Diogo Carbonera Luvizon

Computer Vision Researcher

Samsung R&D Institute Brazil

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Birth: 14^{th} April 1989, Piraju (Brazil)
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Main skills

Advanced programming skills: C/C++, Python, Matlab, Shell script...
Main libraries: TensorFlow (+Keras and TFLite), OpenCV, Numpy, PyTorch, GStreamer...
Solid background in Computer Vision, Deep/Machine Learning, 3D Geometry.
Excellent communication skills, fluent in English, French and Portuguese.
6+ years of experience in industry, focus on applied research and on-device applications.
Relevant publication track record, including CVPR, TPAMI, WACV, etc.

Education

2015–2019	**Ph.D. in Computer Vision and Machine Learning**, Paris-Seine University, France: "*Machine Learning for Human Action Recognition and Pose Estimation based on 3D Information*".
2013–2015	**M.Sc. in Applied Computing**, Federal University of Technology – Paraná (UTFPR), Brazil.
2007–2011	**B.Sc. in Electronics Engineering**, emphasis in Electronics and Telecommunications, Federal University of Technology – Paraná (UTFPR), Brazil.

Academic research experience

2015–2019	**Ph.D. in Computer Vision and Machine Learning**, Paris-Seine University / University of Cergy-Pontoise, France.
April–July/ 2015	**Exchange of research**, QoSTREAM project, Faculty of Technical Sciences – University of Novi Sad, Serbia.
2013–2015	**M.Sc. in Applied Computing**, Vehicle speed estimation by License plate detection and tracking, Federal University of Technology (UTFPR), Brazil.
2009–2010	**Academic Internship**, Prototyping and Tooling Group (NUFER), Federal University of Technology, Brazil.

Professional experience

2019–present	**AI Researcher** at Samsung. Computer Vision and Machine / Deep Learning. Working on improving the state of the art for project related algorithms. Software development and optimization for on-device applications.
2017–2018	**Substitute professor (*vacataire*, 150 hours, during my PhD)**. Teaching for the 2nd/3rd years of B.Sc. in Electronic Engineering and Master's curses: *Artificial intelligence for control (reinforcement learning)*, *Artificial intelligence (intro. to deep learning)*, *Parallel programming*, and *Software engineering*.
2011–2014	**Software Development Engineer at Ensitec Tecnologia**. Working on software development for a broad range of products, mainly for applications using image processing and computer vision algorithms. Full development of a customized camera for speed enforcement, including porting Linux device drivers and developing efficient CV algorithms for embedded applications.
2010–2011	**Trainee Engineer at Velsis**. Development of electronic equipment for vehicle speed measurement systems.

Languages

Portuguese	Native proficiency
English	Professional working proficiency
French	Professional working proficiency (3.5 years living in France)

Technical program committee and academic services

2021	Program committee of CVPR, WACV
2020	Program committee of CVPR, ACCV
	International Journal of Computer Vision (IJCV)
	Elsevier Pattern Recognition (PR)
2018-2019	IEEE Trans. on Multimedia / IEEE Signal Processing Letters

Awards and prizes

2018	**Best presentation** award in the annual ETIS Lab workshop, 2018, France.
2016	**1st prize** on Workshop of Thesis and Dissertations (WTD - Master), Conference on Graphics, Patterns and Images (SIBGRAPI), 2016, Brazil
2016	**2nd prize** on Concurso Latino-Americano de Dissertacões de Mestrado (CLTM), Conferência Latino-Americana de Informática (CLEI), 2016, Chile.
2015	**Financial grant** from the Brazilian Government (CNPq) for my PhD studies in France (2015-2019).

Open source software *

deephar	Multitask human pose estimation and action recognition using deep learning (Python/TensorFlow)
pose-regression	2D human pose estimation framework (Python/TensorFlow)
harskel	Human action recognition from skeletal data (Matlab)

vehicle-dsm | Vehicle detection and speed measurement system from a single camera (C/C++)

* All my public source code are available at `https://github.com/dluvizon`

Publications

Link to my Scholar: `https://scholar.google.fr/citations?user=VZ1Q5v4AAAAJ&hl=fr&oi=ao`

International journals

[1] Diogo C Luvizon, Hedi Tabia, and David Picard. Multi-task deep learning for real-time 3d human pose estimation and action recognition. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2020.

[2] Diogo C. Luvizon, Hedi Tabia, and David Picard. Human pose regression by combining indirect part detection and contextual information. *Computers & Graphics*, 85:15 – 22, 2019.

[3] Diogo Carbonera Luvizon, Hedi Tabia, and David Picard. Learning features combination for human action recognition from skeleton sequences. *Pattern Recognition Letters*, 99:13 – 20, 2017.

[4] Diogo C. Luvizon, Bogdan T. Nassu, and Rodrigo Minetto. A Video-Based System for Vehicle Speed Measurement in Urban Roadways. *IEEE Transactions on Intelligent Transportation Systems (ITS)*, PP(99):1–12, 2016.

[5] Neri Volpato, Alexandre Franzoni, Diogo C. Luvizon, and Julian M. Schramm. Identifying the Directions of a set of 2D Contours for Additive Manufacturing Process Planning. *The International Journal of Advanced Manufacturing Technology*, 68(1-4):33–43, 2013.

International conferences

[1] Diogo C. Luvizon, Gustavo Sutter P. Carvalho, Andreza A. dos Santos, Jhonatas S. Conceicao, Jose L. Flores-Campana, Luis G. L. Decker, Marcos R. Souza, Helio Pedrini, Antonio Joia, and Otavio A. B. Penatti. Adaptive multiplane image generation from a single internet picture. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pages 2556–2565, January 2021.

[2] A. Pinto, M. A. Córdova, L. G. L. Decker, J. L. Flores-Campana, M. R. Souza, A. A. dos Santos, J. S. Conceição, H. F. Gagliardi, D. C. Luvizon, R. d. S. Torres, and H. Pedrini. Parallax motion effect generation through instance segmentation and depth estimation. In *2020 IEEE International Conference on Image Processing (ICIP)*, pages 1621–1625, 2020.

[3] Diogo C. Luvizon, David Picard, and Hedi Tabia. 2D/3D Pose Estimation and Action Recognition Using Multitask Deep Learning. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2018.

[4] D. C. Luvizon, B. T. Nassu, and R. Minetto. Vehicle speed estimation by license plate detection and tracking. In *XXIX SIBGRAPI - Conference on Graphics, Patterns and Images*, 2016. **1st prize** on the Workshop of Theses and Dissertations.

[5] D. C. Luvizon, B. T. Nassu, and R. Minetto. Medição da velocidade de veículos por detecção e rastreamento da placa. In *XLII Conferencia Latinoamericana de Informática (CLEI)*, 2016. **2o lugar** no XXII Concurso Latinoamericano de Tesis de Maestría.

[6] Diogo C. Luvizon, Bogdan T. Nassu, and Rodrigo Minetto. Vehicle Speed Estimation by License Plate Detection and Tracking. In *Acoustics, Speech and Signal Processing (ICASSP), 2014 IEEE International Conference on*, pages 6563–6567, May 2014.

National conferences

[1] Diogo C. Luvizon, Hedi Tabia, and David Picard. Multimodal Deep Neural Networks for Pose Estimation and Action Recognition. In *Congrès Reconnaissance des Formes, Image, Apprentissage et Perception (RFIAP 2018)*, Marne-la-Vallée, France, June 2018.

Patents

[1] D. C. Luvizon, R. Minetto, and B. T Nassu. Sistema para Medição de Velocidade Instantânea e Média de Veículos por Reconhecimento de Padrões em Imagens e Vídeos Digitais. INPI - Instituto Nacional da Propriedade Industrial, Registro No. BR10201503191, 2015 (Brazil, in Portuguese).

PhD thesis

[1] Diogo Carbonera Luvizon. *Machine Learning for Human Action Recognition and Pose Estimation based on 3D Information.* Theses, Cergy Paris Université, April 2019.

Master's thesis

[1] Diogo Carbonera Luvizon. Vehicle Speed Estimation by License Plate Detection and Tracking. Master's thesis, Federal University of Technology – Parana, Brazil, July 2015.