

Ankush Rai

CONTACT INFORMATION: Vellore Institute of Technology University, Chennai Campus, School of Computing Science & Engineering, Vandalur - Kelambakkam Road Chennai - 600127.

WWW: <https://techraion.bitbucket.io/>

Youtube AI & Software Development Portfolio:

https://www.youtube.com/channel/UCVKNTTqFsy-5_Rifzs8btuQ/videos

Google Scholar: <https://scholar.google.co.in/citations?user=0eAu6dwAAAAJ&hl=en>

EDUCATION:

- **Chhattisgarh Swami Vivekananda Technical University**

BE. Computer Science & Engineering 2014

BE Major Thesis: Middleware Services based on collaborative fuzzy inference engine using fragmented neural network.

BE Minor Thesis: Cognitive Computing with Epigenetic manipulation of neuronal wiring for a co-activated input signal.

- **Vellore Institute of Technology, Chennai**

PhD, Behavioural Modelling of Non-Linear Cyber Physical System, 2017 – 2020(Thesis Submitted).

AREA OF EXPERTISE: Artificial Intelligence, Deep Learning, Data Modelling & Analytics, Cloud Computing, Computer vision, Cyber-Physical System, IoT, Mathematical Modelling, Game/App Development (Pc, ios, Android).

AWARDS & RECOGNITION

1. Third Prize in Internet of Things Conclave - 2015, VIT University, “**IoT based Vision Intelligence for Reality Mining**”.
2. Young Innovator Prize, organized by Chhattisgarh Council of Science & Technology for “**Bio-Nanocomposite Photoelectric Material for Treatment of Heart Disorder**”.
3. Second Prize in Innovation Fair-2013 organized by Chhattisgarh Council of Science & Technology for “**Generalized Spatial Neuron Regulation Algorithm for Next Generation Automated Industrial Production facility**”.
4. Second Prize, in Southern Zone, Young IT Professional Award-2016 by Computer Society of India for “**GIIOs: A Cyber Physical Internet System for Tailing Database**”.
5. Among top five in National Level Event of Young IT Professional Award-2016 by Computer Society of India.

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6. Young Scientist Prize -2016 from Madhya Pradesh Council of Science & Technology and ADINA Group of Institutions for “**Multivariate Automated Differential Diagnosis System**”.
7. Second Prize, in UNISYS CLOUD 2020 7.0 - 2016 event for “**Internet Vigilante: Vision Based Action Profiler for Multimodal Context Aware Security**”.
8. **Overall 13th Position in International Turing Test Event - Loebner Prize** – 2016.
9. Won **Best Paper Award** for the research paper "**NETWORKED INFRASTRUCTURE FOR SCALABLE DRONE SERVICES**" in the track of “Wireless, Mobile Communication & Security” at 5th International Conference on Computing, Communication and Sensor Network - 2016.
10. Won **Best Paper Award** for the research paper " **ONE SHOT LEARNING TECHNIQUE FOR AUTOMATIC TARGET DETECTION IN MULTIVIEW SAR IMAGERY**" in the track of “Model ,design and Medical Electronics” at 5th International Conference on Computing, Communication and Sensor Network - 2016.

KEYNOTES LECTURES DELIVERED

1. Delivered **Invited keynote lecture** at Faculty development program sponsored by National Science & Technology Entrepreneurship Development Board, Department of Science & technology, Govt. of India on “**Research Challenges and Solution on Industrial Internet of Things**”.
2. Delivered **Invited keynote lecture** at SERB (Science and Engineering Research Board) sponsored National level seminar on CLIMATE SMART AGRICULTURE: MULTI-DISCIPLINARY APPROACHES USING IoT, CLOUD AND BIG DATA on “**Predictive Analytics for Crops and Livestock Using Big Data**”.
3. Delivered **Invited keynote lecture** and **Hands on Session** at IEEE CIS Sponsored Winter School on Computational Intelligence: Fundamental Theory & Practical Applications on “**Computational Intelligence Techniques for Cyber Physical System**”.
4. Delivered **Invited Demo Session** at SERB (Science and Engineering Research Board,) Sponsored International Conference on “**Computational Intelligence Techniques for Cyber Physical System**”.

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RESEARCH/WORK EXPERIENCE:

Duration	Designation	Institution	Nature of work
2 years (2012-2014)	Research Intern	CRIAD Laboratories	Application based research in areas of Artificial Intelligence, Automation, Robotics, & Data Modeling.
1 year (2014-2015)	Asst. Programmer	Agrasen Industrial Training Institute	Teaching
2015	Quality Assurance Test Engineer	Codemasters	Game Development & Quality Control
2015 – 2017	Research Associate	VIT University, Chennai	Interdisciplinary Research in Cyber Physical System & Artificial Intelligence
2018-	Founder, CEO	Techraion Systemworks	Defense Based Tech & Military Training Software Development
2018 -	Research Intern	IIT, Roorkee	R&D in AI & Data Analytics

SKILLS:

Software Package: Photoshop, Corel-Draw.

Programming Languages & Packages: Lua, MATLAB, PROLOG, C, C++, C#, Python, Perl, HTML, Javascript, Shell Programming, V-Rep, Node.js.

Artificial Intelligence Packages: Tensorflow, Torch, Keras, Pytorch, Mxnet, MatConvNet, Scikit-Learn, Theano, Caffe.

Game & App Development: Unreal Engine, CORONA Labs, Blender, Zbrush.

Commercial Software Released:

(1) **ShapeWorks:** ShapeWorks is an easy, fun, engaging digital sculpting tool for game developers & 3D artist. It is extremely beginner friendly and someone with no experience in 3D modelling can begin kit-bashing, effortlessly sculpt and intuitively start making intricate 3D models in no time. (<https://store.steampowered.com/app/1148910/ShapeWorks/>)

(2) **TextureWorks:** TextureWorks is an incredible one stop powerful tool for Texture Synthesis, Texture Re-scaling, Texture Designing, tiled texture generation, Texture Map Generations; with over 1600 texture files available free with the Base code to help you simplify your game development workflow.

(<https://store.steampowered.com/app/1140360/TextureWorks/>)

(3) **CodeWorks:** No-code, Drag & Drop Game/AI development Software to be used in any of the majorly used game engines like unreal, unity, phaser etc.

<https://ank00.itch.io/codeworks>

(4) **Crosstalkai:** Browser Based Peer to Peer Video Conferencing Software for Telemedicine, E-learning & Team Discussion.

<https://crosstalkai.com/>

(5) **CovidX:** An AI Diagnostic Tool for Non-invasive Covid-19 Detection.

<https://www.youtube.com/watch?v=oPm6OxMOBZc>

REVIEWER OF:

1. IEEE System Journal.
2. IEEE Access
3. Journal of Artificial Intelligence Research & Advances
4. Recent Trends in Parallel Computing
5. Journal of Advancement in Robotics
6. International Journal of Computer Vision and Image Processing
7. Current Science
8. International Journal of Grid and High Performance Computing
9. International Journal of Information System Modelling and Design
10. International Journal of Swarm Intelligence Research
11. Journal of Information Technology Research
12. International Journal of System Dynamics Applications
13. Computers and Electrical Engineering – Elsevier
14. Journal of Medical System – Springer
15. International Journal of Cognitive Research in Science, Engineering and Education

Defence Research & Military Projects Completed for Bharat Electronics Limited .Govt of India – 2018-2019

S.No	Name of the Project
1	Target extraction and classification of UAV/Aircraft/Satellite Images/SAR Datasets
2	Conversion of Thermal Images to natural RGB Image Without Fusion
3	Navigation Map Generation of Unexplored Environment by Video Based simultaneous localization and Mapping for large scale map generation.
4	Target extraction and classification (Identification of camouflaged target using Hyper-spectral images and LiDAR point cloud)
5	Development of an efficient technique for Detection, Identification, and classification of military targets using Polarimetric synthetic aperture radar (SAR) datasets.
6	Target extraction and classification using Thermal Image

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7	Using RGB images for target detection and classification
8	Library creation and updation for <ul style="list-style-type: none"> ➤ Polarimetric SAR Image ➤ UAV/Aircraft Images and Target Library ➤ Photogrammetry Finding target size and distance in Image using photogrammetry. ➤ Correction of distortion in scanned map also including photogrammetry
9	Finding Target size and distance in Image using photogrammetry
10	Tracking of both static and moving objects in UAV/Aircraft video
11	Automated Surveillance: Suspicious Activity Recognition from Live Video Feed

RESEARCH GRANTS & PROPOSAL

S.No	Name of the Project	Funding Institute	Status
1	System Engineering Project for Next Generation Automated Nuclear Power Plants: Computer-Oriented Planning & Operational Decision Making (A Project by Government of India)	National Power Corporation of India Limited, Tarapur Atomic Power Reactor	Completed
2	Computer Vision Based Simultaneous Localization, Mapping An Planning Of Multiple Robotic Troops	Combat Vehicles Research & Development, DRDO, Chennai	Prototype Completed
3	Vision Based Autonomous Piloting Framework For Unmanned Moon Exploration Operations	ISRO Satellite Centre (ISAC), Department of Space, Govt of India	Completed
4	Image Based Cloud Surface Modeling For Weather Prediction Of Inter-tropical Convergence Zone	National Atmospheric Research Laboratory, ISRO, Govt of India	Completed

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5	M2M Based Shared Vision Framework For Networked Autonomous Military Tanks	Combat Vehicles Research & Development, DRDO, Chennai	Prototype Completed
6	MIST: Multiple Interoperable Swarming Terminals for Extended Cloud Infrastructure	Innovation and Entrepreneurship Development Centre, National Science & Technology Entrepreneurship Development Board, Govt of India	Completed

INSTITUTIONAL GRANTS GAINED FOR VIT

S.No	Name of the Project	Funding Amount	Status
1	UDAIMITA Yojana by Govt of India	2 Crores	Granted
2	MSME Technology Business Incubation Center	3 Crores	Granted
3	Application For Design Clinic Scheme Funding Assistance	-	Affiliation Granted
4	Establishment of Intel IoT Lab	50 Lakhs + other 25 lakhs of IoT equipment	Lab Established
5	IEEE National / International Conference on Disaster Management	54 Lakhs from SERB + NARL, Tirupati	Granted
6	2017 IEEE CIS Winter School on Advanced Topics in Computational Intelligence – Theory and Applications	25 Lakhs from SERB	Granted
7	Support for Entrepreneurial and Managerial Development of SMEs through Incubators	5 Crores	Affiliation Granted and VIT Has become a nodal center on Tamil Nadu
8	World Engineering Education Forum 2019 Conference in association with Global Engineering Deans Council	1.5 Crores	Granted
9	Establishing of Technology Enablement Center - DST	50 Lakhs	Under Review
10	Fund for Improvement of S&T Infrastructure- 2018	109 Crores	Proposal Submitted

Projects Completed at Indian Institute of Technology, Roorkee 2018-2019

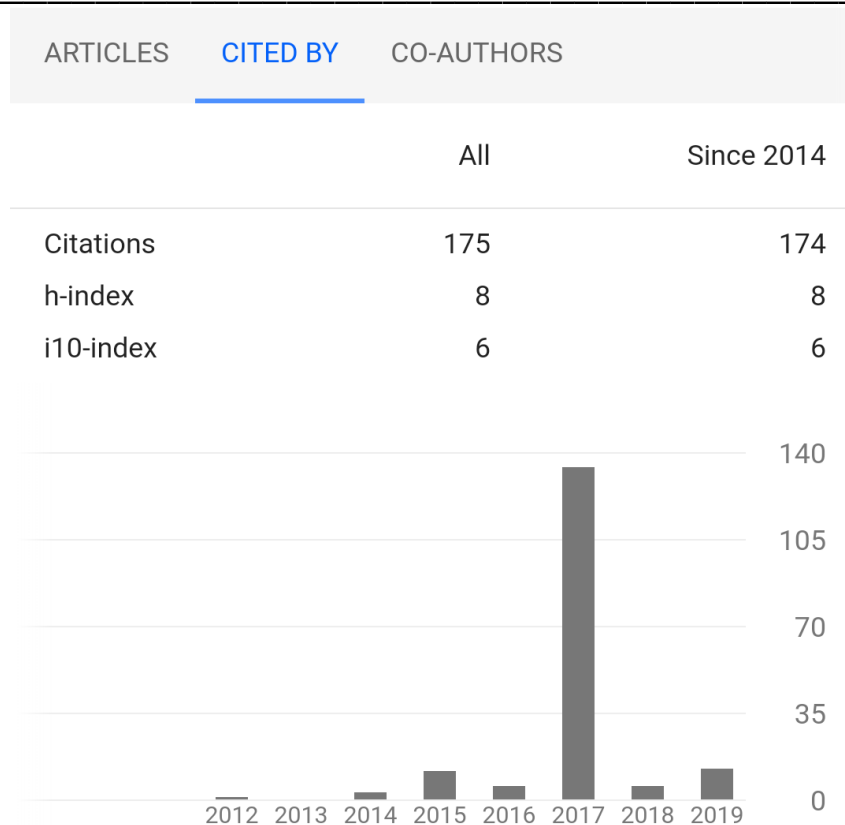
S.No	Title of The Project	Fund Procurement
1	Coloured Nightvision	Defense Project
2	Integration of Photo Sensor with learning based image capturing module for enhanced light detection at night	Defense Project
3	Night to Day Image Conversion	Defense Project
4	Automatic Digitization & Data Analytics Framework	Commercial Software
5	Thermal Data to Colour Image Conversion	Defense Project
6	Ground Penetrating Radar to 3D Object Generation	Defense Project
7	Block Based Code Generator	Commercial Software
8	Pose Independent Face Recognition	Defense Project
9	Frontal Front Face Recovery from Side Pose	Defense Project
10	Human Activity Recognition	Defense Project
11	GAIT Analysis	Commercial Software for Security Enhancement
12	3D Mobile Renderer	VR Based Commercial Product
13	Super Resolution	Commercial Software
14	Micro Motion Magnification in Videos for sound extraction from mute videos	Defense Project
15	One Shot learning Based Time Series Prediction Software	Commercial Software
16	Micro Motion Magnification in Videos for anxiety and pulse rate extraction	Defense Project
17	Super Compression of Textual Documents	Defense Project
18	Monocular images to Depth Image Extraction	Research Software for Robotics and Autonomous Drone Flight Planning
19	Deep Deblurring of Images	Commercial Software
20	Seeing behind Walls by capturing Radio Waves	Defense Project
21	Extraction of Breathing, heart patterns & emotions by capturing reflected radio waves	Commercial Software
22	Multiframe Super Resolution	Commercial Software
23	Alertness Detection of Driver	Commercial Software

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24	Video Stabilization: Extraction from Satellite or Drone Images	Commercial Software
25	Flood Mapper from social media Data	DST Project
26	Scene Segmentation and Understanding	Commercial Software
27	Vision based Navigation Framework: Autonomous Drone Piloting Framework for Terrain Mapping & Reconnaissance Operations	Defense Research & Development Organization Project
28	GIS based mapping & profiling of Cyber assets using online machine Learning based network security System	Defense Research & Development Organization Project
29	Artificial Geospatial Weather Mimicking System based Hydroponic Cultivation Unit	Agriculture Department of Biotechnology Project
30	Video to Video Prediction of Cloud Motion Vectors for Forecasting of Tropical Cyclone in Indian Ocean	Indian Space Research organization - Respond Project

Scholar Citations:

Citation Report Screenshot at Oct 2019



Citation Report Screenshot at Feb 2020 (Google Citation is Subjected to Auto Indexing and miss or eliminate the existing citation.)

PUBLICATIONS

SCI Index Papers: 25

Scopus Indexed Papers: 45

1. Ankush Rai, "Artificial Intelligence for Emotion Recognition", Journal of Artificial Intelligence Research & Advances, Vol3, Issue 3, 2014.
2. Ankush Rai, Speeding Up Human Operability & Multi-Tasking Through Mobile Evolutionary Algorithm For Evasive Interactive GUIs of Semantic Desktop Application, Journal of Multimedia Technology & Recent Advancements, Volume 1, Issue 2, 2014.
3. Ankush Rai, Air Computing: A Parallel Computing Module for offloading Computational Workload On Neighbouring Android Devices", RECENT TRENDS IN PARALLEL COMPUTING, Vol 3, Issue 3, 2014.
4. Ankush Rai, Algorithm for Early Detection of Genetic Fusion in Cancer, Tumours & Chronic Bacterial Infection, Research & Reviews: Journal of Computational Biology, Vol 3, Issue 3, 2014.

5. Ankush Rai, Automated Scene Surveillance Using Frame Propagation From Massive Sequencization Fusion of Frame Imaging, Journal of Multimedia Technology & Recent Advancements, Volume 1, Issue 2, 2014.
6. Ankush Rai, A Comorbid Algorithm to Significantly Compress Contents of Several Web Pages In Conformational Dynamics Over Linux Integrated System, Journal of Multimedia Technology & Recent Advancements, Volume 1, Issue 2, 2014.
7. Ankush Rai, Attribute Based Level Adaptive Thresholding Algorithm for Object Extraction, Journal of Advancement in Robotics, Volume 1, Issue 1, 2014.
8. Ankush Rai, Automation In Computation, Journal of Advances in Shell Programming, Volume 1, Issue 2 2014.
9. Ankush Rai, Automation of Community from Cloud Computing, Journal of Advances in Shell Programming, Volume 1, Issue 2 2014.
10. Ankush Rai, Dynamic Pagination for Efficient Memory Management Over Distributed Computational Architecture for Swarm Robotics, Journal of Advances in Shell Programming, Volume 1, Issue 2 2014.
11. Ankush Rai, A Parallely Turing Kernel For Swarm Operations, Journal of Advances in Shell Programming, Volume 1, Issue 3 2014.
12. Ankush Rai, Parsing of Sensory Perception in Oscillatory Networks through Cross-frequency Coupling of Memory Synchronization: Revelation of enhanced learning by Autistic Brain, Research & Reviews: A Journal of Neuroscience, Volume 4, Issue 3, 2014.
13. Ankush Rai, Characterizing Face Encoding Mechanism by Selective Object Pattern in Brains Using Synthetic Intelligence & its Simultaneous replication of Visual System That Encode Faces, Research & Reviews : Journal of Computational Biology, Volume 3, Issue 2, 2014.
14. Ankush Rai, Computational Modelling Study of Synfire Chains from Multiple Plasticity Mechanisms for Model Development at Neural Level: Introducing an Evolving Digital Micro-Brain, Research & Reviews : Journal of Computational Biology, Volume 3, Issue 2, 2014.
15. Ankush Rai, Dynamic Data Flow Based Spatial Sorting Method for GPUs: Software Based Autonomous Parallelization, Recent Trends in Parallel Computing, Volume 1, Issue 1, 2014.
16. Ankush Rai, Edge Split Mapping Parallel Algorithm for Tetrahedral Mesh Refinement On Distributed Memory Systems, Recent Trends in Parallel Computing, Volume 1, Issue 1, 2014.

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17. Ankush Rai, Application of Artificial Intelligence for Virtually Assisted Prognosis of Diabetes: A NODDS Project. IJCA Proceedings on National Seminar on Application of Artificial Intelligence in Life Sciences 2013 NSAAILS(1):1-5, February 2013. Published by Foundation of Computer Science, New York, USA.
18. Ankush Rai, Application of Bio-Nanocomposite Photoelectric Material for the Therapeutic of Cardiac Disorder: An Integration of Bio-hybrid System, JOURNAL OF NANOSCIENCE, NANOENGINEERING & APPLICATIONS, Volume 3, Issue 2.
19. Ankush Rai, Application of Nanoparticles based Bio-Molecules for Treating Asthma (accepted at Journal of Nanomedicine & Nanotechnology).
20. Ankush Rai, Realization of Quantum Logical Operations through Quantization of Electrodynamics. International Journal of Innovative Research & Development, March 2013.
21. Ankush Rai, Power Generation at Bulk Scale Operation of Microbial Fuel Cell. International Journal of Innovative Research & Development, March 2013.
22. Ankush Rai, High Performance Computing: A reality at Central-India. International Journal of Innovative Research & Development, March 2013.
23. Ankush Rai, Shell Implementation of Neural Net Over The Unix Environment for File Management: A Step Towards Automated Operating System, Journal of Operating Systems, Vol 1, Issue 2 (2014).
24. Ankush Rai, Attribute Based Level Adaptive Thresholding Algorithm (ABLATA) for Image Compression and Transmission, Journal of Mathematics and Computer Science Vol 12, Issue 3, pp: 211-218, 2014.
25. Abha Choubey, G.R. Sinha, Ankush Rai, Application of Image Denoising Through Comorbid Pixel Regularization Algorithm Based on Neuro-Fuzzy Rule, Journal of Embedded System & Applications, Vol 1, Issue 2, 2014.
26. Ankush Rai, Algorithm for Early Detection of Genetic Fusion in Lung Cancer, Journal of Computational Biology, Issue 3, 2014.
27. Ankush Rai, Learning-based Edge Detection for Video Sequences, Recent trend in Parallel Computing, Vol 2 Issue 3, 2015.
28. Ankush Rai, Depth Map Compression by Contour Networks for Video Sequences, Recent trend in Parallel Computing, Vol 2 Issue 2, 2015.
29. Ankush Rai, A Novel Decomposable Pixel Component Analysis Algorithm for Automating Multispectral Satellite Image Denoising, Research & Reviews: Journal of Embedded System & Applications, Vol 2 No 3, 2014.

30. Multispectral Image Denoising using Bi-Directional Recurrent Neural Network with DPCA Algorithm Journal of Image Processing & Pattern Recognition Progress 2 (1), 25-30, 2014.
31. Ankush Rai & Jagadeesh Kannan R, MODELLING THERMAL SHOCK BASED CRACKING BEHAVIOUR OF ARMOUR MATERIAL FOR FUSION REACTOR,Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
32. G.S.R. Emilselvan, N. Gayathri, Ankush Rai, Jagadish Kannan R, ENERGY AWARE ZONE ROUTING PROTOCOL FOR MANETS,Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
33. G.S.R. Emilselvan, N. Gayathri, S Rakesh Kumar, Ankush Rai, Jagadeesh Kannan R, ADVANCED ENCRYPTION AND EXTENDED AUTHENTICATION FOR WIRELESS LAN,Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
34. Ankush Rai,Jagadeesh Kannan R,DEVELOPMENT OF CYBER-PHYSICAL SYSTEM FOR LASER-BASED CONTROLLED CLOUD SEEDING,Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
35. Ankush Rai,Jagadeesh Kannan R,COMPRESSED TRANSMISSION OF DEPTH MAPS IN 3D STREAM SERVICES FOR ROBOTICS & SURVEILLANCE,Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
36. Ankush Rai,Jagadeesh Kannan R,NEUROCOMPUTATIONAL MODELLING OF DISTRIBUTED LEARNING FROM VISUAL STIMULI,Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
37. Ankush Rai,Jagadeesh Kannan R,MICROTUBULE BASED NEURO-FUZZY NESTED FRAMEWORK FOR SECURITY OF CYBER PHYSICAL SYSTEMS,Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
38. Ankush Rai,Jagadeesh Kannan R,HYBRID NOISE FILTERING ALGORITHM BASED ON NEURO-TYPE 2 FUZZY SYSTEMS, Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
39. Ankush Rai,Jagadeesh Kannan R,UNIVERSAL INFRASTRUCTURE OF M2M ENABLED INTER-CLOUD SERVICES FOR INTELLIGENT TRANSPORTATION SYSTEMS,Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
40. Ankush Rai,Jagadeesh Kannan R,COMPUTATIONAL MODELLING AND PREDICTING SPREAD OF ARBOREAL EPIDEMICS,Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.

41. Ankush Rai,Jagadeesh Kannan R,REGION SPECIFIC WAVELET COMPRESSION FOR 4K SURVEILLANCE IMAGESSpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
42. Ankush Rai,Jagadeesh Kannan R,CENTRAL PROCESSING UNIT-GRAPHICS PROCESSING UNIT COMPUTING SCHEME FOR MULTI-OBJECT TRACKING IN SURVEILLANCESpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
43. Ankush Rai,Jagadeesh Kannan R,HYPERPROPERTIES-BASED OPTICAL FLOW-BASED AUTONOMOUS DRIVING SYSTEMSSpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
44. Ankush Rai,Jagadeesh Kannan R,MODELING OF LIGHT ILLUMINATION FIELD ON MICRO-EXPRESSION FOR FACE RECOGNITION APPLICATIONSSpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
45. Ankush Rai,Jagadeesh Kannan R,ASSOCIATIVE RULE LEARNING FOR ANOMALISTIC BEHAVIORAL MODELING IN BANKING FRAUD APPLICATIONSSpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
46. Ankush Rai,Jagadeesh Kannan R,SHAPE SELECTIVITY OF NEURONS AND SYNTHETIC VISUAL INTELLIGENCESpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
47. Ankush Rai,Jagadeesh Kannan R,BI-DIRECTIONAL RECURRENT NEURAL NETWORK FOR IMPROVING MULTISPECTRAL IMAGE DENOISINGSSpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
48. Ankush Rai,Jagadeesh Kannan R,TOUCH FREE USER INTERFACE FOR AUGMENTED REALITY SYSTEMSSpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
49. Ankush Rai,Jagadeesh Kannan R,FUSION OF THERMAL AND RGB IMAGES FOR BORDER SECURITY SURVEILLANCESpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
50. Ankush Rai,Jagadeesh Kannan R,SYNCHRONIZED NEURAL FIRING FOR CONTROLLING CYBER PHYSICAL SYSTEMSSpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
51. Ankush Rai,Jagadeesh Kannan R,ONLINE LEARNING FOR IMAGE PROCESSING IN NETWORKED SETTINGSpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
52. Ankush Rai,Jagadeesh Kannan R,WAVELET TRANSFORMATION FOR ENHANCING MAMMOGRAPHIC IMAGESSpecial Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.

53. Ankush Rai, Jagadeesh Kannan R, A SURVEY OF MULTISPECTRAL IMAGE DENOISING METHODS FOR SATELLITE IMAGERY APPLICATIONS Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
54. Ankush Rai, Jagadeesh Kannan R, SURVEY OF SOFT BIOMETRIC TECHNIQUES FOR GENDER IDENTIFICATION Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
55. Ankush Rai, Jagadeesh Kannan R, MULTI-SCALE MODELING OF TERRITORIAL DYNAMICS OF GEOSPATIAL ANTHROPOGENIC ENERGY CONSUMPTIONS Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
56. Ankush Rai, Jagadeesh Kannan R, INTERNET OF THINGS-BASED MULTISENSOR NON-INVASIVE TECHNOLOGY FOR ROBUST MONITORING OF TUNNELING INFRASTRUCTURES Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
57. Ankush Rai, Jagadeesh Kannan R, VIRTUAL FARMER: CONTROLLING PHYTOCHROME SIGNALING IN PLANTS THROUGH CYBER-PHYSICAL SYSTEMS Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
58. Ankush Rai, Jagadeesh Kannan R, A DEVELOPMENT OF VON NEUMANN MACHINES WITH ARTIFICIAL NEURO-GLIA NETWORKS Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
59. Ankush Rai, Jagadeesh Kannan R, SIMULATING DRUG-TARGET INTERACTION USING LARGE SCALE MOLECULAR DYNAMICS AND FUZZY-ARTS Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
60. Ankush Rai, Jagadeesh Kannan R, MATHEMATICAL ARCHITECTURE OF MICROSERVICES FOR GEOGRAPHIC INFORMATION SYSTEM BASED HEALTH MANAGEMENT SYSTEMS Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
61. Ankush Rai, Jagadeesh Kannan R, A REVIEW ON MACHINE LEARNING ALGORITHMS ON HUMAN ACTION RECOGNITION Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
62. Ankush Rai, Jagadeesh Kannan R, PREDICTION OF CHRONIC BACTERIAL INFECTION BY IDENTIFICATION OF INTER CELLULAR RESPONSES OF GENETIC FUSION CENTERS Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
63. Ankush Rai, Jagadeesh Kannan R, MATHEMATICAL MODELING OF FEEDBACK CONTROL OF GRAVITATIONAL WAVES Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.

64. Ankush Rai, Jagadeesh Kannan R, MODELING AND DYNAMICS OF PUZZLING SPACE PROBES ANOMALIES IN SPACE ENGINEERING Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
65. Ankush Rai, Jagadeesh Kannan R, COMPUTATIONAL TECHNIQUE FOR MODELING AND CLUSTERING OF FEEDBACK CONTROL IN GALAXIES USING GRAVITATIONAL THERMODYNAMICS Special Issue April 2017 - Advances in Smart Computing and Bioinformatics, Asian Journal of Pharmaceutical and Clinical Research.
66. Ankush Rai, Jagadeesh Kannan R, VISION BASED IMPRESSION EXTRACTION TO FACILITATE SEMANTIC PROCESS MODELLING , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
67. Ankush Rai, Jagadeesh Kannan R, SIMULATION OF MISSION CRITICAL TRANSLATIONAL NETWORK FOR SCALABLE DRONE SERVICES , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
68. Ankush Rai, Jagadeesh Kannan R, ONE SHOT LEARNING TECHNIQUE FOR ATTRIBUTED BASED OBJECT CLASSIFICATION , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
69. Ankush Rai, Jagadeesh Kannan R, ANALYTICAL MODELING OF M2M COMMUNICATION FOR CYBER PHYSICAL SYSTEM , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
70. Ankush Rai, Jagadeesh Kannan R, An Artificial Intelligence for Emotion Recognition from Micro-expressions Using Unsupervised Recurrently Cascaded Cluster Classifier , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
71. Ankush Rai, Jagadeesh Kannan R, Boolean Networks based Audio Fingerprinting for Content Identification , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
72. Ankush Rai, Jagadeesh Kannan R, COMPUTER SIMULATION OF SIEVE TRAY BASED LARGE EDDY HYDRODYNAMICS OF MULTIPHASE FLOW IN A DISTILLATION COLUMN , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
73. Ankush Rai, Jagadeesh Kannan R, Internet Vigilante: Vision Based Action Profiler for Multimodal Context Aware Security , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
74. Ankush Rai, Jagadeesh Kannan R, Project VIBE: Vernacular Information Behavioral Engine for NLP based Unstructured BIG DATA Analytics on Multicore Processor , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
75. Jagadeesh Kannan, S. Subramanian, Ankush Rai, H-6 Type Transformer Less Single Phase Inverter For Grid Tied Photovoltaic System , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.

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76. Ankush Rai, Jagadeesh Kannan R, Secure Banking Based On Machine Learning Based IRIS PATTERN RECOGNITION , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
77. Ankush Rai, Jagadeesh Kannan R, Review of Techniques for Automated Detection of Diabetic Retinopathy , INTERNATIONAL JOURNAL OF CONTROL THEORY AND APPLICATIONS, 2016.
78. Recursive Flow Classification of Packet Using Hashing
79. Ankush Rai, Jagadeesh Kannan R, SCALABLE DRONE BASED CYBER PHYSICAL SYSTEM
80. Ankush Rai, Jagadeesh Kannan R, Parameter Free Machine Vision Based Modeling Non-Linear Action Recognition Systems
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PATENT PENDING

1. Gas thrusters Based Autonomous Space Drone For Inspection of Lunar Surface.
2. Distributed Embedded System for Autonomous Mapping of Remote Terrain.
3. Active Thermoelectric Camouflage System for Military Tanks.
4. System for Identification of Human Behaviours using video analysis.
5. Diagnostic Control System for Machine Controlled Tools.
6. Electronically Controlled Mechanism for Liquid Lens and object tracking.
7. Coloured Night Vision Goggles.
8. SAR based Automatic Target Recognition
9. Autonomous Swarm Based Drones for Recon & Assessment.

UNPUBLISHED PROJECTS:

PROJECT TITLE	INSTITUTE	YEAR OF COMPLETION
Simulation package of sieve trays efficiency determination for engineers in petroleum sector	Association of Scientific Empowerment & Commerce	2013
Simulation of Electromagnetic radiation based propellant free propulsion system	CRIAD Laboratories, Public funded	2013
A Novel Discrete Probability based Particle Swarm Optimization Algorithm for Solving Traveling Salesman Problem	Shri Shankracharya College of Engineering & Technology, Junwani	2013
Infrastructure Adaptive Middleware for Autonomous Wide Area Power Transmission & Remote Mapping: An implementation of Self-Operationalize Power Transmission System (SOPTS)	Indian Electrical and Electronics Manufacturers' Association, Mumbai	2013

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Cognitive Computing with Epigenetic manipulation of neuronal wiring for a co-activated input signal: An Implementation of Self-Aware Artificial Intelligence	Shri Shankracharya College of Engineering & Technology, Junwani	2014