2020) [[pdf](#)] [[video](#)]
12. **Infinite use of finite means: Zero-Shot Generalization using Compositional Emergent Protocols**
[R Hazra](#)*, S Dixit*, and S Sen (* Equal Contribution)
Visually Grounded Interaction and Language Workshop (NAACL-HLT 2021) [[pdf](#)] [[demos](#)] [[poster](#)]
13. **gComm: An environment for investigating generalization in Grounded Language Acquisition**
[R Hazra](#) and S Dixit,
Visually Grounded Interaction and Language Workshop (NAACL-HLT 2021) [[pdf](#)] [[code](#)] [[poster](#)]

Mentorship

Master Thesis

- Jens V Rüppel, TU Chemnitz, 2024-2025
(Co-supervisor: Tim Schreiter)

Skills

Python, PyTorch, MATLAB, C++

Achievements

Top Reviewer	NeurIPS 2022, NeurIPS 2024 (Top 8%)
Guinness World Record	Most users to complete a remote 10 km in 24 hours [record][certificate]
Kaggle	2 nd Rank in secondary track of (PASSNYC)
GATE 2017	All India Rank 133 (top 0.001%)
Undergrad	Best Outgoing Project Award jointly from BIT Sindri & IIT (ISM) Dhanbad
Undergrad	Best Academics Award for excellent academic performance
High School	Principal's Award for all-round academic performance

Courses/Workshops

Basic	Machine Learning, Game Theory, Practical Data Science
Advanced	Natural Language Understanding, Reinforcement Learning, Graphical Models & Bayesian Learning
Undergrad	Signal Processing, Control Systems, Digital Electronics, Network Theory
Workshops	Workshop on Neural Systems (Pratiksha Trust, IISc), Robovision (Robotics and Computer Applications Institute, USA)

Community Service

- NeurIPS 2022-24, ICML 2023-24, ICLR 2024, KR 2024, EACL 2023: Reviewer

- AAMAS 2022: Program Committee member and Session Chair
- PRAYAAS India (NGO providing free and high quality education to underprivileged children living in slums and villages): Active member of PRAYAAS India (from 2013-2016), where I taught mathematics to middle school children.
- Tarumitra (Friend of Trees) Club: Student President of Tarumitra for three consecutive years (2011-2013), during which, I led numerous plantation drives and awareness programs.