

Ruthu H. Rooparaghunath

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SUMMARY

PhD candidate in Computer Vision at the University of Amsterdam, working on video understanding and human-aligned video AI for public safety in the HAVA lab under Dr. Cees Snoek and Dr. Marie Lindegaard. Prior work applies computer vision in the field — remote sensing for agriculture and for conservation with the WWF — alongside neuro-symbolic learning and privacy-preserving ML, with work published at ICCV workshops, IEEE EuroS&P, CANS and NASA SARI. Completed a two-year MSc in AI in 10 months, graduating in the top 5% of the cohort. **Open to research internships and collaborations.**

EDUCATION

University of Amsterdam (UvA)

Amsterdam, Netherlands

Ph.D. Candidate, Human-Aligned Video AI

Sep 2024 - Present

Dissertation: Human-Aligned Video-AI for Public Safety (Advisors: Dr. Cees Snoek, Dr. Marie Lindegaard)

Vrije Universiteit Amsterdam

Amsterdam, Netherlands

M.Sc. Artificial Intelligence — Advanced Major in CS, specializing in Applied ML

2023

Thesis: Comparative Analysis of ML Models on Real-World Building Datasets (Dr. Victor de Boer), 8.5/10

Two-year programme completed in 10 months · Top 5% of graduates

Ashoka University

Sonipat, India

B.Sc. (Hons.) Computer Science — Advanced Major, Applied ML

2022

Thesis: AI and Remote Sensing: Transferring Learned Patterns to Map Agriculture at Scale (Dr. Debayan Gupta, Dr. Meghna Agarwala)

GPA 3.86/4.00 · Magna Cum Laude · Ashoka Scholars Programme

First student in the university's history to conduct research in the first year; granted exemption to take a third-year research course (ISM) as a first year

PUBLICATIONS AND CONFERENCE PROCEEDINGS

"HierVision: Standardized and Reproducible Hierarchical Sources for Vision Datasets", Kasarla, T., **Rooparaghunath, R. H.**, D'Arrigo, S., Mago, G., Jha, A., Ayoughi, M., Mishra, S. S., Manzano Rodríguez, A., Long, T., Ghadimi Atigh, M., van Spengler, M., Mettes, P., *ICCV Beyond Euclidean Workshop*, 2025.

Rooparaghunath, R. H., Srivastava, S. "Combining crowd-reported and field data for large-scale tea plantation classification in Assam, India", *NASA Southeast Asia Research Initiative (SARI) South Asia Synthesis Consortium*, 2024. First prize, poster presentation.

"Tight Short-Lived Signatures" (poster), Mondal, A., **Rooparaghunath, R. H.**, Gupta, D., *IEEE European Symposium on Security and Privacy (EuroS&P)*, 2023. arXiv:2310.12723.

"Randgener: Distributed Randomness Beacon from Verifiable Delay Function" (poster), Mondal, A., **Rooparaghunath, R. H.**, Gupta, D., *IEEE European Symposium on Security and Privacy (EuroS&P)*, 2023. arXiv:2310.12693.

"FLATEE: Federated Learning Across Trusted Execution Environments", Mondal, A., More, Y., **Rooparaghunath, R. H.***, Gupta, D., *IEEE European Symposium on Security and Privacy (EuroS&P)*, 2021.

"Trenchcoat: Human-Computable Hashing Algorithms for Password Generation", **Rooparaghunath, R. H.**, Gupta, D., *International Conference on Cryptology and Network Security (CANS)*, 2020.

* Co-first author

AWARDS AND HONORS

First Prize, poster presentation, NASA SARI South Asia Synthesis Consortium	2024
Best Entrepreneurial Idea, VU faculty, Entrepreneurship in Analytics & AI	2023
Best Undergraduate Thesis, Ashoka CS faculty, selected from ~100 graduating students	2022
Research Excellence Award, awarded once every 2-3 years to 1 student from a cohort of ~500	2021
Departmental Service Excellence Award, for founding the university's first WiDS conference and research contributions	2021
Dean's List, Ashoka University	2019, 2020, 2021, 2022
Merit Award Special Mention for Social Responsibility and Community Outreach, selected from ~1,000 students	

INVITED TALKS AND PRESENTATIONS

Invited talk on video AI for public safety to Prof. Jean-Louis van Gelder, Director, Max Planck Institute for the Study of Crime, Security and Law (Freiburg), and his research group	Jul 2026
Invited talk to visiting researchers from across Germany, funded by the German Federal Ministry of Research, Technology and Space	May 2026
Presentation of joint work with co-PhD candidate Dasha Simons, AI Surveillance Symposium, Rotterdam	Apr 2025

ACADEMIC SERVICE

Reviewer, European Conference on Computer Vision (ECCV)	2026
Reviewer, ECCV Beyond Euclidean Workshop (BEW)	2026
Reviewer, ECCV Video4Real Workshop	2026

RESEARCH EXPERIENCE

University of Amsterdam — Human-Aligned Video AI (HAVA) Lab Amsterdam, Netherlands
Doctoral Researcher Sep 2024 – Present

- Researching video AI for public safety under Dr. Cees Snoek and Dr. Marie Lindegaard, with a focus on aligning video models to human judgement

HumaneAI — in collaboration with UCL and VU Amsterdam Amsterdam, Netherlands
Researcher (Supervisor: Prof. Filip Ilievski) Jan – Aug 2024

- Developed neuro-symbolic learning methods combining graph neural networks with knowledge graphs, building KGs from a learner's existing knowledge and using analogy to link it to target concepts.

AI for Conservation & Sustainability — with WWF (World Wide Fund for Nature) India / Netherlands
Lead Researcher (Supervisors: Dr. Meghna Agarwala, Dr. Debayan Gupta) May 2022 – May 2023

- Combined multi-temporal, multi-satellite optical, radar and topography data to map tea plantations across India — including smallholder mixed-cropping farms — and identify where they intersect elephant migration paths, supporting WWF work to reduce dangerous human-elephant encounters.

Ashoka University — AI for Agriculture (Undergraduate Thesis) Sonipat, India
Researcher (Supervisors: Dr. Debayan Gupta, Dr. Meghna Agarwala) Oct 2021 – Jun 2022

- Developed an ML method combining multi-spectral, multi-temporal, multi-satellite (radar and optical) data with Random Forests and SVMs to map every mango farm across Uttar Pradesh from 30 m open-source imagery, and designed strategies with farmers to coordinate regional crop growth and prevent price crashes. Awarded Best Undergraduate Thesis, selected from ~100 graduating students.

Institute of Mathematical Sciences (IMSc) Chennai, India

Research Intern (Supervisor: Dr. Sitabhra Sinha)

May 2017 – Aug 2018

- Analysed ant self-organisation across competing paths to a food source to derive principles for optimising traffic flow.

PROFESSIONAL EXPERIENCE

Healthy Workers

Amsterdam, Netherlands

Lead AI & ML Research Engineer

Jul 2023 – Sep 2024

- Built and deployed ML pipelines to optimise gas and energy usage and automate sensor fault detection across hundreds of buildings in the Netherlands, productionising the thesis research below.

Thesis Intern / Researcher

Jan – Jul 2023

- Established whether ML models generalise across buildings to forecast indoor climate, training RNNs (LSTMs), CNNs, MLPs, Random Forests and KNNs on >9 million datapoints and >800 features from 8 commercial buildings, and deriving the sensor and data benchmarks required for reliable predictive control.

Government of India, District Rupnagar

Punjab, India

Project Lead, e-Governance Intern Team

Sep 2021 – Feb 2022

- Led the e-Governance intern team in building a dashboard to collect and visualise data entered by officials, to detect and prevent financial fraud.

Hydrogreens Fodder

Bengaluru, India

Intern

Aug 2021 – Jan 2022

- Built databases and ran data analytics to measure and extend the impact of a UNDP/IUCN-recognised venture supplying low-water hydroponic fodder systems to farmers in harsh climates.

ENTREPRENEURIAL PROJECT

SmartSurplus – AI-based Surplus Redirection and Optimization

Amsterdam, Netherlands

Founder

2023

- Developed a proof-of-concept LSTM model predicting food surplus to optimise redirection to nearby shelters, orphanages, food banks, animal feed, composting or combustion
- Awarded Best Entrepreneurial Idea by VU faculty, out of 33 competing ideas
- Admitted to the Demonstrator Lab venture incubator

LEADERSHIP AND SERVICE

Women in Data Science (WiDS), Ashoka University

Sonipat, India

Ambassador, Organizer, Interviewer

2021 – 2022

- Founded and organised the university's first WiDS conference and ran it for two consecutive years; the second year's livestream drew over 1,000 views
- Interviewed leading women in data science including Gargi Dasgupta (Director & CTO, IBM South Asia), Ujjayini Mitra (CDO, ZEE Global) and Radhika Kulkarni (President, INFORMS)

ACM IKDD (Knowledge Discovery and Data Mining), ACM India

India

Developer Intern

Aug – Dec 2021

- Developed the ACM IKDD website and initiated events and resources to make AI and data science more accessible

SKILLS

Programming Languages: Python

Frameworks & Infrastructure: PyTorch, distributed training, HPC / GPU cluster environments

Methods: Deep learning, evolutionary and neuro-evolutionary algorithms, neuro-symbolic learning and knowledge graphs, remote sensing and multi-spectral/multi-temporal satellite analysis, federated learning, applied cryptography

Languages: Fluent in English, German, Kannada, Tamil, Hindi; conversant in French and Dutch