Dr. Vipul Kumar Mishra, Ph.D.

Post-Doc University of Kentucky, USA.

- ☑ mishravipul.in@gmail.com
- **** +91 7566907568 in Vipul
- http://mishravipul.in/

Profile

Passionate Researcher and Teacher who loves to solve the challenging problem of Artificial Intelligence. Develop Deep Learning and Machine Learning solution for computer vision and Natural Language Processing problems. Developed Deep Learning solutions for multiple industries such as Bharat Electronics Limited, NSDC, Manupatra

WORK EXPERIENCE

ent		Assistant	professor	Pandit I	Deen I	Dayal	Energy	University, Gandhinagar.
	_							

- Assistant Professor Bennett University, Greater Noida U.P.
- **Assistant Professor** IMS Engineering college Ghaziabad.
- Oct 2015- Jan 2016
- Jan 2013- July 2015 **Research Scholar** Indian Institute of Technology Indore.
 - Lecturer Shri Govindram Seksaria Institute of Technology and Science, Indore.

PROJECTS

INDUSTRY SPONSORED R&D PROJECT

Completed

Bharat Electronics Limited	Development of AI model for real time Detection, Tracking and Classification of human/vehicle activities from video stream Project cost - 48.4 Lakh INR. We have developed deep learning based solution for person and ve- hicle detection with action recognition in difficult situation. such as occlusion, Illumination Conditions etc.
NSDC India	Study on External Factors Affecting Success Rates in Skilling Programs. (Sponsored from NSDC India) as PI Project Cost – 2 lakh INR Developed a Machine Learning solution for placement prediction and course recommendation based on personal, educational, geo- graphical, population, and industrial information
Radio Mirchi	Song Analyser (Sponsored from Radio Mirchi) Project cost - 6 Lakh INR Automate the song and advertisement playlist analysis
NSDC India	Predictive Analytics in Skill Development - Leveraging Arti- ficial Intelligence and Machine Learning Techniques ((Spon- sored from NSDC India) Project Cost - 50k.



- Dec 2022- Prese
- June 2016- Dec 2022 Feb 2016- May 2016

Dec 2011 - June 2012

Postdoctoral Scholar University of Kentucky USA.

PROJECTS (continued)



PHD SUPERVISION

Completed

- Dr. Tejalal Choudhary , "Deep Neural Network Model Compression and Acceleration for Resource-Constrained devices" PhD defended on 6th June 2022.
- Dr. Mayank Dixit, "Automatic Building Extraction from Remote Sensing Satellite Images" ,PhD defended 14th December 2022.
- Dr. Shambhavi Mishra, "Prediction and Trend Analysis of Financial Time Series: Deep Learning and Kernel Adaptive Filtering Perspective", PhD defended on 17th Novenber 2022.

Ongoing

- Jaya Gupta, "Reinforcement learning powered video summarization".
- Indushree M., Design Of Blockchain-Based Secure And Privacy-Preserving Mutual Authentication Protocols.

ACADEMIC RECORD

Jan 2013 - July 2015	Doctor of Philosophy (Ph.D.), Indian Institute of Technology, Indore,
	Computer Science & Engineering.
	Grade CPI 10.0
Aug 2009 - Dec 2011	Master in Engineering (M.E.), Shri Govindram Seksaria Institute of
	Technology and Science, Indore, Computer & Engineering.
	Degree Grade 79.32%

ACADEMIC RECORD (continued)

Aug 2005 - June 2009

Bachelor in Engineering (B.E.), Nagaji Institute of Technology and Management Gwalior (RGPV, Bhopal), Computer Science & Engineering. Degree Grade 76.0%

Research Publications

Patents

- T. choudhary, V. K. Mishra, and A. Goswami, "Automated deep learning model optimization," Indian Patent 202 111 013 437, Published, Apr. 30, 2021.
- V. K. Mishra, T. badal, and R. das, "Mechanism for obtaining multi-source information," Indian Patent 202 111 054 025, Published, Nov. 23, 2021.

V. K. Mishra, T. Badal, and A. Goswami, "System and method for evaluating student learning using ai based real-time analysis," Indian Patent 202 111 034 143, Published, Jul. 29, 2021.

Journal Articles

12

- T. Choudhary, S. Gujar, A. Goswami, V. Mishra, and T. Badal, "Deep learning-based important weights-only transfer learning approach for covid-19 ct-scan classification," *Applied Intelligence*, pp. 1–15, 2022.
- 2 T. Choudhary, V. Mishra, A. Goswami, and J. Sarangapani, "Heuristic-based automatic pruning of deep neural networks," *Neural Computing and Applications*, vol. 34, no. 6, pp. 4889–4903, 2022.

T. Choudhary, V. Mishra, A. Goswami, and J. Sarangapani, "Inference-aware convolutional neural network pruning," *Future Generation Computer Systems*, vol. 135, pp. 44–56, 2022.

M. Dixit, K. Chaurasia, V. K. Mishra, D. Singh, and H.-N. Lee, "6+: A novel approach for building extraction from a medium resolution multi-spectral satellite," *Sustainability*, vol. 14, no. 3, p. 1615, 2022.

S. Mishra, T. Ahmed, V. Mishra, S. Bourouis, and M. A. Ullah, "An online kernel adaptive filtering-based approach for mid-price prediction," *Scientific Programming*, vol. 2022, 2022.

6 S. Sinha, S. Mishra, V. Mishra, and T. Ahmed, "Sector influence aware stock trend prediction using 3d convolutional neural network," *Journal of King Saud University-Computer and Information Sciences*, vol. 34, no. 4, pp. 1511–1522, 2022.

7 S. Suryawanshi, A. Goswami, P. Patil, and V. Mishra, "Adaptive windowing based recurrent neural network for drift adaption in non-stationary environment," *Journal of Ambient Intelligence and Humanized Computing*, pp. 1–15, 2022.

A. Aggarwal, V. Sharma, A. Trivedi, *et al.*, "Two-way feature extraction using sequential and multimodal approach for hateful meme classification," *Complexity*, vol. 2021, 2021.

9 T. Choudhary, V. Mishra, A. Goswami, and J. Sarangapani, "A transfer learning with structured filter pruning approach for improved breast cancer classification on point-of-care devices," *Computers in Biology and Medicine*, vol. 134, p. 104 432, 2021.

- 10 M. Dixit, K. Chaurasia, and V. K. Mishra, "Dilated-resunet: A novel deep learning architecture for building extraction from medium resolution multi-spectral satellite imagery," *Expert Systems with Applications*, vol. 184, p. 115 530, 2021.
- 11 K. Kotecha, D. Garg, B. Mishra, P. Narang, and V. K. Mishra, "Background invariant faster motion modeling for drone action recognition," *Drones*, vol. 5, no. 3, p. 87, 2021.
 - K. Kotecha, R. Verma, P. V. Rao, *et al.*, "Enhanced network intrusion detection system," *Sensors*, vol. 21, no. 23, p. 7835, 2021.

- B. Mishra, D. Garg, P. Narang, and V. Mishra, "A hybrid approach for search and rescue using 3dcnn and pso," *Neural Computing and Applications*, vol. 33, no. 17, pp. 10813–10827, 2021.
- S. Mishra, T. Ahmed, V. Mishra, *et al.*, "Multivariate and online prediction of closing price using kernel adaptive filtering," *Computational Intelligence and Neuroscience*, vol. 2021, 2021.
- 15 I. Puthige, K. Bansal, C. Bindra, *et al.*, "Safest route detection via danger index calculation and k-means clustering," 2021.
- ¹⁶ T. Choudhary, V. Mishra, A. Goswami, and J. Sarangapani, "A comprehensive survey on model compression and acceleration," *Artificial Intelligence Review*, vol. 53, no. 7, pp. 5113–5155, 2020.
 - B. Mishra, D. Garg, P. Narang, and V. Mishra, "Drone-surveillance for search and rescue in natural disaster," *Computer Communications*, vol. 156, pp. 1–10, 2020.
- 18 V. K. Mishra and A. Sengupta, "Swarm-inspired exploration of architecture and unrolling factors for nested-loop-based application in architectural synthesis," *Electronics Letters*, vol. 51, no. 2, pp. 157–159, 2015.
 - A. Sengupta and V. K. Mishra, "Simultaneous exploration of optimal datapath and loop based high level transformation during area-delay tradeoff in architectural synthesis using swarm intelligence," *International Journal of Knowledge-Based and Intelligent Engineering Systems*, vol. 19, no. 1, pp. 47–61, 2015.
- 20 V. K. Mishra and A. Sengupta, "Mo-pse: Adaptive multi-objective particle swarm optimization based design space exploration in architectural synthesis for application specific processor design," *Advances in Engineering Software*, vol. 67, pp. 111–124, 2014.
- A. Sengupta and V. K. Mishra, "Automated exploration of datapath and unrolling factor during power-performance tradeoff in architectural synthesis using multi-dimensional pso algorithm," *Expert Systems with Applications*, vol. 41, no. 10, pp. 4691–4703, 2014.
- 22 A. Sengupta, R. Sedaghat, and V. K. Mishra, "Execution time–area tradeoff in gausing residual load decoder: Integrated exploration of chaining based schedule and allocation in hls for hardware accelerators," *Facta Universitatis. Series: Electronics and Energetics*, vol. 27, no. 2, pp. 235–249, 2014.

Conference Proceedings

19

- S. Mishra, T. Ahmed, and V. Mishra, "Mid price prediction via statistical feature expansion and kernel adaptive filtering," in *Proceedings of the 2022 Fourteenth International Conference on Contemporary Computing*, 2022, pp. 461–466.
- 2 P. Ravula, S. K. Ch, S. Gopisetty, H. Pedhamallu, V. K. Mishra, and T. Badal, "Voip spam detection using machine learning," in 2022 6th International Conference on Intelligent Computing and Control Systems (ICICCS), IEEE, 2022, pp. 1251–1258.
- 3 S. Agarwal, M. Gupta, S. Khandelwal, *et al.*, "Fitme: A fitness application for accurate pose estimation using deep learning," in *2021 2nd International Conference on Secure Cyber Computing and Communications (ICSCCC)*, IEEE, 2021, pp. 232–237.
- 4 M. Dixit, K. Chaurasia, and V. K. Mishra, "Automatic building extraction from high-resolution satellite images using deep learning techniques," in *Proceedings of the International Conference on Paradigms of Computing, Communication and Data Sciences*, Springer, 2021, pp. 773–783.
 - J. M. R. Dwarampudi, D. Rampavan, M. A. S. Sathwik, *et al.*, "Image caption generation in telugu," in 2021 7th International Conference on Advanced Computing and Communication Systems (ICACCS), IEEE, vol. 1, 2021, pp. 438–443.
- 6 H. Kataria, A. Gupta, and V. Mishra, "Bennettnlp at semeval-2021 task 5: Toxic spans detection using stacked embedding powered toxic entity recognizer," in *Proceedings of the 15th International Workshop on Semantic Evaluation (SemEval-2021)*, 2021, pp. 941–947.

S. Mishra, T. Ahmed, and V. K. Mishra, "Close-price prediction using online kernel adaptive filtering," in 2021 Thirteenth International Conference on Contemporary Computing (IC3-2021), 2021, pp. 217–222. A. Singh, N. Dua, V. K. Mishra, D. Singh, A. Agrawal, et al., "Predicting elections results using social media activity a case study: Usa presidential election 2020," in 2021 7th International Conference on Advanced Computing and Communication Systems (ICACCS), IEEE, vol. 1, 2021, pp. 314-319. A. Tiwari, R. Goomer, S. S. Yenneti, S. Mehta, and V. Mishra, "Classification of humans and animals from radar signals using multi-input mixed data model," in 2021 International Conference on Computer Communication and Informatics (ICCCI), IEEE, 2021, pp. 1–6. 10 A. Varshney, A. Bansal, A. Agarwal, V. K. Mishra, and T. Badal, "A comparative study of deep learning models for detecting pulmonary embolism," in International Advanced Computing Conference, Springer, 2021, pp. 82-98. 11 K. Chaurasia, B. Neeraj, D. Burle, and V. K. Mishra, "Topographical feature extraction using machine learning techniques from sentinel-2a imagery," in IGARSS 2020-2020 IEEE International Geoscience and Remote Sensing Symposium, IEEE, 2020, pp. 1659–1662. 12 A. Gupta, H. Kataria, S. Mishra, T. Badal, and V. Mishra, "Bennettnlp at semeval-2020 task 8: Multimodal sentiment classification using hybrid hierarchical classifier," in Proceedings of the Fourteenth Workshop on Semantic Evaluation, 2020, pp. 1085-1093. M. Rathor, P. Sarkar, V. K. Mishra, and A. Sengupta, "Securing ip cores in ce systems using key-driven 13 hash-chaining based steganography," in 2020 IEEE 10th International Conference on Consumer Electronics (ICCE-Berlin), IEEE, 2020, pp. 1-4. 14 V. K. Mishra, N. Tiwari, and S. Ajaymon, "Dengue disease spread prediction using twofold linear regression," in 2019 IEEE 9th International Conference on Advanced Computing (IACC), IEEE, 2019, pp. 182-187. V. K. Mishra, "Cost aware majority logic synthesis for emerging technologies," in 2017 IEEE International Symposium on Nanoelectronic and Information Systems (iNIS), IEEE, 2017, pp. 69–73. V. K. Mishra and A. Sengupta, "Comprehensive operation chaining based schedule delay estimation 16 during high level synthesis," in 2017 IEEE International Symposium on Nanoelectronic and Information Systems (iNIS), IEEE, 2017, pp. 66–68. V. K. Mishra and H. Thapliyal, "Heuristic based majority/minority logic synthesis for emerging 17 technologies," in 2017 30th International Conference on VLSI Design and 2017 16th International Conference on Embedded Systems (VLSID), IEEE, 2017, pp. 295-300. 18 V. K. Mishra and A. Sengupta, "Psdse: Particle swarm driven design space exploration of architecture and unrolling factors for nested loops in high level synthesis," in 2014 Fifth International Symposium on Electronic System Design, IEEE, 2014, pp. 10-14. A. Sengupta and V. K. Mishra, "Integrated particle swarm optimization (i-pso): An adaptive design 19 space exploration framework for power-performance tradeoff in architectural synthesis," in Fifteenth International Symposium on Quality Electronic Design, IEEE, 2014, pp. 60-67. A. Sengupta and V. K. Mishra, "Swarm intelligence driven simultaneous adaptive exploration of 20 datapath and loop unrolling factor during area-performance tradeoff," in 2014 IEEE Computer Society Annual Symposium on VLSI, IEEE, 2014, pp. 106–111. A. Sengupta and V. K. Mishra, "Time varying vs. fixed acceleration coefficient pso driven exploration 21 during high level synthesis: Performance and quality assessment," in 2014 international conference on information technology, IEEE, 2014, pp. 281-286.

V. K. Mishra and D. Mehta, "Performance enhancement of numa multiprocessor systems with on-demand memory migration," in *2013 3rd IEEE International Advance Computing Conference (IACC)*, IEEE, 2013, pp. 40–43.



25

V. K. Mishra and A. Sengupta, "Swarm intelligence driven design space exploration: An integrated framework for power-performance trade-off in architectural synthesis," in *2013 25th International Conference on Microelectronics (ICM)*, IEEE, 2013, pp. 1–4.

A. Sengupta and V. K. Mishra, "D-logic exploration: Rapid search of pareto fronts during architectural synthesis of custom processors," in *2013 International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, IEEE, 2013, pp. 586–593.

A. Sengupta, V. K. Mishra, and P. Sarkar, "Rapid search of pareto fronts using d-logic exploration during multi-objective tradeoff of computation intensive applications," in *Fifth Asia Symposium on Quality Electronic Design (ASQED 2013)*, IEEE, 2013, pp. 113–122.

Books and Chapters

- S. Mishra, T. Ahmed, and V. Mishra, "Mid-price prediction using online kernel adaptive filtering," in *Emerging Technologies for Computing, Communication and Smart Cities*, Springer, 2022, pp. 701–714.
- S. Mishra, T. Ahmed, and V. Mishra, "Reliable biomedical applications using ai models," in *Healthcare Solutions Using Machine Learning and Informatics*, Auerbach Publications, 2022, pp. 147–172.
- 3 S. D. Nukala, V. K. Mishra, and G. K. M. Nookala, "Modeling earthquake damage grade level prediction using machine learning and deep learning techniques," in *Data Management, Analytics and Innovation*, Springer, 2021, pp. 421–433.

Teaching Experience

Top Highlights

- **Got Best teacher award three times**
- Got 8.6/10 average of 7 years of teaching
- During exit survey, my courses always stand on top two favorite courses.
- Successfully taught class of 291 in one go

Courses Developed and Taught

- Artificial Intelligence and Machine Learning
- Deep Learning
- Natural Language Processing
- Intelligent Model Design

Courses Taught

- Computation Thinking with Python
- 📕 Digital Logic Design
- Object oriented programming with Java
- Operating system

ADMINISTRATIVE RESPONSIBILITIES

- Member of Executive Council of University
- Member of Academic Council of University
- Member of Board of studies
- Department Chair for Academics and teaching quality
- Member of Proctor Committee of University
- **CSE PhD program coordinator (2016-2020)**
- Member of Departmental Research Committee
- Mentor of Bennett AI Club

INVITED TALK

- **"How can AI and data Analytic help in Decision Making Process**" at 14th FICCI Higher Education Summit 2018.
- **"Deep Learning in computer vision**" at FDP in Maharaja Agrasen Institute Of Technology, Delhi.
- Guest Speaker in the Faculty Development Program ,Artificial Intelligence and Machine Learning with Data Science" from 14-19 December 2020, Guru Nanak Dev Engineering College.
- Guest Speaker in the Faculty Development Program "Industry 4.0: The Application of Artificial Intelligence & Mechatronics" 20-24 January 2020.
- Guest speaker "Data science in Engineering applications" on "Deep learning for Edge Devices" 26th April 2021 – 1st may 2021 Anurag group of institution Hyderabad.
- Guest speaker "Data science in Engineering applications" "Deep learning for computer vision" 15th March 2021 – 20th March 2021 Anurag group of institution Hyderabad.
- Guest Speaker, A One Week Faculty Development Programme (FDP) On "Human-Centred Computing" CMR Institute of Technology, Bengaluru, 01 - 05, February 2021..
- Guest speaker of FDP on "Role of Machine Learning in VLSI design", AI powered High level synthesis during Application specific processor design, 6-11 December 2021, Anurag University.
- Guest Speaker of FDP on "Applications of Artificial Intelligence and Machine Learning", 19-January2022, PSGR Krishnammal College for Women, Coimbatore.
- Guest Lecture Artificial intelligence and machine learning course 25hrs 8 January- 13 February 2022 Model institute of technology Jammu.
- Guest speaker on "Sequence Learning Problems" on 24th March 2022 at Mar Baselios College of Engineering and Technology, Thiruvananthapuram, Kerala.
- Guest speaker on "Machine Translation-RNN based Machine Translation" on 24th March 2022 at Mar Baselios College of Engineering and Technology, Thiruvananthapuram, Kerala.

Miscellaneous Experience (continued)

Guest Speaker on "A Short Tour on Artificial Intelligence and Machine Learning" June 2 2022, Model institute of technology Jammu.

WORKSHOP CONDUCTED

- Certified Nvidia Deep Learning Institute (DLI) Instructor
- Conducted more than 30 workshops on Machine learning and deep learning across India. Few top industry/institute CDAC Noida| GAIL India | DAICT Gandhinagar| COEP, Pune| Symbiosis Institute of Technology Pune

ONLINE COURSES DEVELOPED

- **Deep learning for Computer Vision and NLP**
- AI and ML

CERTIFICATIONS

NVIDIA DLI Certificate

- te **Getting Started With Deep stream For Video Analytics On Jetson Nano**
 - Getting Started With Ai On Jetson Nano
 - Fundamentals Of Deep Learning For Computer Vision
 - Deep Learning for Healthcare Image Analysis
 - Building Transformer-Based Natural Language Processing Applications
- Coursera 🛛 📮 Bayesian Methods for Machine Learning
 - Udacity **Secure and Private AI**

ACHIEVEMENTS

2008, 2009, 2011 Qualified GATE 2014 Received Financial Grant from DST as young scientist

Received fellowship from ISED

REVIEWER

Reviewer IEEE Transaction on Artificial Intelligence

- **Reviewer of IEEE Transaction of VLSI**
- Reviewer of IEEE Transaction on Aerospace and Electronic Systems
- Reviewer of IEEE/IET Journal on Computers & Digital Techniques
- Reviewer of Expert system with application

References

Available on Request