

# Abhimanyu Hans

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## RESEARCH INTERESTS

My research interests revolve around ensuring the security, robustness, and fairness of machine learning models.

## EDUCATION

### University of Maryland – College Park

MS Computer Science

Fall 2022 – May 2025 (Expected)

- Advised by **Prof. Tom Goldstein**
- Relevant Classes: AI-Based Software Engineering, Human-AI Interaction, Advanced Numerical Optimization

### International Institute of Information Technology Bangalore

Post Graduation Diploma in Software Development

2020 – 2021

- Awarded top performer award for highest academic achievements

### University of Delhi

BS Mathematics (Honours)

2014 – 2017

## PUBLICATION

- Spotting LLMs With Binoculars: Zero-Shot Detection of Machine-Generated Text ([arXiv](#)) ([code](#)) ([demo](#))  
**A. Hans**, A. Schwarzschild, V. Cherepanova, H. Kazemi, A. Saha, M. Goldblum, J. Geiping, T. Goldstein

## RELEVANT WORK EXPERIENCE

### University of Maryland Institute for Advanced Computer Studies

College Park, MD

Graduate Research Assistant

May 2023 - Present

- Working on language models from security and alignment perspective. I'm particularly interested in self-play

### PayPal

Remote Work (India)

Machine Learning Engineer (Model Validation Team)

Oct 2021 - Aug 2022

- Automated model monitoring framework, saving 70+ FTE weeks, and deploying interactive dashboards for multiple model-specific teams (spanning 100+ model use cases)
- Employed quantitative metrics (AUC, Accuracy, KS-statistic, population stability index) and qualitative analysis (LIME) to enhance model performance and feature interpretability.

### HDFC Bank

Mumbai, India

Machine Learning Engineer

Jan 2020 - Oct 2021

- Created an anomalous transaction detection system using AutoEncoder and Isolation Forest algorithms, enhancing fraud detection capabilities to achieve 25% recall at 0.1% FPR
- Developed a user-friendly model repository CRUD application using Flask, Jinja Templates, and PostgreSQL, streamlining internal model management processes.

### Think360.ai

Mumbai, India

Associate Data Scientist

Oct 2018 - Jan 2020

- Developed a random Forest model for predicting repossession values of construction equipment, achieving a 0.84 adjusted R-squared score.
- Developed an automated business intelligence pipeline using Tableau, R, and Bash, serving over 5000 FTE with dashboards and email reports.

## SKILLS

- **Languages & Tools:** Python, Java, JavaScript, SQL, Git, Docker, Linux, AWS, Shell
- **Frameworks:** PyTorch, HuggingFace (transformers, accelerate, peft), Flask, React, Tableau, Pandas, NumPy, Sklearn, SpringMVC

## PROJECTS (MACHINE LEARNING & SOFTWARE ENGINEERING)

### Multi-Armed Bandit Algorithms

([code](#))

A *NumPy*-based implementation of Greedy, Epsilon-Greedy, and Upper Confidence Bound algorithms along with their empirical performance analysis.

### Active Learning

([code](#)) ([slides](#))

An approach to ML wherein the learner queries the user with best instance for a label.

### Model Repository

([code](#))

Full-stack Flask app serving as a repository for models and their performance metadata.