

Bhavdeep Singh Sachdeva

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Professional summary

Experienced Software Development Engineer with a strong background in AI and machine learning, specializing in large language models and NLP technologies. Proficient in Python, PyTorch, and modern NLP tools (NLTK, SpaCy, BERT, RoBERTa). Demonstrated success in applying AI to real-world applications, with a focus on developing and deploying neural networks in cloud environments (AWS). Committed to ethical AI development, with extensive research into the robustness and generalization of AI models. Actively seeks to integrate cutting-edge AI technologies into scalable, secure solutions.

Education

Arizona State University(ASU)

M.S. THESIS, COMPUTER SCIENCE

Tempe, AZ

August, 2019 - August, 2021

Panjab University(PU)

B.TECH., COMPUTER SCIENCE

Chandigarh

July, 2012 - June, 2016

Publications

Real-Time Visual Feedback Benchmark Creation:

EACL, 2023

Anjana Arunkumar, Swaroop Mishra, Bhavdeep Sachdeva, Chitta Baral and Chris Bryan

Co-authored a paper on the creation of benchmarks for real-time AI applications, focusing on the integration of human feedback loops to enhance model reliability and performance.

NumGLUE: A Suite of Fundamental yet Challenging Mathematical Reasoning Tasks:

ACL, 2022

Swaroop Mishra, Arindam Mitra, Neeraj Varshney, Bhavdeep Singh Sachdeva, Peter Clark, Chitta Baral, Ashwin Kalyan

Contributed to the development of a benchmark suite for evaluating the mathematical reasoning capabilities of AI models, highlighting the application of NLP in complex reasoning tasks.

Generalized but not Robust? Understanding the Effects of Out-of-Domain Generalization Methods:

ACL, 2022

Tejas Gokhale, Swaroop Mishra, Man Luo, Bhavdeep Singh Sachdeva, Chitta Baral

Investigated the generalization capabilities of AI models across diverse datasets, emphasizing the importance of robustness in AI deployments.

DQI: A Guide to Benchmark Evaluation:

ICML Workshop, 2020

Swaroop Mishra, Anjana Arunkumar, Bhavdeep Sachdeva, Chris Bryan, Chitta Baral

Introduced a comprehensive guide for evaluating AI models, focusing on uncertainty and robustness, critical for developing dependable AI systems.

Do We Need to Create Big Datasets to Learn a Task?:

SUSTAINLP, 2020

Bhavdeep Sachdeva, Swaroop Mishra

Examined the efficiency of AI learning with smaller datasets, advocating for cost-effective and scalable AI training methods.

Teaching Experience

Arizona State University

GRADUATE SERVICES ASSISTANT

Tempe, AZ, USA

Fall, 2020

- Delivered laboratory lectures for Principles of programming language (CSE 100)
- Creating online exams
- Office hours and review sessions.

Arizona State University

GRADUATE TEACHING ASSISTANT

Tempe, AZ, USA

Fall, 2019

- Delivered laboratory lectures for Principles of programming language (CSE 100) to 241 students.
- Held office hours, conducted review sessions and proctored exams.

Research Experience

AYA, Cohere for AI

Remote, USA

PUNJABI LANGUAGE DATA SPECIALIST

July, 2023 - December, 2023

- Developed and curated a rich dataset of Punjabi text samples, improving the accuracy and inclusivity of Cohere's multilingual embed models.
- Played a pivotal role in Cohere's multilingual NLP efforts, ensuring robust Punjabi language representation in semantic search, cross-lingual content moderation, and customer feedback analysis.

Cognition and Intelligence Lab, Arizona State University

Tempe, AZ, USA

RESEARCH ASSISTANT

August, 2020 - July, 2021

- Co-developed a benchmark to expose weaknesses in NLP models' numerical reasoning capabilities ("NumGLUE: A Suite of Fundamental yet Challenging Mathematical Reasoning Tasks").
- Investigated the generalization and robustness of AI models across different domains ("Generalized but not Robust? Understanding the Effects of Out-of-Domain Generalization Methods").

Cognition and Intelligence Lab, Arizona State University

Tempe, AZ, USA

RESEARCH ASSISTANT

January, 2020 - May, 2020

- Introduced a framework for evaluating AI model benchmarks, emphasizing data quality and discouraging artifact creation ("DQI: A Guide to Benchmark Evaluation").
- Explored the feasibility of training effective AI models with smaller datasets to reduce computational costs ("Do We Need to Create Big Datasets to Learn a Task?").

Professional Experience

GuardDuty, Amazon Web Services

Seattle, WA, USA

SOFTWARE DEVELOPMENT ENGINEER

August, 2021 - Present

- Develop a model to combine security findings across AWS resources to identify security threats.
- Design an API to replicate resources across various AWS Regions.
- Designing systems for tier-1 services for notifying, storage and management of security services opt in settings.
- Developed with emphasis on security, software quality, scalability, and operational readiness.

Stealth, Unisys

Bangalore, India

SYSTEMS ENGINEER

July, 2016 - June, 2019

- Spearheaded the integration of LogRhythm's security intelligence technology, leading to a company partnership (Press Release) and enhanced threat detection capabilities.
- Contributed to development by adding support for IPP features in Enterprise Output Manager 14.0 (Release Notes), enabling secure data transfer.

Certifications

Generative AI with Large Language Models

Credential ID MHFQVM3UEBR3

Iss. Apr 23, 2024

- Acquired deep insights into generative AI by completing an intensive course focusing on the lifecycle of LLMs, including data gathering, model selection, and deployment, alongside learning to optimize models using empirical scaling laws for diverse project constraints.
- Enhanced practical skills in deploying and fine-tuning transformer-based models for specific use cases in real-world applications, gaining proficiency in advanced training and tuning techniques such as PEFT and instruction fine-tuning across multiple tasks.

Awards and Honors

Grand Prize Winner of Unisys India Hackathon

, Bangalore, India August, 2018

Silver Recognition Award

, Bangalore, India February, 2018

Fan Favorite Award in Winter Hackfest India

, Bangalore, India December, 2017

Gold recognition award for exceptional achievement and contribution to Unisys.

, Bangalore, India December, 2017

3rd Position in 14th Asian Roller Sports Championship

, Kaohsiung, Taiwan July, 2010

National Child Award for Exceptional Achievement

, New Delhi, India November, 2009

Highest civilian honour for achievers under the age of 18, awarded by the President of India.