Kamlesh **Kumar**

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"Be the change that you want to see in the world."

Summary

Final-year undergraduate student at IITRAM, awarded by Undergraduate Research Award for outstanding research work in the field of Computer Vision towards Industrial Automation. Inventor of two Indian Patents, and author of several research and two review papers. I'm keen to expand my knowledge of emerging technologies like-AI and other computer technologies. Interested in developing novel techniques and systems for real-time Image and Signal Processing applications aimed at improving human-computer interaction, with a focus on process automation using Python and Linux. Interested in learning how AI may help the healthcare sector by creating a more efficient method of addressing difficult problems and advancing the state-of-the-art in related technologies and practices.

Education

B.Tech. in Electrical Engineering – Institute of Infrastructure Technology Research And Management — IITRAM, India

CGPA (till 6th semester) – 8.46 — 2019 -2023

- Complex Analysis and Differential Equations
- Digital Image Processing (Ongoing)
- Digital Signal Processing
- Advanced Digital Signal Processing (Ongoing).
- Computer Programming (Python, HTML/CSS/JavaScript)
- Linear Algebra with Multivariate Calculus and ODE
- Signals and Systems
- Digital Systems
- Probability and Random Processes
- Autonomous Navigation

Experience

Industrial Work Experience

Machine Learning Engineering, Intern – Full Time (Paid) — December, 2022 - Present

SkyLark Labs Pvt. Lt., San Francisco, California, United States of America — Remote

- Responsibilities- ML/DL model development, writing algorithms for object detection and tracking using computer vision.
- Contributing to numerous ITMS projects for product development and PoCs.

Computer Vision Developer – Part Time (Paid) — Aug. 2021 - Oct. 2021

AZTEC Fluids and Machinery Pvt. Lt. — Ahmedabad, India

- Worked on projects related to industrial automation.
- Automated conveyor lines for autonomous packaging of various plumbing objects.
- Designed an overall service architecture and pipelines of the system to count and collect objects for faster productions of homogenous items, along with real-time inspection.

Image Processing and Computer Vision Intern – Full Time (Paid) — May. 2021 - July.2021

Institute of Infrastructure Technology Research And Management — Ahmedabad, India

- Worked on several research studies related to Image Processing and Computer Vision.
- Designed algorithms for operations related to Real-Time image processing.

Deep Learning Intern – Full Time — May. 2022 - July. 2022

Institute of Infrastructure Technology Research And Management — Ahmedabad, India

- Several researches were conducted on Deep Learning and its applications for Image and Signal Processing.
- Designed and developed Deep Neural Networks using Python3 and TensorFlow2 for instance segmentations and object detection.

AMAZON ML Summer School — July. 2022

Amazon — Online

- Integrated learning program for students focused on ML topics like-Supervised Learning, Deep Neural Networks, Dimensionality Reduction, Unsupervised Learning, Probabilistic Graphical Models, Sequential Learning, Causal Inference and Reinforcement Learning.

Computer Vision Engineer – Full Time internship offer letter – School of International Biodesign (Paid)

In collaboration with -

- Stanford University, USA.
- QUT, Australia
- Hiroshima University, Japan
- Tottori University, Japan
- Indian Institute of Technology, Delhi
- All India Institute of Medical Sciences, Delhi.

Research Work Experience

1. **Inventor of "Method And System Of Counting And Collecting Objects In Packaging Automation Platform" – Indian Patent**, Granted (Indian Patent No. 408712).
2. **Machine Vision Based System For Jewellery Artwork And Method Thereof – Indian Patent,** Filled.
3. **Pulse oximetry SpO_2 signal for automated identification of sleep apnea: A review and future trends –** doi: **10.1088/1361-6579/ac98f0**.
4. **A real Time Object Counting and Collecting for Industrial Automation Process using Machine Vision –** Provisionally accepted by IEEE sensors journal.

5. **Artificial Intelligence and Machine Learning based interventions in Medical Infrastructure: A Review and Future Trends –**Published- MDPI Healthcare Journal- doi: **10.3390/healthcare11020207**.
6. **Modified Mask-RCNN architecture for tooth segmentation in panoramic x-rays** – Under Review.
7. **Insomnia Detection using single channel EEG-signal with Continuous Wavelet Transform and Convolutional Neural Network**– Under Review.

Projects

Smart CBCT analysis Using Deep Learning November, 2021- Ongoing

- Analyzing CBCT scans for detection of various diseases and defects in bones.
- Developing a web-based commercial platform to provide the solution as SAS.

Warehouse management system (Paid Project) August, 2022-October,2022

- Automation of assembly lines using Vision sensors and Image processing for segregating products based on the information extracted from QR-Codes.
- Real-time database management system for recording and monitoring orders, packaging, inventory, and dispatch.

Bone Tumor Detection Using Deep Learning May,2022

- Developed a solutions for Cancer Research Scientists to analyze bone x-rays and plan the surgeries for Cancer Removal.

Real-time Object Detector and Counter (Paid Project) July, 2021-October,2021

- A completely autonomous solution that automates product counting and packing, using vision based inspection lines.

Automated Brain Tumor Detection June,2022

- Analyzed MRI scans for detection of Cancerous tumors in human brain through deep learning and image processing.

Plant Health Prediction system using Sensor fusion and Machine Learning July,2022

- Water and Soil ingredient requirement prediction using real-time analysis of soil and leaf color.

Additional Courses and Certifications

- **AI for Medical Diagnosis** June,2021
- **Advanced Computer Vision with TensorFlow** May,2021
- **DeepLearning.ai TensorFlow Developer** April,2021
- **Introduction to Self-Driving-Cars by University of Toronto** April,2021
- **Deep-learning specialization by DeepLearning.ai** March, 2021
- **Python for Data Science, AI & Development** October,2021
- **Data Science Methodology** October, 2021
- **Tools for Data Science** September, 2021
- **Introduction to MATLAB Programming by Vanderbilt University** October, 2020
- **Google IT Automation professional Certificate** August, 2020
- **Introduction to Internet of Things and Embedded systems by University of California, Irvine** August,2020
- **Interfacing with Arduino by University of California, Irvine** August, 2020
- **The Arduino Platform and C Programming by University of California, Irvine** August,2020
- **Machine Learning by Stanford University** July, 2020
- **Mathematics for Machine Learning by Imperial College London** June, 2020
- **Internet of Things and Machine Learning by Bolt IoT** April, 2020

Technical Skills

- Python, TensorFlow, OpenCV, PyQt5, HTML/CSS/JS, ReactJS, ReactNative, AZURE, Flask, Unix/Linux, ROS, MATLAB

Position of Responsibility

- Student Placement Coordinator, Placement Cell - IITRAM Sept. 2021 - Present
- Secretory, Robotics and Aeromodelling Club - IITRAM July. 2021 - Present
- Organizing Committee Member, TEDxIITRAM - IITRAM April. 2022

Standardized Test Scores

- Graduate Record Examination(GRE) – 313/340 (168/170- Quantitative Reasoning)
- International English Listening Teaching and Speaking, Examination(IELTS) – 7.5 Bands

Honors and Awards

- **Certificate of Merit** – eYantra Robotic Competition-2021, Indian Institute of Technology, Bombay.
- **Funds Raised** – approx. INR. 2,00,000 were raised through Student Startup and Innovation Policy for PoC development.
- **Undergraduate Research Award-** Honored by the top research award at Junior level for presenting novel research work.