Sagalpreet Singh

Member Technical Staff, OCI AI Speech
B.Tech. in Computer Science and Engineering

+91-9872432329
sagalpreet60@gmail.com
Github | Website

EDUCATION

Degree/Certificate	Institute/Board	CGPA/Percentage
B.Tech. (CS Major)	Indian Institute of Technology Ropar	9.31/10
B.Tech. (AI Concentration)	Indian Institute of Technology Ropar	10/10

SCHOLASTIC ACHIEVEMENTS & AWARDS

- **Google Travel Grant** of USD 2000 for presenting my research at AAMAS '23
- **Microsoft Travel Grant** of INR 120,000 for presenting my research at AAMAS '23
- Selected for **Amazon ML Summer School** and was offered **Applied Scientist internship**
- **Institute Merit Scholarship** at IIT Ropar for exceptional academic performance
- **Best B.Tech. Project Award** at IIT Ropar on the National Technology Day
- **NTSE Scholarship** by the Government of India, given to the top 1000 students nationwide
- **All India Rank 1108** in IIT JEE-Advanced and **99.8 percentile** in JEE-Main out of 935,000 candidates
- **National top 1%** in NSEP 2019 conducted by IAPT
- **State top 1%** in NSEJS 2017 conducted by IAPT

PUBLICATIONS

- **AAMAS'23: On Subset Selection of Multiple Humans To Improve Human-AI Team Accuracy**
  Sagalpreet Singh, Shweta Jain and Shashi Shekhar Jha   Website
  - Presented an approach to merge the predicted labels from multiple humans with the model's probabilistic output
  - Accepted as a full paper in AAMAS 2023

WORK EXPERIENCE

- **Oracle Cloud Infrastructure**   *Jun 2023 - Present*
  Member Technical Staff - OCI AI Speech   Bengaluru, India
  - Building highly scalable state of the art AI based speech services

- **Chegg India**   *May 2022 - May 2023*
  Subject Matter Expert   Remote
  - Subject matter expert in Computer Science
  - Helped students with their doubts in various topics on Computer Science

- **Oracle Cloud Infrastructure**   *Jun 2022 - Jul 2022*
  Project Intern - Server Technology   Bengaluru, India
  - Developed circuit breaker to handle the noisy neighbor problem in the email notification microservice that is used more than 1 million times a day
  - Enhanced notification architecture by adding API endpoints to support sending emails using customer tenancy
  - Modified UI of the Oracle Integrations Platform to allow user to enter SMTP credentials
  - Was offered full time role at the end of the internship

- **IPSA Lab**   *Jan 2022 - May 2022*
  Department Engineering Project   India
  - Worked on SAMPAN Android App (Flutter) used by 1200+ of Anganwadi workers in India to log 50000+ data instances every month
  - Designed, developed and deployed dashboard on IIT Ropar servers for data analytics
  - Featured in The Tribune
  - Play Store Link, Product Demo Link

Key Projects

- **Diffusion Models for Audios** *Aug 2022 - May 2023*
  Dr. Abhinav Dhall Report
  - Proposed two novel diffusion model frameworks for audio generation: the cross-diffusion and the double diffusion
  - Cross-diffusion technique allows for conditional generation of high-quality audio without compromising on the output quality
  - Double-diffusion technique is designed to produce an unconditional paired set of instrumental sounds for chorus generation

- **OS Components** *Aug 2021 - Dec 2021*
  Dr. Balwinder Sodhi Github
  - Simulated 5 different services of an Operating System in C vis-à-vis dispatcher, hard-drive scheduling, memory allocation, deadlock detection, and file system
  - Experimented for different parameters to find optimal settings, such as different scheduling algorithms and different hard-drive configurations in hard-drive scheduling

- **Academic Portal** *Oct 2021 - Nov 2021*
  Dr. Viswanath Gunturi Github
  - Developed a multi-user standalone secure database application for academic portal of an institution with multiple constraints in PostgreSQL
  - Implemented stored procedures, functions, triggers and custom data types in PL/pgSQL

- **32-bit RISC-V ISA Simulator** *Feb 2021 - Apr 2021*
  Dr. TV Kalyan Github
  - Developed a GUI-based cross platform simulator for 32-bit RISC-V instruction set architecture in Python that supports 29 instructions including arithmetic, logical, data, and control instructions
  - Displays real-time changes that occur in the main memory, cache and registers
  - Supports pipelined execution with branch prediction and hazard detection

- **Priority Queue Performance Analysis** *Nov 2020 - Dec 2020*
  Dr. Puneet Goyal Github
  - Analyzed the performance of different Priority Queue implementations viz-a-viz arrays, binary heaps, binomial heaps and fibonacci heaps on graphs with different sizes and edge densities in C++
  - Generated test data (sparse and dense graphs with over 1000 nodes) using Python and visualized performance by plotting graphs in Matplotlib

Competitions & Rankings

- Among top 20 coders across India in **Oppo Inspiration Cup**
- Rank 198 (18th in India) in **Google Hash Code**
- Rank 238 in **Google Kickstart Round-C**
- Rank 84 in **Newton's Grand Contest**
- Rank 84 in **Codegoda 2021 by Agoda**
- Rank 106 in **ACM ICPC 2020 Pune-Gwalior Region**
- Rank 7 in **Amexpert Smartathon by American Express**
- Rank 10 in **Inter-IIT Collab Competitive Programming Competition, IIT-BBS**
- Expert on **Codeforces** (username: sagalpreet)

Positions of Responsibility

- **Academic Council Representative**, CS'19 Batch IIT Ropar
- **National Service Scheme Member**, Plantation and Cleanliness Drive IIT Ropar
- **Representative**, Coding Club IIT Ropar
- **Problem Setter**, DebugIT, Coding Club, Zeitgeist IIT Ropar
- **Organizer**, Fury Road, Robotics Club, Advitiya IIT Ropar