Dr. Carol Martínez

Research Scientist, Intelligent Perception and Robotic Manipulation
Space Robotics Research Group (SpaceR), SnT-University of Luxembourg,
+352 691615651 carol.martinezluna@uni.lu
Google scholar ORCID Webpage

RESEARCH AND PROFESIONAL EXPERIENCE

Research Scientist with ADR
Space Robotics Research Group (SpaceR), SnT/University of Luxembourg
July 2020 - present

Assistant Professor
Pontificia Universidad Javeriana (PUJ), Bogotá
Maternity leave, 2018
July 2015 – June 2020

Postdoctoral Researcher
Universidad Politécnica de Madrid (UPM), Computer Vision Group
Maternity leave, 2015
September 2013 – July 2015

Visiting Lecturer
Tsinghua University, Beijing-China
July 2014

Visiting Researcher
- University of Bristol (UK), Department of Aerospace Engineering, May – September 2011
- Australian Research Center for Aerospace Automation ARCAA-QUT Brisbane, July - October 2010

Researcher
Universidad Politécnica de Madrid (UPM), Computer Vision Group
Maternity leave, 2012
March 2007 - July 2013

Instrumentation Engineer
Consorcio Estudios Tecnicos S.A. (Etsa) – P.C.I. Ingenieros, Bogotá
January 2006 – August 2006

Project Engineer
Sensomatic & Cia Ltda, Bogotá
September 2004 - June 2005

EDUCATION

PhD in Robotics and Automation, Universidad Politécnica de Madrid (UPM)
Dissertation: “Visual Tracking, Pose Estimation, and Control of Aerial Vehicles”
Honors: “*Cum Laude*”, “International mention”, and “Best thesis award by UPM”
July 15 2013, Madrid-Spain

Master in Robotics and Automation, Universidad Politécnica de Madrid (UPM)
Thesis: “Trinocular Ground System to Control UAVs”
May 2009, Madrid-Spain

Bachelor in Mechatronics Engineering, Universidad Autónoma de Bucaramanga (UNAB)
Thesis: “Design of a Packing and Dosing Machine for Doughy Products”, Honors: “*Cum Laude*”
July 2004, Bucaramanga-Colombia

ADDITIONAL EDUCATION

Guiding and Empowering Doctoral Candidates, University of Luxembourg
June 2023, Luxembourg

Scientist Need More, Professional Development, SnT University of Luxembourg
April – Sept 2021, Luxembourg

Space Resources Professional Course, International Space University
April 15-17, 2021, Luxembourg

Data Science for ALL DS4A, Artificial Intelligence-Job-Readiness Training by Correlation One
October-December 2019, Colombia

TEACHING EXPERIENCE

Lecturer **2020-current**
Interdisciplinary Space Master ISM
University of Luxembourg
Courses:
- Robotic Manipulation in Space 2022-current
- Autonomous Space Systems 2021
- Space Robotics II (Planetary Robotics) 2020

Assistant Professor **2015-2020**
Pontificia Universidad Javeriana, Bogotá- Colombia
Courses:
- Laboratory of industrial processes 2015-2020
- Systems and mechanical design 2017-2018
- Convolutional Neural Networks (module) 2019

Guest Lecturer **2014**
Tsinghua University, Beijing-China
Course:
- Computer Vision for Robotics 2014 (July)

Teaching Assistant **2009-2015**
Universidad Politécnica de Madrid
Master in Robotics and Automation
Courses:
- Computer Vision 2009-2015
- Advanced Computer Vision Techniques 2011-2015
- Machine Learning and Neural Networks 2014

SHORT COURSES AND INVITED TALKS

Invited Talks

- Robotics technology for Intelligent In-Space Assembly, to be presented in IROS2023
- Space Robotics Activities at SpaceR. Colombia, August 2022
- Space Robotics Activities at SpaceR. Colombia, August 2022
- Orbital Robotics. Colombia in Space 2021. 2nd of December 2021, Keynote
- Space robotics for planetary exploration and in-orbit servicing. IEEE, International conference on Engineering. Colombia Oct. 2021, Keynote
- Women in Space. World space week Colombia Oct. 2021, Panelist
- Making Industrial Robots See. Universidad Nacional de Colombia, January 2019
- Challenges of Industrial robots in Industry 4.0. Pontificia Universidad Javeriana, March 2019
- Making Robots See. Universidad Don Bosco del Salvador, September 2018

Short courses

- Computer Vision for Robotics. Latin American Congress on Automation and Robotics LACAR2017. Panama, February 2017.
- Summer course on Service Robotics: Unmanned Aerial Vehicles for Civilian Tasks (Passive Sensors: "Cameras"). Pontificia Universidad Javeriana. Bogotá, Colombia. July 2016.

AWARDS, GRANTS, DISTINCTIONS

Best Paper Award, LACAR	2021
Selected by The Ministry of TIC Colombia For Data Science training program.	2019
Project Grant by Facebook in its Computer Vision for Global Challenges Request	2019
Best PhD thesis award by UPM "Premios extraordinarios tesis doctoral UPM"	2015
Travel grant by UPM to UK	2011
Travel grant by UPM to Australia	2010
PhD scholarship by UPM	2008-2013
PhD scholarship by Santander Bank	2013
Master scholarship by Santander Bank	2008
Master scholarship (ICETEX)	2006-2007
Bachelor scholarship by Universidad Autónoma de Bucaramanga (UNAB)	1999-2005

REGISTERED SW AND PATENTS

Pneumatic floating systems for performing zero-gravity experiments.
Patent application: LU503146

MalariaAPP
Mobile app to aid malaria diagnosis using image processing and machine learning techniques. It processes images from thick blood smears stained with Romanowsky dye.
Registered Software

SERVICE

- Organizing Committee: 1st International Conference on Space Robotics iSpaRo 2024,
- Organizer: Workshop on Assembling Large Infrastructures in Space using Intelligent Robots, October 1, 2023,
- Technical Program Chair: Latin American Congress on Automation and Robotics LACAR 2023
- Technical Program Committee: Latin American Congress on Automation and Robotics LACAR 2021
- Technical Program Committee: Latin American Congress on Automation and Robotics LACAR 2019
- Member of IEEE and the Robotics and Automation Society
- Reviewer of the IEEE International Conference on Robotics and Automation ICRA
- Reviewer of the IEEE International Conference on Intelligent Robots and Systems IROS

R&D PROJECTS

AMELIE: Enhancing Autonomous Space Robotic Manipulation through Efficient Servomotor Skills
Industrial Fellowship-FNR Grant

Helen: High-fidELity tEsting enviroNment for Active Space Debris Removal
FNR-Bridge, SpaceR-Spacety
Vice-PI January 2022 –2025

Novel Architecture for Active Space Debris Removal Based on Small Satellite Solutions
SnT partnership program SpaceR - Spacety
Vice-PI March 2021 – 2025

Modular Perception and Autonomy for Light-Weight On-Orbit Robotic Manipulators
SnT partnership program SpaceR - Made In Space Europe
Vice-PI April 2021 – 2025

Vision Based Navigation system (VBN) for autonomous satellite navigation in space
Eurostars FNR-INTER Grant Number: INTER20/EUROSTARS/15254521
Vice-PI, June 2021 – May 2023

ZeroG Lab: Multi-Purpose Zero Gravity Lab Facility Communications Lab
SnT-Internal project
Implementation Leader and WP manager, July2020 – Dec 2022

SAFEMUV: Safe Airframe Inspection using Multiple UAVs
AAIP-University of York project
Implementation Leader and WP manager, July2020 – January 2022

5G Space Communications Lab
SnT-Internal project
Implementation Leader and WP manager, July2020 – December2020

Portable Device to Analyze Thick Blood Smears for Malaria Diagnosis in Field Laboratories
Funded by Facebook in its Computer Vision for Global Challenges Request of Proposals
PI, November 2019 - May 2020

Passengers counting system for the bus rapid transit (BRT) system Transmilenio
Funded by Transmilenio
Implementation Leader and WP manager, July 2019

Drones for Power Line Inspection
Funded by Pontificia Universidad Javeriana
Co-PI, March 2019- Sept 2019

Exoskeleton for powerline workers
Sponsored by ENEL-CODENSA
Consulting R&D, 2019-2020

PIR Project: Perception for Industrial Robots
Funded by Pontificia Universidad Javeriana
PI, October 2017- March 2019

Machine Learning for Operation Room Programming.
Funded by Pontificia Universidad Javeriana
Co-PI, January 2018 - December 2019

Aerial sensing and monitoring of rice crop fields applying precision agriculture techniques.
Consortia: PUJ and CIAT.
Funded by COLCIENCIAS conv. 715 2015.
Implementation Leader and WP manager 2015 – 2018

Test and develop computer vision algorithms for aerial refuelling
Funded by Pontificia Universidad Javeriana
PI, January 2016 – June 2016

Computer Vision for Industrial Robot: object tracking with cameras and IMUs.
Funded by SENA Young Researcher Grant
PI, January 2016 - June 2016

I2L Project: Intelligent Power Line Inspection
Unión Fenosa Distribución, Prysma, INTA and Diagnóstiqa, and Universidad Politécnica de Madrid.
Funded under INPACTO Program Spanish Ministry of Economy and Competitivity IPT-2012-0491-120000
Implementation Leader and WP manager, August 2013 - June 2015

Computer Vision for UAV, from visual information to visual guidance.
Funded by the Spanish Ministry of Science MICYT #DPI2010-20751-C02-01.
Researcher, 2011 - 2013

IPCUAS: International Cooperation Program for Unmanned Aerial Systems Research and Development
Queensland University of Technology (Australia), Cranfield University, and Universidad Politécnica de Madrid.
Funded by IRSES Program Marie Curie FP7
Researcher, 2009 - 2012

Computer vision for UAVs: Guidance, Control, Cooperation, and inspection.
Funded by the Spanish Ministry of Science MICYT #DPI2007-66156
Universidad Politécnica de Madrid (Computer Vision Group)
Researcher, January 2011 – December 2013

Visual Guidance of a Commercial Compact Car
Company: SIEMENS Spain S.A.
Universidad Politécnica de Madrid
Researcher, November 2008 - October 2010

THESIS SUPERVISION

PhD

- **Mohatashem Reyaz.** Interaction Strategies of Robot Manipulators for On-Orbit Servicing applications
  Supervisor, 2021-present

- **Andrej Orsula.** Reinforcement Learning for Space Manipulation Tasks
  Co-supervisor, 2021-present

- **Maxime Hubert.** Design of a Capturing, Absorbing, and SEcuring system for active space Debris removal
  Co-supervisor, 2021-present

- **Xiao Li**. Design and implementation of software in the loop architecture for active space debris removal high-fidelity scenarios,
  Co-supervisor, 2021-present

- **Kuldeep Barad.** Towards Generalizable Vision-Based Autonomy for On-Orbit Manipulation
  Co-supervisor, 2020-present

CET member

- **Dave Van Der Meer** Lunar-SLAM Lunar exploration multi-sensor SLAM for long traverse missions
  member of the CET committee, 2020-present

- **Matteo El Harry.** Deep reinforcement control approach for highly uncertainly space environments
  Member of the CET committee, 2022-present

- **Deebul Nair**. Exploiting Constraints for Dependable Learning Enabled Robotics and Autonomous Systems,
  Member of the CET committee, 2021-present

- **Jose Delgado.** Image Super Resolution for Planning Safety Lunar Missions
  member of the CET committee, 2020-2023

Master

- **Lina Amaya** Comparative Study of Image-Based Visual Servoing Techniques for Autonomous Robotic Manipulation in Space Assembly Tasks.
  Interdisciplinary Space Master ISM
  Supervisor, January 2023-Sept 2023

- **Nicolás Barrera** Visual Inspection Using Deep Learning Techniques for Industrial Manufacturing Processes with Class Imbalance and Limited Labeled Data.
  Supervisor, July 2020. Best thesis award

- **Diego Hernandez.** An Intelligent System for Counting People on Transmilenio.
  Co-supervisor, July 2020

- **Esteban Fonseca.** Design and Implementation of a Hardware for Visual Servoing in an Industrial Manipulator.
  Co-supervisor, July 2020

- **Wilson Hernandez.** An Intelligent Robotic System for Classifying Plastic Bottles.
  Supervisor, July 2020. Best thesis award.

- **Wendy Fong.** Image processing for quality analysis of thick blood smears employed in malaria diagnosis
  Co-supervisor, July 2020. Nominated for best thesis award.

- **Juan Pablo Rojas.** Image Mosaic for Monitoring Rice Crops.
  Co-supervisor, September 2018

Bachelor

- **Lina Amaya and Nicolás Duque.** Safety System for Industrial Robots based on Computer Vision and Deep Learning Techniques.
  Supervisor. 2020, Best thesis award.

- **David Rodriguez and Steven Forero**. Automatic cup extraction system for plastic bottles.
  Co-supervisor, Nov. 2019

- **Angie Medina, Juan Mora, and Esteban Ramirez.** Human Recognition Algorithm for Industrial Collaborative Robots in Automated Waste Separations Tasks.
  Supervisor, July 2018

- **Nicolás Barrera and Didier Galvis.** Designing a Framework to Give Perception Capabilities to an Industrial Robot for Waste Separation Tasks.
  Supervisor, January 2018. Best thesis award

PUBLICATIONS
Google scholar h-index 19 / i10-index 23

INTERNATIONAL JOURNALS

GraspLDM: Generative 6-DoF Grasp Synthesis using Latent Difussion Models.
Kuldeep R. Barad, Andrej Orsula, Antoine Richard, Jan Dentler, Miguel Olivares-Mendez, **Carol Martinez**.
Under review Robotics and Automation Letters

Lightweight Floating Platfomr for Ground-Based Emulation of On-Orbit Scenarios
Baris Yalcin, **Carol Martinez**, Sofia Coloma, Ernest Skrzypczyk, Miguel Olivares-Mendez,
Under Review IEEE Access

On-Ground Validation of Orbital GNC: Visual Navigation Assessment in Robotic Testbed Facility
Vivek Muralidharan, Mohatashem R. Makhdoomi, Augustinas Zinys, Bronislovas Razgus,
Marius Klimavicius, Miguel Olivares-Mendez, **Carol Martinez**,
Under Review in Robotics

ZeroGLab: Multi-Purpose Facility for Emulating Space Operations
Miguel Olivares-Mendez, Mohatashem Reyaz Makhdoomi, Baris Yalcin, Zhanna Bokal, Miguel Ortiz del Castillo, Vincent Gaudilliere, Leo Pauly, Olivia Borgue, Jan Thoemel, Vivek Muralidharan, Ernest Skrzypczyk, Arunkumar Rathinam, Kuldeep R. Barad, Olga-Orsalia Christidi-Loumpasefski, Abd El Rahman Shabayek, Andreas Hein, Djamila Aouada, **Carol Martinez**
Under Review

CATALINA, a system for automatic coloration analysis of TBS in malaria, based on image processing and machine learning techniques
Wendy Fong Amarís, Daniel Suárez Venegas, Liliana Cortes, and **Carol Martínez,**
Under Review

Image-based Detection and Classification of Malaria Parasite, leukocytes detection and Quality assessment of Romanowsky-stained thinck blood smears
Jhonathan Sora Cardenas, Wendy Fong Amarís, Cesar Salazar, Manuel Castañeda, Oscar Martinez, Daniel Suárez Venegas, and **Carol Martínez,**
Under Review submitted in March to Journal of Smart Health, Elsevier

Lessons from a Space Lab - An Image Acquisition Perspective
Leo Pauly, Michele Lynn Jamrozik, Miguel Ortiz del Castillo, Olivia BORGUE, Inder Pal SINGH, Mohatashem Reyaz Makhdoomi, Olga-Orsalia Christidi-Loumpasefski, Vincent Gaudilliere, **Carol Martinez**, Arunkumar Rathinam, Andreas Hein, Miguel Olivares-Mendez, Djamila Aouada
Under Review submitted in April to International Journal of Aerospace Engineering

Hybrid-Compliant System for Soft Capture of Uncooperative Space Debris
Maxime Hybert Delisle, Olga-Orsalia Christidi-Loumpasefski, Baris Yalcin, Xiao Li, Miguel Olivares-Mendez, and **Carol Martínez**
Applied Science Special issue “Recent Advances in Space Debris”, 2023

Rendezvous in cislunar halo orbits: Hardware-in-the-loop simulation with coupled orbit and attitude dynamics
Vivek Muralidharan, Mohatashem R. Makhdoomi, Kuldeep R. Barad, Lina Maria Amaya-Mejia, Kathleen C. Howell, **Carol Martinez**, and Miguel Olivares-Mendez
Acta Astronautica, Elsevier, April 2023

Enhancing Rover Teleoperation on the Moon with Proprioceptive Sensors and Machine Learning Techniques.
Sofia Coloma, **Carol Martinez**, Baris Yalcin, Miguel Olivares-Mendez
RAL- IEEE Robotics and Automation Letters, October 2022

Image Features for Quality Analysis of Thick Blood Smears Employed in Malaria Diagnosis
Wendy Fong Amarís, **Carol Martínez,** Liliana Cortes, and Daniel Suárez Venegas
Malaria Journal, March 2022

ET-Class, an Energy Transfer-based Classification of Space Debris Removal Methods and Missions
Baris Yalcin, **Carol Martinez**, Maxime Hubert, Miguel Olivares-Mendez.
Frontiers in Space Technologies, section Space Debris, January 2022

SORA Methodology for Multi-UAS Airframe Inspections in an Airport,
Carol Martinez, Pedro Sanchez, Abhishek Bera, Simos Gerasimou, Miguel Olivares-Mendez.
Drones, November 2021

Deep Learning for Safe Human-Robot Collaboration (Best paper award)
Nicolás Duque Suárez, Lina María Amaya Mejía, **Carol Martinez**, Daniel Jaramillo-Ramirez
Advances in Automation and Robotics Research, Lecture Notes in Networks and Systems, November 2021

Enhancing Lunar Reconnaissance Orbiter Images via Multi-frame Super Resolution for Future Robotic Space Missions
Jose Delgado, Pedro Sanchez, **Carol Martinez**, Miguel Olivares-Mendez
IEEE Robotics and Automation Letters Submission RA-L, October 2021

Machine Learning for Surgical Time Prediction
Oscar Martinez, **Carol Martínez,** Carlos Parra, Saul Rugeles**,** Daniel Suárez
Computer Methods and Programs in Biomedicine, September 2021

Power Line Insulator Inspection Based on Artificial Intelligence
Sergio Beleno, **Carol Martinez**, Ivan Mondragon, Carlos Parra
Revista Colombiana de Tecnologia de Avanzada ISSN: 1692-7257 Volume 2 number 36. June 2020

A Fast Solution to the Dual Arm Robotic Sequencing Problem.
Francisco Suarez Ruiz and **Carol Martinez**.
Advances in Automation and Robotics Research, Lecture Notes in Networks and Systems DOI. 10.1007/978-3-030-40309-6_19 ISBN 978-3-030-40309-6. January 2020 Springer.

A Collaborative Vacuum Tool for Humans and Robots.
Wilson Hernandez, Alvaro Hilarión and **Carol Martinez**.
Advances in Automation and Robotics Research, Lecture Notes in Networks and Systems. January 2020 ISBN 978-3-030-40309-6. Springer.

High-Throughput Biomass Estimation in Rice Crops Using UAV Multispectral Imagery Carlos A. Devia, Juan P. Rojas, E. Petro, **Carol Martinez**, Ivan F. Mondragon, D. Patino, M. C. Rebolledo, J. Colorado Journal Intelligent and Robotic System. 2019 Springer

The Power Line Inspection Software (PoLIS): A Versatile System for Automating Power Line Inspection.
Carol Martinez, Carlos Sampedro, Aneesh Chauhan, Jean François Collumeau, Pascual Campoy.
Engineering Applications of Artificial Intelligence, 2018, ISSN 0952-1976, Elsevier.

HMPMR Strategy for Real-Time Tracking in Aerial Images, Using Direct Methods
Carol Martinez and Campoy, Pascual and Mondragón, IvánF. and Sánchez-Lopez, JoséLuis and Olivares-Méndez, MiguelA.,
Journal of Machine Vision and Applications, issn=0932-8092, Springer, June 2014

A Vision-Based Strategy for Autonomous Aerial Refuelling Tasks.
Carol Martínez, Thomas Richardson, Peter Thomas, Jonathan Luke du Bois, Pascual Campoy
Journal of Robotics and Autonomous Systems. 2013 Elsevier

Autonomous Guided Car Using a Fuzzy Controller
Miguel A. Olivares-Méndez,Pascual Campoy,Ignacio Mellado,Iván F. Mondragón, **Carol Martínez**, José Luis Sánchez-Lopez
Book Chapter: Recent Advances in Robotics and Automation. Springer 2013

A Hierarchical Tracking Strategy for Vision-Based Applications On-Board UAVs
Carol Martínez, Iván F. Mondragón, Pascual Campoy, José Luis Sánchez-Lopez, and Miguel A. Olivares-Méndez
Journal Intelligent and Robotic System. 2012 Springer

On-board and Ground Visual Pose Estimation Technique for UAV Control
Carol Martínez, Iván F. Mondragón, Miguel A. Olivares-Méndez, and Pascual Campoy
Journal Intelligent and Robotic System. Volume 61, Issue 1-4. 2011 Springer

Unmanned Aerial Vehicles UAVs attitude, height, motion estimation and control using visual systems
Iván F. Mondragón, Miguel A. Olivares-Méndez, Pascual Campoy, **Carol Martínez**, and Luis Mejias
Journal of Autonomous Robots, Springer

Omnidirectional Vision Applied to Unmanned Aerial Vehicles UAVs Attitude and Heading Estimation
Iván F. Mondragón, Pascual Campoy, **Carol Martínez**, and Miguel A. Olivares-Méndez
Journal of Robotics and Autonomous System (Elservier) 2010 Elsevier

Visual Servoing for UAVs
Pascual Campoy, Iván F. Mondragón, Miguel A. Olivares-Méndez, and **Carol Martínez**
Book chapter:" Visual Servoing",
Intechweb.org Online Publication 2010

Non-Symmetric Membership Function for Fuzzy-based Visual Servoing On-board a UAV
Miguel A. Olivares-Méndez, Pascual Campoy, Iván F. Mondragón, **Carol Martínez**,
Book chapter in Computation Intelligence Foundations and Applications
August 2010. Chengdu, China

Computer Vision Onboard UAVs for civilian tasks
Pascual Campoy, Juan Correa, Iván Mondragón, **Carol Martínez**, Miguel Olivares, Jorge Artieda, Luís Mejías.
Journal of Intelligent and Robotic Systems
2009 Springer Netherlands & Online Publication 2009

Visual 3D SLAM from UAVs
Jorge Artieda, Jose Maria Sebastian, Pascual Campoy, Juan Correa, Iván Mondragón, **Carol Martínez**, and Miguel Olivares
Journal of Intelligent and Robotic Systems. 2009, Springer

Fuzzy Control System Navigation Using Priority Areas
Miguel Olivares, Pascual Campoy, **Carol Martínez**, Juan Correa Iván Mondragón,
Book chapter Computational Intelligence in Decision and Control
August 2008. Madrid, Spain

INTERNATIONAL CONFERENCES

Emulating On-Orbit Scenarios Using Virtual Forward Dynamics Model
Mohatashem R. Makhdoomi, Vivek Muralidharan, Kuldeep R. Barad, Juan Sandoval, Miguel A. Olivares-Mendez, **Carol Martinez**
Under review for IROS2023

Diffusion Priors for Generative 6-DOF Grasp Synthesis.
Kuldeep R. Barad, Andrej Orsula, Antoine Richard, Jan Dentler, Miguel Olivares-Mendez, **Carol Martinez**. Last Breaking Results Poster Session, IEEE International Conference on Robotics and Automation, London, ICRA2023

Ultra-Light Floating Platform: An Orbital Emulator for Space Applications
Baris Yalcin, **Carol Martinez**, Sofia Coloma, Ernest Skrzypczyk, Miguel Olivares-Mendez, Last Breaking Results Poster Session, IEEE International Conference on Robotics and Automation, London, ICRA2023

Learning to Grasp on the Moon from 3D Octree Observations with Deep Reinforcement Learning. Andrej Orsula, Simon Bogh, Miguel Olivares-Mendez, **Carol Martinez**
International Conference on Intelligent Robots and Systems, Kyoto. IROS2022

Vison-Based Safety System for Barrierless Human-Robot Collaboration. Lina Maria Amaya-Mejia, Nicolas Duque-Suarez, Daniel Jaramillo-Ramirez, **Carol Martinez**
International Conference on Intelligent Robots and Systems, Kyoto. IROS2022

Evaluation of Position and Velocity Based Forward Dynamics Compliance Control (FDCC) for Robotic Interactions in Position Controlled Robots
Mohatashem R. Makhdoomi, Vivek Muralidharan, Juan Sandoval, Miguel A. Olivares-Mendez, **Carol Martinez** arXiv:2210.13421, October 2022. https://arxiv.org/abs/2210.13421

Autonomous Control for Satellite rendezvous in near-Earth Orbits
Vivek Muralidharan, **Carol Martinez**, Augustinas Zinys, Marius Klimavicius, Miguel Olivares-Mendez.
6th IEEE International Conference on Control, Automation and Diagnosis (ICCAD22). Portugal, July 2022.

Hardware-in-the-loop Proximity Operations in Cislunar Space
Vivek Muralidharan, Mohatashem Reyaz Makhdomi, Kuldeep Rambhai Barad, Kathleen C. Howell, **Carol Martinez**, Miguel Olivares-Mendez.
73rd International Astronautical Congress (IAC), 2022.

Exploring NVIDIA Omniverse for Future Space Resources Missions
Xiao Li, Baris Yalcin, **Carol Martinez**, Olga Christidi, Maxime Hubert, Gonzalo Rodriguez, James Zheng, Miguel Olivares-Mendez
Accepted to be presented in Space Resources Week 2022

The Best Space Resource is the One You Can Catch and Reuse
Maxime Hubert, Baris Yalcin, **Carol Martinez**, Olga Christidi, Xiao Li, Gonzalo Rodriguez, James Zheng, Miguel Olivares-Mendez
Accepted to be presented in Space Resources Week 2022

Towards Incremental Autonomy Framework For On-Orbit Vision-Based Grasping
Kuldeep R. Barad, **Carol Martinez**, Jan Dentler, Miguel Olivares-Mendez
72th International Astronautical Congress (IAC), Dubai, United Arab Emirates, 25-29 October 2021.

Lunar Highres-Net: Super Resolution For Lunar Surface Imagery
Jose Delgado, Pedro Sanchez, **Carol Martinez**, Miguel Olivares-Mendez
72th International Astronautical Congress (IAC), Dubai, United Arab Emirates, 25-29 October 2021.

Lunar Surface Images Enhancement for Space Resources Localization and Extraction
Jose Delgado, Pedro Sanchez, **Carol Martinez**, Miguel Olivares-Mendez
Space Resources Week 2021

The 5GSpaceLab
J. Querol, A. Astro, Z. Bokal, J. Duncan, M. Gholamian, O. Kodheli, J. Krivochiza, S. Kumar, **Carol Martinez**, N. Maturo, L. Rana, J. Thoemel, S. Chatzinotas, M. Olivares-Mendez, T. Van Dam, B. Ottersten
Space Resources Week 2021

A Vision-Based System for Evaluating the Quality of the Coloration of Thick Blood Smears in Malaria Diagnosis.
Wendy Fong Amarís, **Carol Martínez** and Daniel Suárez Venegas
II Congreso Latinoamericano de Automática y Robótica LACAR, 2019, Cali, Colombia.

A Deep Learning Approach to Detect and Classify Plastic Bottles for a Recycling Robot.
Wilson Hernandez and **Carol Martinez**
II Congreso Latinoamericano de Automática y Robótica LACAR, 2019, Cali, Colombia.

Aerial Monitoring of Rice Crop Variables Using a UAV Robotic System
C. Devia, J. Rojas, E. Petro, C. Martinez, I. Mondragon, D. Patino, C. Rebolledo, and J. Colorado. 16th International Conference on Informatics in Control, Automation and Robotics 2019, Prague, Czech Republic.

Safety Protocol for Collaborative Human-Robot Recycling Tasks.
Angie C. Medina, Juan F. Mora, **Carol Martinez**, Nicolas Barrero, Wilson Hernandez
9th IFAC Conference Manufacturing Modelling, Management and Control MIM 2019, Berlin Germany.

A Vision-Based Security System for Collaborative Human-Robot Waste Separation Tasks.
Juan f. Mora, Angie C. Medina, Nicolás Barrero, Wilson Hernández, and **Carol Martinez**. Congreso Internacional de Ingeniería Mecánica, Mecatrónica y Automatización. Bogotá Colombia 2019

A Tool For Human-Robot Collaborative Tasks.
Wilson Hernández, Álvaro Hilarión, Nicolás Barrero, and **Carol Martinez**. Congreso Internacional de Ingeniería Mecánica, Mecatrónica y Automatización. Bogotá Colombia 2019

Aerial Mapping of Rice Crops Using Mosaicking Techniques for Vegetative Index Monitoring
Juan P. Rojas B., Carlos A. Devia P., E. Petroy, **Carol Martinez**, Ivan F. Mondragon B, D. Patino, MC. Rebolledo, and J. Colorado.
2018 International Conference on Unmanned Aircraft Systems (ICUAS), Dallas, TX, USA, 2018

Industrial Robots for Waste Separation Tasks: An Approach to Industry 4.0 in Colombia
Nicolas Barrero, Didier Galvis, and **Carol Martinez**
The 9th International Conference on Production Research-Americas 2018

Towards Image Mosaicking with Aerial Images for Monitoring Rice Crops
Juan Rojas, **Carol Martinez**, Iván Mondragón, and Julián Colorado
1st Latin American Congress on Automation and Robotics, Panama City, Panama 2017

Setup of the Yaskawa SDA10F Robot for Industrial Applications, Using ROS-Industrial
Carol Martinez, Nicolás Barrero, Wilson Hernandez, Cesar Montaño and Iván Mondragón
1st Latin American Congress on Automation and Robotics, Panama City, Panama 2017

Towards Autonomous Detection and Tracking of Electric Towers for Aerial Power Line Inspection
Carol Martinez, Carlos Sampedro, Aneesh Chauhan and Pascual Campoy
International Conference on Unmanned Aircraft Systems ICUAS, May 2014. Orlando,USA

A Supervised Approach to Electric Tower Detection and Classification for Power Line Inspection
Carlos Sampedro, **Carol Martinez**, Aneesh Chauhan and Pascual Campoy
International Joint Conference on Neural Networks (IJCNN), July 2014, Beijing China.

Towards Autonomous Air-to-Air Refuelling for UAVs Using Visual Information
Carol Martinez, Thomas Richadson, and Pascual Campoy
IEEE International Conference on Robotics and Automation ICRA 2013, Karlsruhe, Germany. May 6 - 11

A Hierarchical Strategy for Real-Time Tracking On-board UAVs
Carol Martínez, Pascual Campoy, Iván Mondragón, Jose Luis Sánchez-Lopez, Miguel A. Olivares-Méndez.
The 2012 International Conference on Unmanned Aircraft Systems ICUAS'12, June 12-15, 2012. Philadelphia, PA USA.

Aerial Object Following Using Visual Fuzzy Servoing
Miguel A Olivares-Mendez, Ivan Mondragon, Pascual Campoy Cervera, Luis Mejias, **Carol Martinez**
Research, Development and Education on Unmanned Aerial Systems (RED-UAS 2011), Seville, Spain.

A Multi-resolution Image Alignment Technique Based on Direct Methods for Pose Estimation of Aerial Vehicles
Carol Martínez, Luis Mejías, and Pascual Campoy.
International Conference on Digital Image Computing: Techniques and Applications. December 6-8, 2011.Noosa, Queensland Australia.

A Visual AGV-Urban Car using Fuzzy Control
Miguel A Olivares-Mendez, Ignacio Mellado, Pascual Campoy, Ivan Mondragon, **Carol Martinez**
Proceeding of the 5th IEEE International Conference on Automation, Robotics and Applications ICARA'11. December 6 to 8 2011. Wellington, New Zealand.

3D Object Following Based on Visual Information for Unmanned Aerial Vehicles.
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