# Diogo Carbonera Luvizon

AI Researcher

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

## Academic research experience

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| 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

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| 2019–present | **AI Researcher** at Samsung.<br>Project leader related to the fields of Computer Vision and Deep Learning. |
| 2017–2018 | **Substitute professor (*vacataire*, about 150 hours)**.<br>Teaching for the 2nd and 3rd years of B.Sc. in Electronic Engineering as well as for Master's curses, including *Artificial intelligence for control (reinforcement learning)*, *Artificial intelligence (intro. to deep learning)*, *Parallel programming*, and *Software engineering*. |
| 2011–2014 | **Development Engineer at Ensitec Tecnologia**.<br>Working on development engineering for a broad range of electronic products and systems, from ultra-low power projects to applications using image processing and computer vision algorithms. |
| 2010–2011 | **Trainee Engineer at Velsis**.<br>Development of electronic equipments for vehicle speed measurement systems. |

# Education

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|---|---|
| 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 (UTFPR), Brazil. |
| 2007–2011 | **Electronics Engineering**, emphasis in Electronics and Telecommunications, Federal University of Technology (UTFPR), Brazil. |

# Languages

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

# Professional services

## Program committee

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| 2021 | Technical program committee of CVPR |
| 2021 | Technical program committee of the IEEE Winter Conf. on Applications of Computer Vision (WACV) |
| 2020 | Technical program committee of the Asian Conference on Computer Vision (ACCV) |
| 2020 | Technical program committee of CVPR |

## Reviewer activities

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| 2020 | International Journal of Computer Vision (IJCV) |
| 2018–2020 | IEEE Trans. on Multimedia |
| | IEEE Signal Processing Letters |
| | ACM Journal of Machine Learning Research |

# Awards and prizes

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| 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). |

# Teaching experience

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|---|---|
| Machine Learning | Artificial Neural Networks, Reinforcement Learning |
| Computer Science | Parallel Programming (Multi Threads) |

## Open source software *

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| 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

### 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] 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.

[2] 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.

[3] 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.

[4] 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.

[5] 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.