

Bhavdeep Singh Sachdeva

Bellevue, WA

✉ +1 480-408-0760 | 📩 bssachde@asu.edu | 🏷 <https://bhavdeep98.github.io/> | 🌐 <https://www.linkedin.com/in/bssachde/> | 💬 31768896

Professional summary

Generalist Software Development Engineer with experience designing durable distributed systems, security platforms, and analytics infrastructure, informed by a strong foundation in AI research and applied machine learning.

Professional Experience

GuardDuty, Amazon Web Services

Seattle, WA, USA

SOFTWARE DEVELOPMENT ENGINEER

August, 2021 - Present

- Built the organizational control plane for AWS security services by designing an Account Management Service that enabled hierarchy-aware workflows across GuardDuty, Security Hub, Macie, and Detective.
- Reduced new-region launch time from weeks to **under 1 day** by introducing fully automated region build and deployment pipelines, enabling rapid global scaling.
- Scaled security configuration across accounts and regions by extending an internal **SQS/SNS-based replication service** to support organizational hierarchies and cluster-level propagation within **2 months**.
- Standardized security resource management by unifying organizational and replication semantics, enabling consistent policy application at scale across AWS security services.
- Led the design and ownership of a centralized security data platform, ingesting **organization-wide AWS configuration data** into S3 (Parquet) for analytics and detection.
- Implemented and owned a production-grade **Delta Lake architecture** using EMR and Spark, supporting schema evolution, backfills, and garbage collection for long-term operability.
- Enabled Security Hub vulnerability detection at scale by leading the inventory pipeline powering **current and upcoming security findings**.

Cognition and Intelligence Lab, Arizona State University

Tempe, AZ, USA

RESEARCH ASSISTANT

August, 2019 - August, 2021

- Conducted foundational research on **transformer-based models** prior to large-scale deployment of LLMs, focusing on failure modes not visible through benchmark accuracy alone.
- Co-developed **NumGLUE**, a benchmark exposing systematic weaknesses in numerical reasoning for NLP models, contributing to early understanding of reasoning limitations in transformers.
- Investigated **data quality and benchmark reliability** through the DQI framework, addressing spurious correlations and dataset artifacts at the source rather than through post-hoc model fixes.
- Studied **robustness and out-of-domain generalization**, highlighting gaps between in-distribution performance and real-world model behavior.
- Designed evaluation approaches incorporating **human feedback and UI/UX considerations** to reduce bias and improve reliability in real-time AI systems.

Cohere for AI

Remote

PUNJABI LANGUAGE DATA SPECIALIST

July, 2023 - December, 2023

- Curated and validated high-quality Punjabi language datasets to improve representation in multilingual embedding models used in production systems.
- Improved robustness of semantic search, content moderation, and customer feedback analysis for Punjabi-language inputs through data-driven model support.
- Contributed to Cohere's multilingual NLP efforts by emphasizing data quality, linguistic coverage, and real-world usability over benchmark-driven optimization.

Stealth, Unisys

Bangalore, India

SYSTEMS ENGINEER

July, 2016 - June, 2019

- Drove a hackathon concept into production by initiating and leading the integration of LogRhythm's security intelligence platform, resulting in a formal Unisys-LogRhythm partnership that strengthened enterprise threat detection (<https://www.unisys.com/news-release/unisys-adds-logrhythm-security-intelligence-technology/>).
- Delivered secure IPP support in Enterprise Output Manager 14.0, improving reliability and standards-compliant data transfer for enterprise customers.

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.

Education

Arizona State University(ASU)

Tempe, AZ

M.S. THESIS, COMPUTER SCIENCE

August, 2019 - August, 2021

Panjab University(PU)

Chandigarh

B.TECH., COMPUTER SCIENCE

July, 2012 - June, 2016

Certifications

Generative AI with Large Language Models

Credential ID MHFQVM3UEBR3

Iss. Apr 23, 2024

Red hat Certified Engineer

Credential ID 140-155-334

Iss. Aug 2014 – Exp. Aug 2017

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.

Skills

Natural Language Processing (NLP) | Machine Learning | PyTorch | TensorFlow | Amazon Web Services (AWS) | Security | Python | Git | Docker | Product Strategy | Agile Methodologies | Stakeholder Management | Large Language Models | BERT | RoBERTa | GPT | Transformers | Data Analysis | Data Engineering | CI/CD | Kubernetes | Feature Prioritization | Roadmap Development | Cross-functional Collaboration | Technical Leadership | Research Methodology | AI Ethics | Multilingual NLP | Cloud Architecture | Threat Detection