



# ANIMESH JHA

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## Academics

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### Stanford University

Sept 2024 - June 2026

*MS in Computer Science - AI Specialization*

### Indian Institute of Technology, Kharagpur

2019 - 2023

*Computer Science and Engineering (B.Tech)*

9.77/10.0

## Internship and Research Experience

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### Stanford Trustworthy AI Research Lab

August 2024 – Present

*With Prof. Sanmi Koyejo*

*Stanford*

- Identifying metrics (memorization, MIA accuracy, etc) which allow usage of training history for better machine unlearning
- Analysing how choice of checkpoint relates to quality and "ease" of  $(\epsilon, \delta)$  machine unlearning via theoretical guarantees

### Rubrik, Inc.

June 2023 – August 2024

*Software Engineer – Core Infra (Platform) Team*

*Bangalore*

- Decoupled customer URL subdomain and internal account name across SaaS and physical products to support URL renaming
- Reduced upgrade time by 45% and saved 120 developer hours daily, through safe parallelization of orchestration steps
- Improved support for production clones with custom configurations in the context of end to end tests and system tests
- Led hackathon project to develop a managed solution for sensitive data analysis through Intel SGX hardware enclaves

### Secure and Byzantine Resilient Non-Convex Optimisation

December 2021 – October 2023

*With Prof. Simon Du*

*University of Washington*

- Designed and analysed Byzantine Fault Tolerant algorithms for efficient distributed training with non convex loss functions
- Established lower bounds on the number of iterations for finding  $\epsilon$  approximate critical points in the presence of adversaries
- Analysing how such algorithms can be used for Federated Learning with secure aggregation, using Zero Knowledge Proofs

### Rubrik, Inc.

May 2022 – July 2022

*Software Engineering Intern – Platform Team*

*Bangalore*

- Migrated datapipelines handling 10+TB per day from AWS EMR to Kubernetes using the Spark Operator for Kubernetes
- Increased number of bundles processed per hour by 35% reduced the EC2 compute cost by 40% and overall cost by 67%

### Communication Efficient Distributed Learning

May 2021 – August 2021

*With Prof. Jihong Park*

*Deakin University*

- Improved communication efficiency of Federated Learning by reducing model sizes via sparsification using their lottery tickets
- Used supermasks to prune server-side models, reducing the model size while maintaining accuracy and client-side data privacy

### Autonomous Ground Vehicle Research Group

March 2020 – September 2021

*With Prof. Debashish Chakravarty*

*IIT Kharagpur*

- Implemented local Frenet Frame pathplanner. Achieved 5x decrease in latency via OpenMP and cache access optimisation
- Participated in the Indy Autonomous Challenge. Created optimal racelines and a novel vehicular Model Predictive Control
- Created complex models suitable for high speeds with provisions for overtaking and drafting. Tuned to racetrack conditions

## Publications

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Local NMPC on Global Optimised Path for Autonomous Racing [PDF] [Code] OCAR Workshop ICRA 2021

[Re]: Differentiable Spatial Planning using Transformers [PDF] [Code] MLRC 2021 Fall

[Re]: Contrastive Learning of Socially-aware Motion Representations: [PDF] [Code] MLRC 2021 Fall

## Projects

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Resource Efficient Domain Specific QA | Inter IIT Tech Meet 11 – Silver (Team Captain) | [Report] | [Code] Feb 2023

- Combined sentence level context retrieval with an ensemble of noisy tuned LLMs with contrastive loss to extract answer span
- Achieved low latency via ONNX, Caching and Quantization. Experimented with MAML for efficient domain adaptation

Bosch Model Extraction for Video Transformers | Inter IIT Tech Meet 10 – Gold | [Code] March 2022

- Performed model extraction attack on Swim-T and Movinet in greybox setting by a MARS model trained on augmented data
- Used DFME with Conditional GAN and adversarially generated synthetic examples (via perturbation) in the blackbox setting

Discord Bot for Quizzing | Personal | [Code] June 2020

- Created a bot to make online quizzing easier. Helped the Quiz Club to continue during the pandemic, used by 100+ quizzers
- Used Discord.JS to implement features like scoreboard and buzzers and to automate delivery of messages to individuals

## Achievements

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- Secured All India Rank 60 in the Kishore Vaigyanik Protsahan Yojna (SA, 2017) conducted by the Government of India
- Awarded the National Talent Search Examination Scholarship (2017) by the Government of India.
- National Finalist (amongst the top 5 teams out of 25000+ participants) at the Uber Hacktag 1.0 2021.
- ACM ICPC Regionalist: Qualified for and placed 44th out of 7000+ teams at the Gwalior Pune ICPC Regionals 2020.

## Technical Skills

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- Languages:** C++, Python, Go, C, L<sup>A</sup>T<sub>E</sub>X, Scala, Verilog
- Libraries:** OpenMP, Eigen, Selenium, BeautifulSoup, Pandas, Flask, PyTorch, Scikit-Learn, HuggingFace, Numpy, Jax
- Tools:** Git, RTI, ROS, Terraform, Bazel, Docker, Kubernetes, AWS, Azure, Heroku, Spark, Snowflake, Kafka, Blender