Gaurav Kumar Yadav

Visual AI for
Extended Reality
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PROFESSIONAL SUMMARY

PhD in Computer Science with experience as Assistant Professor, Postdoctoral Researcher, and Course Coordinator. Skilled in delivering engaging lectures, designing curricula, supervising projects, and guiding Master's theses. Strong background in Artificial Intelligence, Machine Learning, and Computer Vision, with proven ability to integrate research innovations into teaching. Committed to fostering student curiosity and hands-on learning.

RESEARCH INTERESTS

Computer vision, Machine learning, Large language models, Multimodal learning, Medical imaging, and XAI.

EDUCATION

University of Rovira i Virgili Tarragona, Spain
PhD Awarded (Cum-laude with International distinction) (Department of Computer Science) *23rd Oct 2023*
- **Title:** Improving the Quality of Life for Intellectually Disabled Elderly People Using Artificial Intelligence Techniques.

Indian Institute of Information Technology Allahabad Prayagraj, India
Master of Technology (Information Technology (Robotics)) *Aug 2017 to Jun 2019*
- **Title:** Trajectory Learning for Stable Bipedal Walking Robots using Sequential Network.

Dr. R. M. L. A. U. Faizabad Ayodhya, India
Bachelor of Technology (ME) *July 2012 to Jun 2016*

Uttar Pradesh State Board Uttar Pradesh, India
Intermediate (Physics, Chemistry, Mathematics) *July 2010 to May 2011*

EXPERIENCE

Bielefeld University Bielefeld, Germany
Postdoctoral Researcher *December 2024 - Presently*
- Building high-fidelity virtual replicas using 3D reconstruction techniques such as Gaussian splatting to train robot models in realistic home settings.
- Developing a flexible neural radiance framework to improve perception and adaptability in industrial robotic systems.

Universitat Rovira i Virgili Tarragona, Spain
Postdoctoral Researcher *May 2024 - November 2024*
- Contributed to a stroke prediction project using multimodal data by developing a model that combines clinical records and magnetic resonance images to accurately and early assess stroke risk.

Siksha 'O' Anusandhan University Bhubaneswar, India
Assistant Professor *Feb 2023 - April 2024*
- Served as an Assistant Professor, teaching courses such as Data Structures, Machine Learning, and Data Mining. Additionally, coordinated and managed the Supervised Machine Learning course as the course coordinator.

Instituto de Robótica para la Dependencia Sitges Barcelona
Machine Learning Engineer *Oct 2021- Dec 2022*
- Developed an AI-based model to analyze the quality of life of elderly people.

- Based on the analysis, it provided a detailed support report to the patient, with instructions to help the patient's quality of life.

SKILLS SUMMARY

Research Area	Machine learning, Medical imaging, LLMs, Computer vision
Languages	Python, Java, ROS2, C#, MATLAB
Frameworks	PyTorch, TensorFlow, OpenCV, NLTK, HuggingFace
Database	BigQuery, SQL, Dataflow, MySQL
Python Libraries	LIME, SHAP, Matplotlib, Pandas, and TypeScript
Tools	SLURM, Git & GitHub, Cuda, Docker, Rviz, Gazebo
IDE's & Software's	VS Code, Google Cloud Platform, PyCharm, Eclipse
Reviewer	Neural computing & applications, Scientific Reports, Discover Computing, etc.

GRANTS AND AWARDS

DAAD Postdoctoral Fellowship, 2024
Postdoctoral researcher, Bielefeld, Germany — *Dec 2024 to Nov 2025*

Our team won the first place in the Embodied AI Workshop, 2024
CVPR 2024, Seattle, USA — *17-21 Jun 2024*

Our team won the HomeRobot OVMM Challenge 2023
NeurIPS 2023, New Orleans, USA — *10-16 Dec 2023*

Research Visit Grant to Bielefeld University Germany
Department of Science and Technology, India — *Sept 2023*

Graduate Aptitude Test in Engineering Fellowship
Ministry of Education, India — *Aug 2017 to Jun 2019*

Senior Research Fellowship Fellowship
Ministry of Education, India — *July 2021 to Feb 2023*

Best paper award
CICT 2020, IIITDM Kancheepuram, Chennai — *5th December 2020*

PUBLICATIONS

Journal Articles:

- **Gaurav Kumar Yadav**, M.A.Nasser, H.A.Rashwan, Domenec Puig, G. C. Nandi,, "Implicit Regularization of a Deep Augmented Neural Network Model for Human Motion Prediction", is published in Applied Intelligence 2022, (SCI indexed, IF: 5.086).
- **Gaurav Kumar Yadav**, B.M.Vidales, H.A.Rashwan, J.Oliver, Domenec Puig, G. C. Nandi, M.A.Nasser, "Effective ML-based quality of life prediction approach for dependent people in guardianship entities", is published in Alexandria Engineering Journal 2022, (SCI indexed, IF: 6.626).
- **Gaurav Kumar Yadav**, H.A.Rashwan, B.M.Vidales, M.A.Nasser, J.Oliver, G. C. Nandi, Domenec Puig,"A Data-driven Model to Predict Quality of Life Dimensions of Intellectually Disabled People based on the GENCAT Scale", is published in Social Indicators Research 2024, (SSCI indexed, IF: 3.024).

- S. Gupta, **Gaurav Kumar Yadav**, G. C. Nandi, "Development of Human Motion Prediction Strategy using Inception Residual Block", Published in Multimedia tools and applications, SCI indexed, IF: 2.396).
- **Gaurav Kumar Yadav**, Domenec Puig, G. C. Nandi, "Designing an Adaptive Cost Function for Dynamic Human Pose Predictions", is published in Multimedia tools and applications, SCI indexed, IF: 2.396).

Conference Papers:

- Yenamandra, Sriram, Arun Ramachandran, Mukul Khanna, Karmesh Yadav, Jay Vakil, Andrew Melnik, Michael Büttner, **Gaurav Kumar Yadav**, et al. "Towards Open-World Mobile Manipulation in Homes: Lessons from the Neurips 2023 HomeRobot Open Vocabulary Mobile Manipulation Challenge." CoRR (2024).
- Melnik, Andrew, Michael Büttner, Leon Harz, Lyon Brown, Gora Chand Nandi, **Gaurav Kumar Yadav**, Rahul Kala, and Robert Haschke. "UniTeam: Open Vocabulary Mobile Manipulation Challenge." CoRR (2023).
- **Gaurav Kumar Yadav**, B.M.Vidales, Sara Dueñas, M.A.Nasser, H.A.Rashwan, Domenec Puig, G. C. Nandi, "Predicting Personalized Quality of Life of an Intellectually Disabled Person Utilizing Machine Learning", is published in 24th International Conference of the Catalan Association for Artificial Intelligence (CCIA 2022) (Frontiers in Artificial Intelligence and Applications 2022).
- **Gaurav Kumar Yadav**, G.C.Nandi. "Development of Adaptive Sampling Based strategy for Human ActivityPredictions Using Sequential Networks.", is published in 4th Conference on Information and Communication Technology (CICT 2020) (IEEE Xplore).
- **Gaurav Kumar Yadav**, Shruti Jaiswal, G.C.Nandi. "Trajectory Learning for Stable Bipedal Walking Robots using Sequential Networks", is published in 7th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON 2020) (IEEE Xplore).
- **Gaurav Kumar Yadav**, Shruti Jaiswal, G.C.Nandi "Generic Walking Trajectory Generation of Biped using Sinusoidal Function and Cubic Spline", is published in 7th International Conference on Signal Processing and Integrated Networks (SPIN 2020), (IEEE Xplore).
- **Gaurav Kumar Yadav**, B.M.Vidales, H.A.Rashwan, Joan Oliver, M.A.Nasser, Domenec Puig, G. C. Nandi, "Predicting the Quality of Life Index Value for determining the Requirement of Support Needs for Intellectually Disabled Individual using Machine Learning Methods", is published in IEEE Bangalore Humanitarian Technology Conference 2023.

WORKSHOPS AND OUTREACH

- **Delegate**, Fifth International Workshop on Generative AI and Human-Robot Interactions, February 14-16, 2025, IIIT Allahabad & Erasmus EU, February 2025.
- **Trainer**, IRAS-HUB Capacity Building Program, URV, Tarragona, Spain, 14–18 October 2024. Participated in the EU-funded program as a trainer, delivered a talk and collaborated with researchers from the University Rovira i Virgili (URV) to train faculty from IIIT-Delhi, IIIT-Hyderabad, and IIIT-Allahabad on modernized robotics courses.
- **Organizer**, 4th International Workshop on Generative AI and Human-Robot Interaction, Center for Intelligent Robotics, IIIT Allahabad, February 16–18, 2024.
- **Organizer**, Three-Day Workshop on Human-Robot Interaction, Center for Intelligent Robotics, IIIT-Allahabad, November 24–26, 2022.
- **Organizer**, two-day workshop on robotics and machine intelligence, Center for Intelligent Robotics, IIIT-Allahabad, 2-3 January 2020.

REFEREES

Prof. Dr. Helge Rhodin
Postdoctoral Advisor
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AG Visual AI for Extended Reality
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Bielefeld, Germany
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Prof. G. C. Nandi
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