GAURAV TRIPATHI

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Professional Summary

- **Research & development in Artificial Intelligence & Computer Vision**
- Key interest in **Machine Learning Algorithms, Deep Learning Algorithms, Convolutional Neural Networks, LSTM.**
- Research & development of **large** and **complex** network-based and **distributed Command & Control Software Systems** for **Indian Army, Navy, and Coast Guard.**
- Experience in working on both **Linux/ Windows** platforms & environments.
- Providing thought leadership to modern IT engineering teams - developing point of view on modern architectures (infrastructure/ platforms/ applications), comparisons of technology choices, publishing standard conference/journals paper.

Key Skills (in no priority order)

- Computer Vision
- Machine Learning
- Linux/Unix
- Project management & multi-tasking
- Deep Learning
- Data Structure
- Python/C++, STL
- Computer Vision-Based Smart City Projects

Work History

Central Research Laboratory, **Bharat Electronics Limited (PSU)**	**Member (Senior Research Staff)**	**Sep 2007 to present**

Project Name	**Brief description**	**Responsibilities**
Battlefield Surveillance System	• Developed a Battlefield Surveillance System with the capability to fuse multiple sensors reports from heterogeneous sensors. • Provides an overview of the battlefield on a military map • Based on 5 levels of data fusions of the JDL model • Data fusion server for displaying a common operational picture.	Solution Architect & Development
Coastal Surveillance System of Mauritius and Indian Coast Guard	• Designed a Costal surveillance system for 7500 Kms of Indian coastlines & Mauritius coast guard • Enable surveillance through sensors like AIS, RADAR, GPS and correlates input to present a tactical display at the human-computer interface	Solution Architect & Development
Command and Control Center	• This project was developed for the Indian Army to cater to the need of their respective airpower which they can use at low altitude and in case of the rescue mission as well as any offensive operation. • It's a small system that is integrated with the other indigenous system. • This system is successfully used for controlling flights at different places in a war zone where the height of	Solution Architect & Development

	helicopters is below 100 meters.	
Marine Domain Awareness and Decision Support system	• This project was developed for the Indian Navy. It's a project with a dynamic configuration. • This software is responsible for providing a complete picture of ships all around the world.	Solution Architect & Development
Image Classification Using Deep Learning for Smart City Vertical and Decision Support system	• This project was developed for the Smart City project for Solid Waste management. • Based on microarchitecture, this uses a REST API format for results. • The deep learning model was trained and deployed on AMAZON EC2 and was integrated with an Android App. • The software was used for the classification of images into various domains. • Detailed technical architecture and capability assessment of Order Management, Middleware, and Integration layer (Microservices). Providing recommendations and roadmap to improve/transform applications in these layers for future sustainability and business growth	Solution Architect & Development
Object Detection in Satellite Images	• Small object detection like ships, aircraft in satellite images	Solution Architect & Development
Land Use Land Cover solution in satellite Images	• Land Use / Land Cover (LULC) generally refers to the categorization or classification of human activities and natural elements on the landscape within a specific time frame based on established scientific and statistical methods of analysis of appropriate source materials. It has various methods of classification.	Solution Architect & Development

Research Publications

Title	Publication	Year
EOI: Entity of Interest Based Network Fusion for Future Services	International Conference on Hybrid Information Technology	2011
A survey of Internet-of-Things: Future vision, architecture, challenges and services	2014 IEEE World Forum on Internet of Things (WF-IoT)	2014
Content centric battlefield visualization mechanism and solutions	16th International Conference on Advanced Communication Technology	2014
Scale Free Network Management Mechanism for an Intelligent Battlefield System	International Journal of Advancements in Computing Technology	2014
SEE: A Smart-Eye for Intelligent Transportation System	The 2nd International Symposium on Advanced and Applied Convergence (ISAAC 2014),	2014
Secure layers-based architecture for the Internet of Things	2015 IEEE 2nd World Forum on Internet of Things (WF-IoT)	2015
Heterogeneous Crowd Sourcing and Data Fusion Model for disaster Management Services.	Journal of Theoretical & Applied Information Technology	2016
Semantic edge computing and IoT architecture for military health services in the battlefield	2017 14th IEEE Annual Consumer Communications & Networking Conference (CCNC)	2017
A combination of Internet of Things (IoT) and a graph database for future battlefield systems	2017 International Conference on Computing, Communication and Automation (ICCCA)	2017
Sparse proximity-based robust fingerprint recognition	2017 International Conference on Computing, Communication and Automation (ICCCA)	2017
Semantic edge computing and IoT architecture for military health services in the battlefield	Proceedings of the 14th Annual IEEE Consumer Communications & Networking Conference 2017	2017
Improving Height Estimation of Primary Surveillance Radars using Secondary Surveillance Radar	International Radar Symposium India 2017	2017
Convolutional neural networks for crowd behavior analysis: a survey	The Visual Computer	2018
Cyber-physical surveillance system for the Internet of	2018 IEEE 4th World Forum on Internet of Things (WF-	2018

Vehicles	IoT)	
Future Battlefield Air Space Management: An Internet of Things (IoT) Based Framework	International Conference on Signal Processing and Communication 2019	2019
Detecting Arson and Stone Pelting in Extreme Violence: A Deep Learning-Based Identification Approach	Intelligent Human-Computer Interaction, Korea	2021

Journal Publication

S.No.	Title of Paper	Name of the Journal	Indexing status of the journal with indexing agency
1.	**Convolutional neural networks for crowd behavior analysis: a survey**	**The Visual Computer** **Impact Factor: 2.601**	**SCIE** **Web of science** **Clarivate analytics**
2.	**Violence recognition using convolutional neural network: A survey**	**Journal of Intelligent & Fuzzy Systems** Impact Factor: **1.851**	**SCIE** **Web of science** **Clarivate analytics**
3.	**Applied Convolutional Neural Network Framework for Tagging Healthcare Systems in Crowd Protest Environment**	**Mathematical Biosciences and Engineering** Impact Factor: **2.080**	**SCIE** **Web of science** **Clarivate analytics**

Education

Course/Degree	Institution/ University	Scores	Year of passing
PhD (Electronics & Communication)	**Delhi Technological University, Delhi**	**Submitted**	**2016-2022**
MTech (Information Technology)	Indian Institute of Information Technology, Allahabad	8.5 (CGPA)	2005-2007
B.E. (Computer Science & Eng.)	VBS Purvanchal University, Jaunpur	76.7 %	1998-2002
Intermediate	Bishop Johnson School, Allahabad, (I.C.S.E)	87.0 %	1998
High School	Bishop Johnson School, Allahabad, (I.C.S.E)	80.6 %	1996

Personal Information

Date of Birth: Sep24,1980
Sex: Male
Marital Status: Married
Nationality: Indian