

Sagalpreet Singh

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EDUCATION

Indian Institute of Technology Ropar

Bachelor of Technology in Computer Science and Engineering; CGPA: 9.31/10
Concentration in Artificial Intelligence; CGPA: 10/10

Rupnagar, India
May 2023

PUBLICATIONS

C=CONFERENCE, P=PREPRINT

- [P.1] **Dense and Diverse Goal Coverage in Reinforcement Learning** Sagalpreet Singh, Rishi Saket, Aravindan Raghuvier [Paper]
- [C.2] **Learning from Label Proportions and Covariate-shifted Instances** Sagalpreet Singh, Navodita Sharma, Shreyas Havaladar, Rishi Saket, Aravindan Raghuvier [UAI '25] [Paper]
- [C.1] **On Subset Selection of Multiple Humans to Improve Human-AI Team Accuracy** Sagalpreet Singh, Shweta Jain, Shashi Shekhar Jha [AAMAS '23 (Oral)] [Paper]

EXPERIENCE

Google DeepMind | *Pre-Doctoral Researcher*

Aug 2024 - Present

Projects: *Verifiable Problem Generation for Gemini Thinking; Preventing Mode Collapse in Multi-Goal RL [P.1]; Hybrid LLP for Ad-Conversion Modeling [C.2]; Active Retrieval for Continual Learning in Agents*

- Designed RL algorithm with **convergence guarantee** and **sample complexity bound** for preventing mode collapse in multi-goal environments; presented demo at Google DeepMind's **NeurIPS'25** kiosk; filed **provisional patent**
- Proposed novel objective function for **domain adaptation** to **weakly supervised** target domain; derived **sample complexity bound**; achieved **SOTA results** on public datasets; multi-million dollar impact on **Google Ads**
- Engineered scalable and **fully-verifiable curriculum generation** engine for improving thinking in **Gemini** models; contributed 38% weighted data in the Gemini thinking data revision; **>10% improvement** on downstream tasks like Math and NL Reasoning
- Enabling **continual learning** via active retrieval in **agents** to have **persistent non-parametric memory** that leads to compounded and lifelong improvement through experience

Oracle AI Services | *Member of Technical Staff*

Jun 2023 - Aug 2024

Projects: *Text-to-Speech model development, training and deployment; Supporting Job Deletion in Async Transcription Service*

- Built Oracle's **transformer-based** in-house **Text-to-Speech model** supporting **few-shot voice cloning**; worked with vendors for **high-fidelity data procurement**; **trained model on distributed Slurm cluster**; ran extensive evaluations against baselines showing **SOTA WER/CER** scores; deployed the model via **Triton inference server**; create API spec, implemented API backend, and generated SDK and documentation; handled **customer calls** for integrating the service into their applications
- Added support for deleting async transcription jobs with rigorous checks in place; implemented corresponding UI changes

GTML Lab @ IIT Ropar | *Undergraduate Researcher*

Mar 2022 - Oct 2022

Project: *Combining predictions in a human-AI team [C.1]*

- Developed an efficient algorithm based on Bayes' rule to combine multiple human labels with logits from ML models; significantly outperformed naive combination methods in image classification

Oracle Integration Cloud | *Software Engineering Intern*

June 2022 - Jul 2022

Project: *Support customer-tenancy based quota for email notifications*

- Developed **circuit breaker** to handle the **noisy neighbor problem** in the **email notification microservice** that is used more than a million times a day; modified UI to allow users to enter SMTP credentials
- Was offered full time role at the end of the internship

IPSA Lab @ IIT Ropar | *Department Engineering Project*

Jan 2022 - May 2022

Project: *Android App and Web Dashboard for tracking District Level Malnutrition*

- Worked on **SAMPAN** Android App used by 1200+ Anganwadi (courtyard-shelter) workers in India to log 50000+ data points every month; designed, developed and deployed dashboard on IIT Ropar servers for district officials; featured in **The Tribune**

HONORS & AWARDS

*=DECLINED

Google Research Travel Grant (USD 2000), **Microsoft Research Travel Grant (INR 120k)*** for presenting my work at AAMAS'23
NTSE Scholarship by Indian Government, top 1000 students | **Applied Scientist Internship*** based on Amazon ML Summer School
Institute Merit Scholarship, Best Poster, Best B.Tech. Project awards at IIT Ropar | **Top 0.1% in Physics** in Senior Secondary Exam