

Kshitij Mishra, Ph.D.

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📍 AI-NLP-ML Lab, BLOCK-3, IIT PATNA



Employment History

Jan 2023 – Oct 2023

📖 **Applied Scientist Intern (L5)** Amazon.com Services LLC, LA, USA.

- Worked on enhancing large language models through editing methods.
- Worked on the development of privacy-preserving large language models.
- **Outputs:** An EACL paper, A patent file, A positive Bar Raiser Review.

July 2019 – Ongoing

📖 **Ph.D. Scholar** Indian Institute of Technology Patna, INDIA.

- Developed advanced Conversational AI systems for persuasive dialogues, medical care, counseling, and disability support, incorporating RLHF, PPO, and novel reward models.
- Worked on the *Sevak - An Intelligent Indian Language Chatbot* project, creating multilingual dialogue systems for Indian languages in three domains Railways, Judiciary, and Healthcare.
- Mentored students across various academic levels and contributed to teaching and TA duties in TOC, ML, NLP, and AI courses.
- **Outputs:** Deployed 14 Interactive Sevak Chatbots, Multiple top-tier publications: NAACL, EACL, ACL, EMNLP, COLING, IJCAI, AAAI.

Education

July 2019 – Ongoing

📖 **Ph.D. in Computer Science and Engineering**
Indian Institute of Technology Patna, INDIA

- **CPI:** 8.79
- **Research Area:** Natural Language Processing
- **Ph.D. Research Topic:** Inducing Politeness, Empathy, Personalization, Persuasiveness, and Counseling in Conversational AI Systems

Aug 2017 – June 2019

📖 **M.Tech.in Computer Science and Engineering**
National Institute of Technology, Arunachal Pradesh, INDIA

- **CGPA:** 9.01 (Gold Medalist)
- **Research Area:** Machine Learning
- **M.Tech. Thesis Topic:** Heuristic Learning for an Automated Theorem Prover

Research Publications

• Published/Accepted:

- **Mishra, Kshitij***, Manisha Burja* and Asif Ekbal. "ABLE: Personalized Disability Support with Politeness and Empathy Integration". In EMNLP 2024.
- Zafar, Aizan*, **Mishra, Kshitij***, and Asif Ekbal. "MedLogic-AQA: Enhancing Medicare Question Answering with Abstractive Models Focusing on Logical Structures". In EMNLP 2024.
- **Mishra, Kshitij***, Tamer Soliman*, Anil Ramakrishna, Aram Galstyan, and Anoop Kumar. "Correcting Language Model Outputs by Editing Salient Layers". In EACL 2024. (Work done during internship at Amazon.)
- **Mishra, Kshitij**, Mauajama Firdaus, and Asif Ekbal. "Please donate to save a Life: Inducing Politeness to handle Resistance in Persuasive Dialogue Agents for Social Good". In IEEE Transactions on Audio, Speech, and Language Processing (2024).
- **Mishra, Kshitij***, Priyanshu Priya*, Manisha Burja, and Asif Ekbal. "e-THERAPIST: I suggest you to cultivate a mindset of positivity and nurture uplifting thoughts". In EMNLP 2023.
- **Mishra, Kshitij***, Priyanshu Priya*, and Asif Ekbal. "PAL to Lend a Helping Hand: Towards Building an Emotion Adaptive Polite and Empathetic Counseling Conversational Agent" In ACL 2023.
- Priyanshu Priya*, **Kshitij Mishra***, Palak Totala and Asif Ekbal. "PARTNER: A Persuasive Mental Health and Legal Counselling Dialogue System for Women and Children Crime Victims" In IJCAI 2023.
- Ahmad, Zishan*, **Kshitij Mishra*** and Asif Ekbal. "RPTCS: A Reinforced Persona-aware Topic-guiding Conversational System" In EACL 2023.
- **Mishra, Kshitij***, Priyanshu Priya*, and Asif Ekbal. "Help Me Heal: A Reinforced Polite and Empathetic Mental Health and Legal Counseling Dialogue System for Crime Victims" In AAAI 2023.
- **Mishra, Kshitij**, Mauajama Firdaus, and Asif Ekbal. "Genpads: Reinforcing politeness in an end-to-end dialogue system," PloS one, 2023.
- **Mishra, Kshitij**, Azlaan Mustafa Samad, Palak Totala, and Asif Ekbal. "PEPDS: A Polite and Empathetic Persuasive Dialogue System for Charity Donation." In Proc. of COLING, 2022.
- Samad, Azlaan Mustafa*, **Kshitij Mishra***, Mauajama Firdaus, and Asif Ekbal. "Empathetic Persuasion: Reinforcing Empathy and Persuasiveness in Dialogue Systems." In Findings of the Association for Computational Linguistics: NAACL 2022, pp. 844-856. 2022.
- **Mishra, Kshitij**, Mauajama Firdaus, and Asif Ekbal. "Please be polite: Towards building a politeness adaptive dialogue system for goal-oriented conversations." Neurocomputing 494 (2022): 242-254.
- **Mishra, Kshitij**, Mauajama Firdaus, and Asif Ekbal. "Predicting Politeness Variations in Goal-Oriented Conversations." IEEE Transactions on Computational Social Systems (2022).
- Gupta, Deepak, Barenya Bikash Hazarika, Mohanadhas Berlin, Usha Mary Sharma, and **Kshitij Mishra**. "Artificial intelligence for suspended sediment load prediction: a review." Environmental Earth Sciences 80, no. 9 (2021): 1-39.
- Gupta, Deepak, Hemanga Jyoti Sarma, **Kshitij Mishra**, and Mukesh Prasad. "Regularized Universum twin support vector machine for classification of EEG Signal." In 2019 IEEE international conference on systems, man and cybernetics (SMC), pp. 2298-2304. IEEE, 2019.
- **Mishra, Kshitij** and Deepak Gupta. "Artificial Neural Networks in Hydrology." In An International Journal Of Engineering Sciences January 2019, Volume 31, pp. 52-59. 2018.

• Patent Filed USA:

- **Mishra, Kshitij***, Tamer Soliman*, Anil Ramakrishna, Aram Galstyan, and Anoop Kumar. "ENHANCING LARGE LANGUAGE MODELS BY EDITING SALIENT LAYERS". AMAZON, USA. (Work done during internship at Amazon.)

• **Under Revision:**

- Manisha Burja*, Aizan Zafar and Asif Ekbal. "EmpathoGuide: Empowering Minds, Nurturing Mental Health through Temperament-Centric Counseling". In ARR Aug 2024.
- **Mishra, Kshitij***, Aizan Zafar, and Asif Ekbal. "Care4U: I'm sorry to hear that you're not feeling well. It's important to prioritize your health and well-being". In ARR Aug 2024.
- Ahmad, Zishan*, **Kshitij Mishra***, Vaishakh Sreekanth Menon, Asif Ekbal. "The power of personalized persuasion: A Persona-Specific Approach for Persuasive Goal-Oriented Dialogue Systems." In ARR Aug 2024.
- **Mishra, Kshitij***, Anubhab Mandal*, and Asif Ekbal. A Persona-consistent Polite Persuasive Dialogue System: Reinforcing Persona, Politeness and Engagingness in Persuasive Dialogues. In IEEE Transactions on Artificial Intelligence, 2024.

• **Under Review:**

- **Mishra, Kshitij***, Manisha Burja* and Asif Ekbal. "Breaking Barriers: A Paradigm Shift in Technology Accessibility for Individuals with Physical Disabilities". In AAAI 2025.
- Zafar, Aizan*, **Kshitij Mishra***, and Asif Ekbal. "MedEx: Enhancing Medical Question-Answering with First-Order Logic-based Reasoning and Knowledge Injection". In COLING 2025.
- **Mishra, Kshitij***, Manisha Burja*, Medha Agarwal and Asif Ekbal. "Enhancing Counseling Systems: Investigating the Impact of Politeness and Empathy on Unbiased and Non-Toxic Responses". In COLING 2025.

Skills and Strengths



Languages	Reading, writing and speaking competencies for English, and Hindi.
Coding	Python, C++, C, \LaTeX
Frameworks and Platforms	Pytorch, TensorFlow, Scikit-learn, Huggingface, Google Colab
Research Interests	Natural Language Processing, GenAI, Conversational AI, Machine Learning, Deep Learning, Reinforcement Learning.
Misc.	Academic research, Teaching, Training, Consultation, \LaTeX typesetting, and Publishing.
Strengths	Hard-working, Ready to learn, Collaborative, Persuasive, Motivator & Leader

Miscellaneous Experience


Awards and Achievements

- 2017  **GATE Scholarship by Govt. of India** to pursue M.Tech.
- 2019  **Prestigious PMRF Fellowship by Govt. of India** to pursue Ph.D.




Courseworks Certifications

- 2018  **Introduction to Machine Learning** by Prof. Sudeshna Sarkar, IIT Kharagpur.
- 2019  **Machine Learning for Engineering and Science Application** by Dr. Balaji Srinivasan and Dr. Ganapthy Krishnamurthi, IIT Madras.

Other Certifications

- 2022  Organizer of GIAN Workshop on **Deep Learning Techniques for Conversational Artificial Intelligence**, Indian Institute of Technology Patna, 13 – 24 Apr 2022.

Miscellaneous Experience (continued)

- 2020  Organizer of CEP course on **Deep Learning for NLP**, Indian Institute of Technology Patna, 10 – 23 Jan 2020.
- 2018  Organizer of workshop on **Recent Trends in Computing and Computer Networking**, National Institute of Technology, Arunachal Pradesh, 3 – 7 Sep 2018.
- 2017  Organizer of workshop on **Recent Trends in Machine Learning, Big Data and IOT**, National Institute of Technology, Arunachal Pradesh, 13 – 17 Nov 2017.

References

Referee	Mail or Address
Dr. Asif Ekbal Associate professor Indian Institute of Technology Patna, India	asif.ekbal@gmail.com ; asif@iitp.ac.in
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