

# YASH MAURYA

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## Objective

I am passionate about the convergence of Privacy, Machine Learning, Responsible and Explainable AI. I hope to work on reliable and robust privacy designs for the societal good.

## Education

<b>Carnegie Mellon University, Pittsburgh</b> <i>Master of Science in Information Technology - Privacy Engineering</i>	<b>Aug 2023 – Dec 2024</b>
<b>Manipal Institute of Technology, Manipal</b> <i>Bachelors of Technology in Computer and Communication Engineering</i>	<b>July 2018 – July 2022</b> GPA: 8.49/10

## Experience

<b>Samsung Electronics</b> <i>R&amp;D Engineer</i>	<b>July 2022 – Aug 2023</b> Noida, India
<ul style="list-style-type: none"><li>Submitted proposal for Samsung Discover 2.0 by adding new features using knowledge graphs &amp; panoptic segmentation</li><li>Collaborated with IIT-Delhi to engineer innovative taxonomy construction pipelines from raw data, enhancing robustness of Samsung News' new recommendation system</li><li>Leveraged C++, Python, PyTorch, Keras and Android SDK to drive project success</li></ul>	
<b>Samsung Electronics</b> <i>R&amp;D Intern</i>	<b>Feb 2022 – June 2022</b> Noida, India
<ul style="list-style-type: none"><li>Researched deep reinforcement learning in video compression, producing a comprehensive literature survey</li><li>Engineered scalable lightweight recommendation systems using deep learning tailored for mobile devices</li><li>Applied Java, Python, Tensorflow.js, PyTorch, and Android to develop and deploy recommendation systems</li></ul>	
<b>DynamoFL (YC W22)</b> <i>Federated Learning Researcher</i>	<b>Feb 2021 – Aug 2021</b> Remote
<ul style="list-style-type: none"><li>Researched convergence optimization methods and communication efficient techniques for using Federated Learning with Differential Privacy for computer vision datasets</li><li>Implemented secure server aggregation algorithms to replicate claimed accuracy real-world datasets</li><li>Conducted experiments in various data settings, including Vertical (SplitNN), Horizontal, and Hybrid FL</li><li>Utilized PySyft, Flower, Opacus, PyTorch, Python, JavaScript, HTML, CSS, and AWS to accomplish project goals</li></ul>	

## Publications

<b>Federated Learning for Colorectal Cancer Prediction</b>   <a href="#">Publication link</a>	<b>June 2022</b>
<ul style="list-style-type: none"><li>Developed a Federated Learning system for Colorectal Cancer Prediction, preserving client privacy while achieving an 86.2% accuracy, on par with the centralized model for IID clients</li><li>Accepted at IEEE Global Conference for Advancement in Technology '22</li></ul>	
<b>Improved variants of Score-CAM via Smoothing and Integrating</b>   <a href="#">Poster link</a>	<b>June 2021</b>
<ul style="list-style-type: none"><li>Improved Score-CAM by adding smoothing and integration functions as suggested in the SmoothGrad and IntegratedGrad papers.</li><li>Accepted as an extended abstract at RCV workshop at CVPR'21</li></ul>	
<b>IS-CAM: Integrated Score-CAM for axiomatic-based explanations</b>   <a href="#">Preprint link</a>	<b>Oct 2020</b>
<ul style="list-style-type: none"><li>Inspiration from integration in "IntegratedGrad" and combine it with Score-CAM to conduct faithfulness evaluations.</li><li>IS-CAM performs better than SS-CAM and Score-CAM in terms of faithfulness evaluations, considering the VGG-16 as our baseline model.</li></ul>	

## Projects

<b>Space-JEDI (Junk Elimination and Debris Interception)</b>   <i>Real-time Path Optimization, Web Dev</i>	<b>Sept 2023</b>
<ul style="list-style-type: none"><li>Innovative solution predicts satellite positions and plots optimal space garbage collector flight plans</li><li>By continuously tracking and analyzing real-time data from NASA, JEDI is able to effectively monitor and manage objects in Earth's orbit</li><li>Space Theme Winner at HackCMU'2023 hackathon, built in under 20 hours</li></ul>	

## Skills

**Privacy and AI:** Privacy Regulations Compliance, Differential Privacy, Data Anonymization, Secure Computing, Privacy-Enhancing Tools, Data Ethics, Secure Communication Protocols, Risk Assessment, Cybersecurity Awareness

**Soft Skills:** : Cross-functional Collaboration, Leadership, Project Management, Ethical Decision-Making