

ANSUL

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<https://scholar.google.com/citations?user=&user=LunfsKIAAAAJ>

An independent, driven, and fast-learning software developer and researcher with professional experience in Blockchain and Machine Learning. Passionate about minimizing the gap between social good and technology, led key research to help end the Agronomics and combat privacy issues regarding transparency in the supply chain. My research interests revolve around improving the security of the system, maintaining the integrity of the technological architecture and building the efficient machine learning models.

EDUCATION

- 2022-2026 CSE Department from COER University, Roorkee, India
- One Semester in IIT Mandi IHub HCI for Training
 - Studied Blockchain and Machine Learning
- 2021 Intermediate from Science Hons – Army Public School, Roorkee, India (82.4%)

RESEARCH

Research Interests

Blockchain, Deep Learning, Semi-Supervised learning, learning with noisy labels.
Computer Vision: object detection, image/instance segmentation, image classification.
Applications: AI for social good, Enhancing the capacity of the Blockchain, cybersecurity.

Publications – * denotes equal contribution

[Agri-Chain: A Blockchain-Empowered Smart Solution for Agricultural Industry](#). In: Sumithra, M.G., Sathyamoorthy, M., Manikandan, M., Dhanaraj, R.K., Ouaisa, M. (eds) Computational Intelligence in Internet of Agricultural Things. Studies in Computational Intelligence, vol 1170. Springer, Cham.

PROJECTS

Live Docs (2023, sup. Prodigy Infotech)

Developed a robust real-time document collaboration platform: Engineered a scalable full-stack solution using React, Node.js, and MongoDB for seamless multi-user editing. Implemented WebSocket technology for real-time updates and conflict resolution. Optimized database queries and implemented caching strategies to enhance performance for large documents.

Emo-Gen (2024, sup. Prodigy Infotech)

Created an advanced emotion-based content generation system: Designed and implemented a deep learning model using TensorFlow and Keras to analyze text sentiment and generate contextually appropriate emotional responses. Developed a RESTful API using Flask to integrate the ML model with a React-based front-end. Utilized Docker for containerization and deployed the application on AWS for scalability.

Log Analyzer (2024, sup. COER University)

Built a sophisticated log analysis and visualization tool: Developed a high-performance log parsing engine using Python and Spark for processing large-scale system logs. Implemented advanced data visualization techniques using D3.js and Plotly to provide actionable insights. Integrated Elasticsearch for efficient log storage and retrieval, with Kibana for custom dashboard creation.

t3gallery (2023)

Engineered a modern, responsive image gallery application: Utilized React and TypeScript to create a performant front-end with lazy loading and infinite scrolling. Implemented a Node.js backend with Express for RESTful API endpoints and image processing. Integrated AWS S3 for scalable image storage and CloudFront for content delivery optimization.

Anime_Gen (2024, sup. COER University)

Developed an AI-powered anime character generation system: Implemented a Generative Adversarial Network (GAN) using PyTorch to create unique anime characters. Designed a web interface using Vue.js for users to customize and generate characters. Utilized CUDA for GPU acceleration and deployed the model on Google Cloud Platform for scalable inference.

AI-Web-Scraper (2024)

Created an intelligent web scraping and data extraction tool: Engineered a robust scraping system using Python, Scrapy, and BeautifulSoup4 with proxy rotation and user-agent spoofing for enhanced reliability. Implemented machine learning techniques with scikit-learn for intelligent data extraction and classification. Developed a user-friendly interface using Django and Celery for managing and scheduling scraping tasks.

SKILLS

Languages and packages – MERN Stack, Python, PyTorch, sklearn, numpy, pandas, matplotlib, C++, zsh, bash.

Machine Learning – Deep learning (CNNs), computer vision (classification, detection, segmentation), unsupervised learning, hyperparameter search, importance sampling, representation learning, weakly-supervised learning, data programming.
Tools – LaTeX, Git, Vim, Mathematica, HTML/CSS/Javascript, Typescript, SQL, Docker, SSH, openAPI.
Research skills – Academic writing, Agile project management, Architecture Engineering, Mentoring, research ideation.
Languages – English (Fluent), Hindi (native).

WORK

Artificial Intelligence Intern – IHub IIT Mandi (August 2024 – Current)

Machine Learning: Designing and training robust models using Python, TensorFlow, and PyTorch to analyze and validate datasets, ensuring high levels of precision in AI outputs. I focus on optimizing algorithms for better performance and scalability.
Web Development: Building and maintaining web interfaces that allow for real-time data visualization and user interaction with AI models. Utilizing the MERN stack (MongoDB, Express.js, React, Node.js), I develop responsive and user-friendly web applications that support AI and data-driven projects.

✓ Classification – Computer Vision – Deep Learning – Pandas – Serverless

Machine Learning Intern – Prodigy Infotech (April 2024 – May 2024)

Gained understanding of malware detection and file clustering, and established project scope. Identified and aggregated data from multiple sources, including MySQL databases and Cassandra keyspaces. Performed data cleaning, feature extraction, computed consistency metrics, and created data visualizations.

✓ Data wrangling – Data cleaning – PyTorch – Python – Redis – Kubernetes – Microservices – Middleware

Web Development Extern – InternPe (September 2023 – October 2023)

Through this role, I have honed my expertise in both machine learning and full-stack web development, contributing to innovative projects at the intersection of databases integrity and data quality assurance.

Strategic Planning: Breaking down projects into manageable tasks, setting clear milestones, and ensuring alignment with organizational goals. I prioritize tasks based on impact and urgency, enabling the successful and timely delivery of projects.

✓ MERN – PostgreSQL – Ethereum – GitHub – WebRTC – pub-sub

PERSONAL INTERESTS

Volunteered in National Level Events – Recieved Apsaar Award, from the Board Member of the Apsaar Committee(Service Before Self). (2017)

NCC Cadet – NCC Candidate with A grade on the A certificate with the honorary medal of the excellence in the field.(2018)

Mentoring – Mentored various students in my College to get the grasp in the Data Structures and Algorithms.

Hackathons – Participated in enormous amount of Hackathons and built incredible projects for the community. Making the coding community and collaboration to increase by sharing ideas and learning different aspects of the technological usecase.

Learning – Learned from top mentors at the IHub IIT Mandi and built Machine Learning models under the guidance of Head of the Department and enhance the capabilities of the Governmental Issues on National Level.(2024)

Hobbies and interests – Hiking, Road-Tripping, Running, Reading Books, Cooking.