Vinod K Kurmi, Ph.D.

vinod.kurmi@kuleuven.be, vinodkumarkurmi@gmail.com
+91-9651180055
https://vinodkkurmi.github.io/
https://scholar.google.co.in/citations?user=Exo2VNAAAAAJ&hl=en
https://www.linkedin.com/in/vinod-k-kurmi-b5b70651/
@vinodkkurmi

Experience in Computer Vision, Deep Learning, Machine Learning, Domain Adaptation, Multimodal Learning, NLP. Currently working on multimodal learning projects.

Education

2014 -2020 — **Ph.D., EE, Indian Institute of Technology Kanpur**, India.
Thesis title: *Understanding Transfer Learning between Domains and Tasks*,
Supervisors: Prof. Vinay P. Namboodiri and Prof. K S Venkatesh.

2012 – 2014 — **M.Tech, Indian Institute of Technology Kanpur**, India.
Thesis title: *Human Hand Gesture Recognition from 3D Data*,
Supervisor: Prof. K S Venkatesh.

2008 – 2012 — **B.E., Electronics & Telecommunication, SGSITS Indore**, India.

Employment History

May 2021 – present — **Post-Doc Fellow**, KU Leuven, Belgium
Supervisor: Prof. Tinne Tuytelaars

Aug 2020 – April 2021 — **Post-Doc Fellow**,CVIT, IIIT Hyderabad, India
Supervisor: Prof. C V Jawahar

July 2019-Nov 2019 — **Tutor**, Introduction to Electronics (Lab), IIT Kanpur

July 2018-Nov 2018 — **Tutor**, Introduction to Electronics (Lab), IIT Kanpur

May 2014- June 2014 — **Senior Student Research Associate**, Computer Vision Lab IIT Kanpur

Publications

Patents

Patent-2015 — **Vinod K Kurmi**, Garima Jain, KS Venkatesh, "A Human-Hand Detection System, Apparatus and a Method Thereof", India PO No.1678/DEL/2015.

Journals

IMAVIS- 2021 — **Vinod K. Kurmi**, Venkatesh K Subramanian, Vinay P. Namboodiri, "Informative Discriminator for Domain Adaptation", ***Image and Vision Computing***, *2021* [PDF] **[IF: 3.103]**

Neurocomp- 2020 — Badri N. Patro, Dev Chauhan, **Vinod K. Kurmi**, Vinay P. Namboodiri, "Revisiting Paraphrase Question Generator using Pairwise Discriminator", ***Neurocomputing***, *2020.* [PDF] [Code] **[IF: 4.438]**.

Conferences

ICASSP-2021 — **Vinod K. Kurmi**, Vipul Bajaj, Badri N. Patro, Venkatesh K Subramanian, Vinay P. Namboodiri, Preethi Jyothi, "Collaborative Learning to Generate Audio-Video Jointly,", *IEEE International Conference on Acoustics, Speech, and Signal Processing. (**ICASSP**), Virtual, 2021.*
[PDF] [Code][**H5-Index: 86**].

Publications (continued)

WACV-2021 **Vinod K. Kurmi**, Venkatesh K Subramanian, Vinay P. Namboodiri, "Domain Impression: A Source Data Free Domain Adaptation Method", *IEEE Winter Conference of Applications on Computer Vision (**WACV**), Virtual, 2021.*
[PDF] [Code][**H5-Index: 54**].

WACV- 2021 **Vinod K. Kurmi**, Badri N. Patro, Venkatesh K Subramanian, Vinay P. Namboodiri, "Do not Forget to Attend to Uncertainty while Mitigating Catastrophic Forgetting", *IEEE Winter Conference of Applications on Computer Vision (**WACV**), Virtual, 2021.*
[PDF] [Code][**H5-Index: 54**].

IJCNN-2021 Indu Joshi, Ayush Utkarsh, Riya Kothari, **Vinod K. Kurmi**, Antitza Dantcheva, Sumantra Dutta Roy, Prem Kalra, "Learning Noise-aware Preprocessing Of Fingerprints", *International Joint Conference on Neural Networks **(IJCNN)**, Virtual, 2021*
[**H5-Index: 46**].

IJCNN- 2021 Indu Joshi, Ayush Utkarsh, Riya Kothari, **Vinod K. Kurmi**, Antitza Dantcheva, Sumantra Dutta Roy, Prem Kalra, "On Learning Sensor-invariant Features For Fingerprint ROI Segmentation", *International Joint Conference on Neural Networks **(IJCNN)**, Virtual, 2021*
[**H5-Index: 46**].

WACV-2020 Badri N. Patro, **Vinod K. Kurmi**, Sandeep K., Vinay P. Namboodiri, "Deep Bayesian Network for Visual Question Generation", *IEEE Winter Conference of Applications on Computer Vision (**WACV**), Snowmass Village, USA, 2020.*
[PDF] [Code][**H5-Index: 54**].

BMVC-2019 **Vinod K. Kurmi**, Vipul Bajaj, Venkatesh K Subramanian, Vinay P. Namboodiri, "Curriculum based Dropout Discriminator for Domain Adaptation", *British Machine Vision Conference (**BMVC**) , Cardiff, UK, 2019.*
[PDF] [Code] [**H5-Index: 57**].

CVPR-2019 **Vinod K. Kurmi***, Shanu Kumar*, Vinay P. Namboodiri, "Attending to Discriminative Certainty for Domain Adaptation", *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), Long Beach, California, USA, 2019 (* Equal contributions*).*
[PDF] [Code][**H5-Index: 299**].

IJCNN-2019 **Vinod K. Kurmi**, Vinay P. Namboodiri, "Looking back at Labels: A Class based Domain Adaptation Technique ", *International Joint Conference on Neural Networks (**IJCNN**), Budapest, Hungary, 2019* (**Oral Presentation**).
[PDF] [Code][**H5-Index: 46**].

EMNLP-2018 Badri N. Patro, Sandeep K., **Vinod K. Kurmi**, Vinay P. Namboodiri, "Multimodal Differential Network for Visual Question Generation", *Conference on Empirical Methods in Natural Language Processing (**EMNLP**), Brussels, Belgium, 2018.*
[PDF] [Code][**H5-Index: 112**].

COLING-2018 Badri N. Patro*, **Vinod K. Kurmi***, Sandeep Kumar*, Vinay P. Namboodiri, "Learning Semantic Sentence Embeddings using Pair-wise Discriminator", *Proceedings of 27th International Conference on Computational Linguistics (**COLING**), Santa Fe, New Mexico, USA, 2018 (* Equal contributions*).*
[PDF] [Code][**H5-Index: 49**].

WSCG-2015 **Vinod K Kurmi**, G. Jain, KS Venkatesh, "Robust Human Gesture Recognition form 3D Data" *WSCG 2015, 23rd International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (**WSCG**), Czech Republic, 2015.*
[PDF].

Publications (continued)

Workshops

WACV-XAI-2021 — Indu Joshi, Riya Kothari, Ayush Utkarsh, **Vinod K. Kurmi**, Antitza Dantcheva, Sumantra Dutta Roy, Prem Kalra, "Explainable Fingerprint ROI Segmentation Using Monte Carlo Dropout", *Workshop on Explainable and Interpretable Artificial Intelligence for Biometrics at **WACV** 2021.*
[**H5-Index: 54**]

ICCV-CLVL-2019 — Badri N. Patro*, **Vinod K. Kurmi***, Sandeep Kumar*, Vinay P. Namboodiri, "Learning Semantic Sentence Embeddings using Pair-wise Discriminator", **ICCV Workshop** (CLVL), Seoul, South Korea, 2019. (4 page paper) (**Spotlight**) (* *Equal contributions*)
[**H5-Index: 51**].

ICCV- CLVL-2019 — Badri N. Patro, Sandeep Kumar, **Vinod K. Kurmi**, Vinay P. Namboodiri, "Multimodal Differential Network for Visual Question Generation",, **ICCV Workshop** (CLVL), Seoul, South Korea, 2019. (4 page paper) (**Spotlight**)
[**H5-Index: 51**].

Awards and Achievements

2020 — **DAAD AI Post-Doc Net Fellow**
- NeurIPS 2020 Financial Assistance Award

2019 — **Qualcomm Innovation Fellowship** 2019 Finalists

2017 — **Among top performers**, and awarded by cash prize at "Summer school of Machine Learning" at Centre for Visual Information Technology (CVIT) Hyderabad.
- **Among top performers**, and awarded by cash prize at "Summer school of Deep Learning" at Centre for Visual Information Technology (CVIT) Hyderabad.

2015 — **TCS Research Fellowship** Award for 4 years (2015-2019).

2014 — Recipient of **MHRD** PhD Fellowship.
- Qualified for **Junior Research Fellowship (JRF)** of CSIR -NET.

2012 — Recipient of **MHRD** Post-Graduate Fellowship.

Travel Grants

Dec 2019 — Awarded **TCS** Travel Grant for NCVPRIPG 2019.

July 2019 — Awarded **Microsoft** Travel Grant for IJCNN 2019.
- Awarded **EE, IIT Kanpur** Travel Grant for IJCNN 2019.

June 2019 — Awarded **Google** Travel Grant for CVPR 2019.
- Awarded **Microsoft** Travel Grant for CVPR 2019.

Skills

Programming Languages — Python, Matlab, Lua, C++, C and LaTeX

Deep Learning Framworks — PyTorch, OpenCV, Torch, Theano, Keras, TensorFlow

PhD Research Work

Jan 2014-June-2020 — **Understanding Transfer Learning between Domains and Tasks**,
Prof. K S Venkatesh and Prof. Vinay P. Namboodiri
Analyzed and tackled the different problems of faced in domain adaptation. We proposed variety of techniques such as improved discriminator and considering distribution based adaptation. By obtaining uncertainty and through these localized adaptation has been proposed. In next work, we proposed a attention and uncertainty based models for task incremental learning. We tackled the domain adaptation problems without avail the source data.

Masters Research Work

July 2013-June-2014 — **Human Hand Gesture Recognition from 3D Data**,
Prof. K S Venkatesh
The objective was to develop efficient algorithms to detect hand gestures in varying light conditions, irrespective of background clutter. The hardware used was Kinect sensor from Microsoft. Human hand constellation identified from the 3D data to identify the hand. The proposed algorithm and system works in varying light conditions, background clutter and any human pose.

Research Projects

Industrial Projects

July 2013-June 2014 — Gesture Recognition System of Smart TV (**Samsung-IITK collaboration Project**)

Academic Projects

2015 — Gaussian Process based Hallucination of Features for Object Classification (Machine Learning in Computer Vision)

Study of Clustering and Classification Technique for Analytical Datasets (Convex Optimization)

Indoor Positioning Using UWB-IR Signals in the Presence of Dense Multipath with Path Overlapping (Statistical Signal Processing)

2014 — Cooperative MIMO Multicell Networks (Wireless Communications)

2012 — GPS based Vehicle Tracking System (B.E. Project)

Teaching Assistantship

July 2017-Nov 2017 — **Teaching Assistant**, Signal, Systems and Networks

Jan 2017- May 2017 — **Teaching Assistant**, Introduction to Electronics

July 2016- Nov 2016 — **Teaching Assistant**, Introduction to Electronics

Jan 2016- May 2016 — **Teaching Assistant**, Department Post-Graduation Committee

July 2015- Nov 2016 — **Teaching Assistant**, Computer Vision Lab

Jan 2015- May 2015 — **Teaching Assistant**, Department Post-Graduation Committee

July 2012- May 2014 — **Teaching Assistant**, Department Post-Graduation Committee

Miscellaneous Experience

Professional Services

- 2019-2020 Served as a reviewer for IEEE Transactions on Neural Networks and Learning Systems (**TNNS**) and IEEE Transactions on Image Processing (**TIP**) .
- 2018-2020 Served as a reviewer for conferences **CVPR, BMVC, ECML-PKDD, WACV, ICVGIP, NCVPRIPG, ICME** and Workshop on ML4H at **NeurIPS**.
- 2019 Member of International Neural Network Society (**INNS**)
- 2019-2020 Member of Computer Vision Foundation (**CVF**)

Talks/Seminars

- 2019 Delivered oral presentation on 'Attending to Discriminative Certainty for Domain Adaptation' in **NCVPRIPG** at Hubli (India).
- Delivered oral presentation on 'Looking back at Labels: A Class based Domain Adaptation Technique' in **IJCNN** at Budapest (Hungary).
- Presented poster on 'Attending to Discriminative Certainty for Domain Adaptation' in **CVPR** at Long Beach, CA (USA).
- Delivered talks on '**Bayesian Models for Domain Adaptation**' in 'QINF' at Qualcomm, Bangalore (India).
- Delivered talks on '**Basics of Python and PyTorch**' in "ITEC course on AI" at IIT Kanpur (India).
- 2018 Presented poster on 'Learning Semantic Sentence Embeddings using Pair-wise Discriminator' in **Amazon Research Day** at Bangalore (India).
- Delivered talks on 'Computer Vision and Image Processing' in "TEQIP training session" at IIT Kanpur (India).
- Delivered talks on '2D and 3D Vision for Robotics' in "TEQIP short term course on Introduction to Robotics" at IIT Kanpur (India).
- 2017 Presented poster on 'Domain Adaptation on Computer Vision' at Electrical Engineering **IIT Kanpur Research Day**.
- Delivered State-of-the-Art seminar on 'Domain Adaptation and Modality Hallucination' at Electrical Engineering **IIT Kanpur**.

Workshops and Conferences Attended

- 2020 Participated in **DAAD AI Post-Doc Net Tour**, Virtual.
- Attended **NeurIPS 2020**, Virtual.
- 2019 Participated in **NCVPRIPG** 2019 at Hubli, India.
- Participated in **IJCNN** 2019 at Budapest, Hungary.
- Participated in **CVPR** 2019 at Long Beach, USA.
- Participated in **Amazon Research Day** 2019 at Bangalore sponsored by Amazon, India.
- 2018 Participated in **Amazon Research Day** 2018 at Bangalore sponsored by Amazon, India.
- 2017 Attended Summer School on **Advance Computer Vision using Deep learning** at IIIT Hyderabad, India.
- Attended summer School on Machine Learning at IIIT Hyderabad
- 2016 Attended Mysore Park Workshop on **Vision, Language and AI** at VLAI 2016, Mysore, India.
- Attended Summer School on Deep Learning at IIIT Hyderabad, India.

References

Available on Request