

Table of Contents

Cover letter	1
Ten years of professional experience criterion	2
Five years of significant performance	3
Table 1 (Appendix)	5
Table 2 (Appendix)	6
Table 3 (Appendix)	7

Cover letter

Dear Review Committee members,

I am Isht Dwivedi, a Research Engineer at Honda Research Institute USA. I work on computer vision research and engineering problems at Honda Research Institute USA. Please consider my application for IEEE senior membership. In the following 2 pages, I have presented why I believe I satisfy the (1) 10 years of professional experience criterion and (2) Five years of significant performance criterion.

Thank you very much,
Isht Dwivedi

Ten years of professional experience criterion

	Time	Notes	Dates
B.Tech + Master's	4 years	The requirements website states that I can count BTech+MS as 4 years of professional experience.	B.Tech: Aug 2012 - May 2016 MS: Aug 2017 - May 2018
Work at Honda Research Institute USA	4.25 years	I am working on road scene understanding for cars traveling on road.	May 2018 - Present
Research at Indian Institute of Science after B.Tech	1.25 years	I worked with Prof. Venkatesh Babu at the Indian Institute of Science.	May 2016 - Aug 2017
Internship at École Polytechnique	0.25 years	Please refer to CV for details	May 2015 - Jul 2015
Internship at Hanyang University	0.25 years	Please refer to CV for details	May 2014 - Jul 2014
Internship at Raja Ramanna Center for Advanced Technology	0.25 years	Please refer to CV for details	May 2013 - Jul 2013
	Total 10.25 years		

Five years of significant performance

I claim significant performance for the following time periods (5.75 years total):

- From May 2016 - Aug 2017 (1.25 years): When I was a Research Associate at Indian Institute of Science, Bangalore. I worked full-time on a research problem: semantic segmentation of hand-drawn sketches. This work was published as a full [paper](#) [1] at ACM Multimedia 2017.
- From May 2018 - Present (4.5 years): At my current job at Honda Research Institute USA, I have been working on a few different research problems that can be used for ADAS (Advanced Driver Assistance Systems) applications. This aligns with Honda's goal of zero traffic-related fatalities by 2050. During this time,
 - I have published 6 papers in reputed peer-reviewed conferences and Journals. **Table 1** below has details about my publications. Please view my Google Scholar [here](#).
 - I have filed 5 US patents: 3 have been accepted, and 2 are under review. Please see **Table 2** below for more details.
 - I am leading 2 projects at Honda Research Institute:
 - 2018 - present (4.5 years): This project focuses on road scene understanding with emphasis on areas around construction zones. Only video data from camera sensors mounted on the car are used for this project. This work has led to [this](#) [2] and [this](#) [3] publication. Now, I am working on the next upgraded version of this work that is more accurate and faster. This work will be showcased at the [ITS World Congress](#) in Sept 2022.
 - 2020 - present: The second project aims to plan the ego car's trajectory inside an intersection using only video data from camera sensors on the car. For successful trajectory planning, it is essential to detect the intersection when the car is about 30+ meters from the intersection. In addition to this, it is critical to estimate which lane the car will go into after crossing the intersection. This work has led to the publication of [this work](#) [4] and [this work](#) [5].
 - I am a team member in another project at Honda Research Institute: "Weakly supervised temporal segmentation of videos". The goal of this project is to segment a given input video into smaller clips. The video contains a person performing several actions in a sequence. Each smaller output video clip is segmented so that it has just 1 action. This work led to [this](#) [7] publication.
 - I have been a reviewer for 33 papers at different Journals / Conferences. I have listed details about this in **Table 3** below.

[1] Sarvadevabhatla RK, Dwivedi I, Biswas A, Manocha S. SketchParse: Towards rich descriptions for poorly drawn sketches using multi-task hierarchical deep networks. In Proceedings of the 25th ACM international conference on Multimedia 2017 Oct 19 (pp. 10-18).

[2] Dwivedi I, Malla S, Chen YT, Dariush B. Bird's eye view segmentation using lifted 2d semantic features. In British Machine Vision Conference (BMVC) 2021 (pp. 6985-6994).

- [3] Dwivedi I, Narayanan A, Dariush B. Dynamic traffic scene classification with space-time coherence. In 2019 International Conference on Robotics and Automation (ICRA) 2019 May 20 (pp. 5629-5635). IEEE.
- [4] Dwivedi I, Malla S, Dariush B, Choi C. SSP: Single shot future trajectory prediction. In 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2020 Oct 24 (pp. 2211-2218). IEEE.
- [5] Malla S, Dwivedi I, Dariush B, Choi C. Nemo: Future object localization using noisy ego priors. IEEE International Conference on Intelligent Transportation Systems (ITSC) 2022
- [6] DRAMA: Joint Risk Localization and Captioning in Driving, IEEE Winter Conference on Applications of Computer Vision (WACV) 2023
- [7] Ghoddoosian R, Dwivedi I, Agarwal N, Choi C, Dariush B. Weakly-Supervised Online Action Segmentation in Multi-View Instructional Videos. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition 2022 (pp. 13780-13790).

Table 1 (Appendix)

Paper name (Google Scholar link)	Conference	Conference H5-index (Google Scholar)	Notes (Current job publications in Blue)
1. Weakly-Supervised Online Action Segmentation in Multi-View Instructional Videos	IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2022	389	Ranked 1st in Engineering & Computer Science. Also Ranked 1st in Computer Vision. Link and Link (Honda Research Institute)
2. SketchParse: Towards rich descriptions for poorly drawn sketches using multi-task hierarchical deep networks	ACM international conference on Multimedia	71	Ranked 4th in Multimedia. Link (Indian Institute of Science)
3. High-quality prediction of protein Q8 secondary structure by diverse neural network architectures	NeurIPS 2018 Workshop on Machine Learning for Molecules and Materials	N/A	(Columbia University)
4. Dynamic traffic scene classification with space-time coherence	IEEE International Conference on Robotics and Automation (ICRA) 2019.	116	Ranked 1st in Robotics. Link (Honda Research Institute)
5. Online writer identification using sparse coding and histogram-based descriptors	International Conference on Frontiers in Handwriting Recognition (ICFHR, oral) 2016	N/A	The premier (most reputed) scientific venue in the field of handwriting recognition. (IIT Guwahati)
6. SSP: Single shot future trajectory prediction	IEEE International Conference on Intelligent Robots and Systems (IROS) 2022	80	Ranked 4th in Robotics. Link (Honda Research Institute)
7. Bird's eye view segmentation using lifted 2d semantic features	British Machine Vision Conference (BMVC) 2021.	75	One of the most reputed venue for computer vision. Link (Honda Research Institute)
8. NEMO: Future Object Localization Using Noisy Ego Priors	IEEE International Conference on Intelligent Transportation Systems (ITSC) 2022	52	One of the most reputed publication venue for Transportation. Link (Honda Research Institute)
9. DRAMA: Joint Risk Localization and Captioning in Driving	IEEE Winter Conference on Applications of Computer Vision (WACV) 2023	76	One of the most reputed publication venue for Computer Vision. Link (Honda Research Institute)

Table 2 (Appendix)

	Status	
US Patent 16374205, "Scene classification", Athmanarayanan Lakshmi Narayanan, Isht Dwivedi , Behzad Dariush	Accepted	Link
US Patent 11034357, "Scene classification prediction", Athmanarayanan Lakshmi Narayanan, Isht Dwivedi , Behzad Dariush	Accepted	Link
US Patent 16917864, "Composite field based single shot prediction", Isht Dwivedi , Chiho Choi, Srikanth Malla, Behzad Dariush	Accepted	Link
Submitted patent application to US Patent office for work related to Bird's Eye View segmentation (2021).	Filed	
Submitted patent application to US Patent office for work related to Temporal Action segmentation in videos (2021).	Filed	

Table 3 (Appendix)

Conference / Journal name	Number of papers reviewed	Impact factor	H5-index (Google Scholar)	Notes
1. Conference on Computer Vision and Pattern Recognition (CVPR) 2022	2		389	Ranked 1st in Engineering & Computer Science. Also Ranked 1st in Computer Vision. Link and Link
2. ACM Multimedia (ACM MM) 2022	3		71	Ranked 4th in Multimedia. Link
3. European Conference on Computer Vision (ECCV) 2022	8		186	Ranked 3rd in Computer Vision. Link
4. IEEE Internet of Things Journal (IoT)	2	11.043 Link	144	Ranked 1st in Computing Systems. Link
5. International Conference on Intelligent Robots and Systems (IROS) 2022	2		80	Ranked 4th in Robotics. Link
6. IEEE Robotics and Automation Letters (RA-L)	2	4.3 Link	92	Ranked 2nd in Robotics. Link
7. Workshop on Sketch-Oriented Deep Learning 2022	5		N/A	
8. Workshop on Autonomous Driving 2022	1		N/A	
9. Workshop on Robustness in Sequential Data (ROSE)	2		N/A	
10. Workshop on Human-centered Intelligent Services	2		N/A	
11. Workshop on Artificial Intelligence for Autonomous Driving (SL4AD 2022 @ ICML 2022)	2		N/A	
12. IEEE Transactions on Intelligent Transportation Systems (T-ITS)	1		115	Ranked 1st under Transportation. Link
13. Workshop on Applications of Computer Vision (WACV) 2023	1		76	One of the most reputed publication venues for computer vision. Link
TOTAL	33			