

Bhiman Kumar Baghel

COMPUTER SCIENCE PHD · UNIVERSITY OF PITTSBURGH

+1-412 844 1085 | bkb45@pitt.edu | <https://bhimanbaghel.github.io/> | [linkedin.com/in/bhiman-kumar-baghel](https://www.linkedin.com/in/bhiman-kumar-baghel) | [Bhiman](#)

Summary

Developing and refining techniques for memory editing in large language models (LLMs), enabling efficient updates to internal knowledge representations for improved adaptability and fairness without the computational cost of full finetuning. Previously, worked on advanced natural language understanding (NLU) tasks for Conversational AI, including multi-intent classification, slot filling, and handling out-of-domain queries.

Education

University Of Pittsburgh

Doctor of Philosophy - PhD in Computer Science [3.75/4]

PA, USA

2023 - 2028 Expected

Indian Institute of Technology (IIT)

Master of Technology - M.Tech. in Computer Science & Engineering [CGPA - 8.82/10]

Kharagpur, India

2017 - 2019

National Institute Of Technology (NIT)

Bachelor of Technology - B.Tech. in Computer Science & Engineering [CGPA - 6.82/10]

Jalandhar, India

2013 - 2017

Publications

A Fairness Analysis of Human and AI-Generated Student Reflection Summaries [\[Link\]](#)

ACL Workshop, 2024

Multimodal Understanding of Memes with Fair Explanations [\[Link\]](#)

CVPR Workshop, 2024

Smart Stacking of DL Models for Granular Joint Intent-Slot Extraction for Multi-Intent SLU [\[Link\]](#)

IEEE Access, 2021

Intent Focused Semantic Parsing and zero-shot Learning for OOD detection in SLU [\[Link\]](#)

IEEE Access, 2021

Patents

Methods and systems for determining missing slots associated with a voice command [\[Link\]](#)

US, AI, 2023

Method and system for mitigating physical risks in an IoT environment [\[Link\]](#)

US, AI, 2023

Methods and systems for enabling seamless indirect interactions [\[Link\]](#)

US, AI, 2024

Dynamic relevance time prediction in Smart Home

Filling Ongoing

Industry/Academic Experience

University of Pittsburgh

Graduate Research Assistant

PA, USA

Sep 2024 - Present

- Developing and refining techniques for memory/model editing in LLMs. Commonsense knowledge editing.

University of Pittsburgh

Teaching Assistant - Intro to NLP & Operating System

PA, USA

Sep 2023 - Apr 2024

- Conducted weekly recitations for class of 50 undergrad students. Graded quizzes and assignments.

Samsung Research Institute

Lead Engineer, Speech Recognition & Natural Language Processing - Voice Intelligence R&D

Bangalore, India

June 2019 - August 2023

- Role:** Research, Design and Develop solutions for Bixby's (Conversational AI) industry-level NLU challenges.
- CoSMIC - Contextual SmartThings Multi-Intent Composer:** Researched and commercialized BERT-based Multi-Intent NLU for SmartThings. Achieved **96% E2E Accuracy** with **12% performance boost**. Reduced the error rate by **67%**.
- Conversational AI:** Worked on complex scenarios of Multi-Intent and Slot Classification, Zero-Shot Out-Of-Domain Detection, Intelligent Device Resolution service, Bixby Recall - Chat Question Answering (QA) System and Knowledge Representation.
- Achievements:** Publications (x2), Patents (x4), MBO High Performance Bonus (x3), Samsung Excellence and other awards (x5), CLab Finalist.

IBM

Extreme Blue Intern - Template based Machine Learning Models for MVS

Bangalore, India

May 2018 - July 2018

- Designed and developed a time series forecasting, self-learning, DL system to predict, prevent or auto-resolve or assist in IT infrastructure Failure.
- Achievement:** [HA2] 2nd Runner Up - Audience Poll Category, IBM Extreme Blue Expo [\[Link\]](#)

Indian Institute Of Technology (IIT)

Teaching Assistant - Programming and Data Structure lab & DBMS

Kharagpur, India

July 2018 - May 2019

- Thought lectures on Programming & DBMS concepts to a class of 80+ undergrad students. Evaluated lab assignments and tests.

Projects

Chat-Enabled AI Web Agent for Flight Search [\[Link\]](#)

PhD Term Project, CMU

DCLL: A DL Model For Simultaneous Travel Time and Traffic Congestion Prediction [\[Link\]](#)

M.Tech. Thesis Project

Automatic Concept Map generation from text-based Learning Material [\[Link\]](#)

Term Project

Twitter Sentiment Analysis [\[Link\]](#)

B.Tech. Final Year Project

Skills

Specialization Machine Learning Engineering for Production (MLOps) [\[Link\]](#)

Programming Python, C/C++, JavaScript, LaTeX, Verilog

Deep Learning Keras, Tensorflow, Pytorch, Pytorch Lightning, MLFlow

Web Development Flask, Django, HTML5, CSS, Bootstrap, React

Graph DB Neo4j