

# Miguel Carrasco

Associate Professor at UAI

International Engineering Educator ING.PAED.IGIP

Member of the Advanced Human Capital Formation committee in

Computer and Information Technology, ANID

UNIVERSIDAD ADOLFO IBÁÑEZ  
FACULTY OF ENGINEERING AND SCIENCE  
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 [https://scholar.google.es/citations?user=WYz\\_08AAAAAJ&hl=es](https://scholar.google.es/citations?user=WYz_08AAAAAJ&hl=es)

Education	2023	INTERNATIONAL ENGINEERING EDUCATOR, ING.PAED.IGIP (IGIP, AUSTRIA) Innova HiEd Academy
	2012	POSTDOCTORAL RESEARCHER, Institut de la vision, Fondation Voir & Entendre, UNIVERSITÉ PIERRE ET MARIE CURIE – UMPC – PARIS VI, FRANCE
	2010	DOCTEUR EN INFORMATIQUE, mention très honorable (Summa cum Laude) Institut des Systèmes Intelligents et de Robotique – ISIR UNIVERSITÉ PIERRE ET MARIE CURIE – UMPC – PARIS VI, FRANCE ADVISORS: D. Mery (Pontificia Universidad Católica de Chile, Chile), X. Clady, (Université Pierre et Marie Curie, France) R. Benosman (University of Pittsburgh, USA)
	2010	DOCTOR IN COMPUTER SCIENCE Department of Computer Science PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
	2008	MASTER OF ENGINEERING Department of Computer Science PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
	2004	MASTER IN INFORMATION TECHNOLOGY, Highest Honors Department of Information Engineering UNIVERSIDAD DE SANTIAGO DE CHILE
	2004	ENGINEERING IN INFORMATION TECHNOLOGY, top of the class.
	2002	BACHELOR IN ENGINEERING SCIENCES Department of Information Engineering UNIVERSIDAD DE SANTIAGO DE CHILE
Academic responsibilities	2024	Education Program Director, Faculty of Engineering and Science. Universidad Adolfo Ibáñez (Since Ago. 2024, March, 2025)
	2023	Co-director of Doctorate in Data Science, Faculty of Engineering and Science. Universidad Adolfo Ibáñez (Jan, 2023~Ago,2024)
	2020	Director of Infrastructure, Faculty of Engineering and Science. Universidad Adolfo Ibáñez (Jan, 2020~Jan, 2021)
	2018	Head of the Information Engineering Department. Faculty of Engineering and Science. Universidad Adolfo Ibáñez (2018-2020)
	2018	General Coordinator of the Information Engineer Accreditation report at UAI presented to the National Accreditation Commission (CNA-Chile, 2017~2018)
	2014	Academic Director of Master of Science in Engineering in Information Technology. Faculty of Engineering and Science. Universidad Adolfo Ibáñez (2014~2018)
	2012	Founder of the Computer Vision Laboratory. Escuela de Informática y Telecomunicaciones, Faculty of Engineering. Universidad Diego Portales.
	2011	Elected representative of the Faculty of Engineering to participate of the Innovative Teaching for Deeper Learning, organized by LASPAU at Harvard University, Cambridge (Teacher leadership award). USA. April.

## INTERNSHIPS

- 2012 Postdoctoral researcher, Institut de la vision, Fondation Voir & Entendre, Université Pierre et Marie Curie (Dec'12 - Jan'13), Paris, France.
- 2008 Doctoral student, Institut des Systèmes Intelligents et de Robotique (ISIR), Université Pierre et Marie Curie (Sorbonne Université), Paris. (Jan-Dec).
- 2008 Student Researcher, Commissariat à l'Energie Atomique (CEA), Centre de Fontenay-aux-Roses, Paris (May).
- 04-07 Doctoral student, Department of Computer Science (DCC), Pontificia Universidad Católica de Chile (PUC), Chile

## LECTURER GRADUATES >> MASTER AND DOCTORAL

- Image Pattern Recognition MSc Data Science, UAI. 1/2022-2024
- Image Processing with Python MSc Data Science, UAI. 2020-2024
- Introduction to Python Master of Data Science. UAI. 2019-2024
- Data Analysis (co-lecture) PhD. DISC. FIC. UAI. 1/2014-2016, 2023
- Image Pattern Recognition EIT. UDP. 2/ 2011.
- Image Processing with Matlab EIT. UDP. 1/ 2011, 2/2012
- Computer Vision EIT. UDP. 1/ 2010, 2/2012, MAI, UAI. 2/2022

## LECTURER UNDERGRADUATES

- Data Science fundamentals FIC. UAI. 1/2021 (online)
- Robotics Simulation (Webots) FIC. UAI. 1/2020 (online)
- Data Mining FIC. UAI. 2/2019, 1/2024
- Internet-of-Things UP<sup>1</sup> (Mexico S/18, S/19, S/21) | FIC. UAI. 18, 19
- Introduction to Python FIC. UAI. 1/2018, 1/2019
- Human-Computer Interaction FIC. UAI. 2013 to 2017
- Introduction to Robotics FIC. UAI. 2014 to 2019
- CS50-Harvard (C, PHP, SQL) FIC. UAI. 2016, 2017
- Image Processing with Matlab FIC. UAI. 2/2014
- Design Nature (Olin College) FIC. UAI. 1/2014
- Web programming FIC. UAI. 1/2013
- e-Business FIC. UAI. 1/2013
- C- Programming EIT. UDP. 2009, 2010, 2011, 2012

## EMPLOYMENT

- 2019 Associate Professor, Universidad Adolfo Ibáñez (UAI)
- 2014 Academic Director of Master of Science in Information Technology (UAI)
- 2014 Assistant Professor, Universidad Adolfo Ibáñez (UAI)
- 2013 Lecturer, Universidad Adolfo Ibáñez (UAI)
- 2010 Assistant Professor, Universidad Diego Portales (UDP)
- 2009 Lecturer, Universidad Diego Portales (UDP)
- 2005 Teaching assistance, Pontificia Universidad Católica de Chile (PUC)
- 2001 Teaching assistance, Universidad de Santiago de Chile (USACH)

## ACADEMIC PROFESSOR | LECTURER

- Faculty, PhD. in Data Science (2023) (*Academic council member*)
- Faculty, Master in Data Science (since 2019) (*Academic council member*)
- Faculty, Master in Artificial Intelligence (since 2020) (*Academic council member*)
- Faculty, Master in Science in Data Science (2022-2024) (*Academic council member*)
- Lecturer, Artificial Intelligence Diploma (2019-2022)
- Lecturer, TIC management Diploma (since 2017)
- Lecturer, Ph.D. Complex Systems (2014-2023)
- Faculty, Information Engineering (since 2013)

<sup>1</sup> UP: Universidad Panamerica, Campus Aguas Calientes, Mexico.

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2024	Computers, IEEE
2024	International Journal of Human-Computer Interaction (IJHCI), T&F
2023	Metrology, MDPI
2023	Computers, IEEE
2023	Computers in Human Behavior, Elsevier
2023	Progress in Artificial Intelligence (PAI), Springer
2023	Information, MPDI
2023	The Visual Computer, Springer
2023	Algorithms, MDPI
2023	Electronics, MDPI
2022	Progress in Artificial Intelligence (PAI), Springer
2022	Applied Sciences, MDPI
2022	Internet of Things Magazine, IEEE
2022	Entropy, MDPI
2022	Sensors, IEEE
2022	Visual Studies, Taylor & Francis
2022	Mathematics, MDPI
2022	International Journal of Human-Computer Interaction (IJHCI), T&F
2022	Journal of Imaging, MDPI
2022	International Journal of Computer Integrated Manufacturing, T&F
2022	Progress in Artificial Intelligence (PAI), Springer
2022	Transactions on Artificial Intelligence, IEEE
2021	International Journal of Computer Integrated Manufacturing, T&F
2021	Progress in Artificial Intelligence (PAI), Springer
2021	Visual Studies, Taylor & Francis
2021	Acta IMEKO (Journal of the International Measurement Confederation)
2021	Sensors, MDPI
2021	Entropy, MDPI
2020	Measurements: sensors, Elsevier.
2020	Progress in Artificial Intelligence (PAI), Springer.
2020	Sensors, MDPI.
2020	Scientia Iranica, Sharif University of Technology.
2019	Computers in Human Behavior, Elsevier.
2019	Sensors, MDPI.
2019	Inderscience Publishers
2018	Computers in Human Behavior, Elsevier.
2018	Expert Systems with Applications, Elsevier.
2016	Sensors Journal, IEEE.
2014	Image Processing, IET.
2014	International Journal of Computer Integrated Manufacturing, T&F eds.
2014	Ingeniare. Revista Chilena de Ingeniería.
2014	Machine Vision and Applications MVA. Springer Eds.
2013	International Journal of Computational Bioscience - IASTED.
2013	Research in Nondestructive Evaluation - ANST.
2013	Sensors, MDPI.
2012	Research in Nondestructive Evaluation - ANST.
2012	Indian Journal of Engineering and Material Sciences - IEMSEW.
2011	NDT & E International. Elsevier.
2011	Ibero-American Journal of Computing, Computación y Sistemas.
2007	Transactions on Automation Science and Engineering, IEEE.

#### ACADEMIC AND PROFESSIONAL COMMITTEES

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- 2025 [National Accreditation Commission](#) (CNA). Chile. Evaluator of postgraduate program. Universidad Católica de la Santísima Concepción, Universidad del Bío Bío, Universidad de Concepción, Universidad Técnica Federico Santa María. Doctorado en Inteligencia Artificial.
- 2024 [ANID. Expert advisory committee](#) (ANID, Agencia Nacional de Investigación y Desarrollo), Chile. Evaluation of the Technical Guide for the Innovation Challenge of the State Defense Council.
- 2024 [ANID. Panel evaluator committee](#) (ANID, Agencia Nacional de Investigación y Desarrollo), Chile. Concurso Desafíos Públicos. Superintendencia de Seguridad Social – SUSESO.
- 2024 [National Accreditation Commission](#) (CNA). Chile. Evaluator of postgraduate program. Universidad Técnica Federico Santa María. Magíster en Ciencias de la Informática.
- 2023 [ANID. Panel evaluator committee](#) (ANID, Agencia Nacional de Investigación y Desarrollo), Chile. Concurso Desafíos Públicos. Superintendencia de Seguridad Social – SUSESO.
- 2023 [National Accreditation Commission](#) (CNA). Chile. Evaluator of postgraduate program. Universidad Católica del Maule, Doctorado en Ingeniería.
- 2023 [FONDEF Panel evaluator committee](#) (ANID, Agencia Nacional de Investigación y Desarrollo), Chile
- 2022 [National Accreditation Commission](#) (CNA). Chile. Evaluator of postgraduate program. Pontificia Universidad Católica de Valparaíso, Magíster en Informática.
- 2020 Reviewer Board Member of Sensors, MDPI.
- 2020 Reviewer Board Member of Journal of Imaging, MDPI.
- 2015 Programa de Atracción e Inserción de Capital Humano Avanzado (PAI). [National Commission of Science and Technology](#) (ANID), Chile, (up to date)
- 2012 [Member of the Advanced Human Capital Formation committee](#) in Computer and Information Technology Area. ANID (up to date), Chile

#### NATIONAL AND INTERNATIONAL PROJECT REVIEWER

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- 2023 Project reviewer. Universidad Panamericana- CDMX. Mexico.
- 2023 Research project reviewer. FONDEF Idea (Anid).
- 2021 Research project reviewer. Initiation into research competition. FONDECYT. Chile
- 2021 Project reviewer. Universidad Panamericana- CDMX. Mexico.
- 2020 Project reviewer. Universidad Panamericana- CDMX. Mexico.
- 2019 Research project reviewer. FONDEF Idea (Anid).
- 2018 Research project reviewer. Universidad Panamericana- AGS. Mexico.
- 2012 Research project reviewer. Initiation into research competition. FONDECYT. Chile

#### AREA CHAIR PROGRAM COMMITTEES

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- 2020 Technical Co-chair. IEEE International Conference on Computational Intelligence in Bioinformatics and Computational Biology (Santiago, Chile).
- 2016 Chair on Latin America Symposium on Computer Graphics, Virtual Reality, and Image Processing (SLCGRVPI), CLEI.
- 2013 Pacific-Rim Symposium on Image and Video Technology (PSIVT). Area chair on track Computer Vision Applications.
- 2011 Pacific-Rim Symposium on Image and Video Technology (PSIVT). Area-chair on track Computer Vision Applications.
- 2007 Pacific-Rim Symposium on Image and Video Technology (PSIVT) Editor Assistance, December 17-19, Santiago, Chile.

- 2022 ICT for Health, Accessibility and Wellbeing (IC-IHAW 2021, Lárnaca, Cyprus)
- 2022 International Conference on Pattern Recognition (ICPR, Montréal Québec).
- 2021 1<sup>st</sup> International Conference on ICT for Health, Accessibility and Wellbeing.
- 2020 International Conference on Pattern Recognition (ICPR, Milan, Italy).
- 2020 IEEE Andean Conference (Ecuador)
- 2018 International Conference on Mechanical, Electric and Industrial Engineering (MEIE).
- 2018 International Conference on Pattern Recognition (ICPR, Beijing, China).
- 2016 21<sup>st</sup> IberoAmerican Congress on Pattern Recognition (CIARP).
- 2015 II Workshop on Information Technologies and Systems, RedSTI.
- 2014 Association for the Advancement of Artificial Intelligence, AAAI.
- 2014 VI Chilean Conference on Pattern Recognition (CCPR 2014).
- 2013 Pacific-Rim Conference on Multimedia (PCM).
- 2013 PSIVT Workshop on Quality Assessment on Control by Image and Video Analysis.
- 2012 Pacific-Rim Conference on Multimedia (PCM).
- 2010 IEEE International Symposium on Geoscience and Remote Sensing.
- 2010 Pacific-Rim Symposium on Image and Video Technology (PSIVT).
- 2009 IEEE International Symposium on Geoscience and Remote Sensing.
- 2009 Pacific-Rim Symposium on Image and Video Technology (PSIVT).
- 2007 IEEE International Symposium on Geoscience and Remote Sensing.
- 2007 Pacific-Rim Symposium on Image and Video Technology (PSIVT).

VISITING PROFESSOR

- 2024 Facultad de Ciencias de la Educación y Psicología, Cordoba, Spain. January 7 th to February 9th, Project: RRReMaker. Research and Innovation Staff Exchange (RISE). H2020-MSCA-RISE-2020, Project coordinator. Prof. César Gonzalez-Martín.
- 2022 Facultad de Bellas Artes, Granada, Spain. January 25th to February 27th, Project: RRReMaker. Research and Innovation Staff Exchange (RISE). H2020-MSCA-RISE-2020, Project leader: Prof. Ana García Lopez.
- 2020 Coding Dojo Silicon Valley, campus San José, California, USA. February 29th to March 7th. UAI-TI short-term visitors.
- 2019 Facultad de Ingeniería, Universidad Panamericana (UP), Campus Bonaterra, Mexico. Jun, 15th-28th. VP of Research, Dr. Ramiro Velazquez.
- 2018 Facultad de Ingeniería, Universidad Panamericana (UP), Campus Bonaterra, Mexico. Jun, 26<sup>th</sup>-July 7th. VP of Research, Dr. Ramiro Velazquez.
- 2015 Institut de Biologie Structurale (IBS), UMR 5075, Grenoble, France. December 11th to 18th, FERMI Project. Dr. Leandro Estrozi.
- 2015 Pontificia Universidad Católica del Perú, Informatics Engineering Department, Pattern Recognition and Artificial Intelligence Research Group, Lima, Peru. September 16th to September 21th, FERMI Project. Prof. Dr. Cesar Beltrán.
- 2014 Institut de Biologie Structurale (IBS), UMR 5075, Grenoble, France. November 23th to 28th, FERMI Project. Dr. Leandro Estrozi.
- 2014 Pontificia Universidad Católica del Perú, Informatics Engineering Department, Lima, Peru. October 6th to October 10th, FERMI Project. Prof. Dr. Cesar Beltrán.
- 2014 University of São Paulo, Physics Institut, Scientific Computing Group. São Carlos, Brazil, April 1st to April 6th, 2014. FERMI Project. Prof. Dr. Odemir Martinez.

## Fellowships and Scholarships

- 2012 [Postdoctoral Fellowship](#) granted by the French Government, (Campus France and Institut Français Chile).
- 2009 Residence DIPEI Fellowship. Pontificia Universidad Católica de Chile. 1st and 2nd semester.
- 2007 [Collège Doctoral Franco-Chilean Scholarship](#) to finish the Doctoral Thesis on jointly supervised PhD at University Pierre et Marie Curie - Paris VI granted by CONICYT and the Council of Chilean University Rectors.
- 2007 DIPEI Postgraduate Direction Fellowship granted by Pontificia Universidad Católica de Chile for cursing International studies. Nov.
- 2005 [Microsoft Study Scholarship](#) +MAS. Program, 5 stars NET. April.
- 2005 1st and 2nd semester Registration Scholarship. Pontificia Universidad Católica de Chile.
- 2005 [National Graduate Student Scholarship](#) for Doctoral Studies in Chile granted by the Chilean National Commission of Science and Technology - CONICYT.
- 2004 DIPUC Assistant Fellowship. Pontificia Universidad Católica de Chile. 2nd semester, August.
- 2002 [Master Scholarship in Information Technology](#) for academic excellence granted by the Department of Information Engineering - DIINF. USACH

## Academic honors, and Awards

- 2024 [Best Teacher Award](#) of the Master in Data Science. Faculty of Engineering and Science. Universidad Adolfo Ibáñez.
- 2024 [Best Teacher Award](#) of diploma on Data Science, Faculty of Engineering and Science. Universidad Adolfo Ibáñez.
- 2023 [Outstanding Academic Performance](#) of the Faculty of Engineering and Science. Universidad Adolfo Ibáñez.
- 2023 [Best Teacher Award](#) of the Master in Artificial Intelligence (cohort 2021/1), Faculty of Engineering and Science. Universidad Adolfo Ibáñez.
- 2023 [Acknowledgment](#) for contributions to the Faculty of Engineering and Science in the role of Director of Infrastructure (2020-2021). Universidad Adolfo Ibáñez.
- 2021 [Best Teacher Award](#) of the Master in Data Science (cohort 2019), Faculty of Engineering and Science. Universidad Adolfo Ibáñez.
- 2014 [Winner of the Intel Galileo](#) University Donation program (Sept).
- 2012 [Best Faculty Teacher Award](#) of the Faculty of Engineering, Universidad Diego Portales, UDP.
- 2012 [Best Teacher Award](#) of the Escuela de Informática y Telecomunicaciones, Faculty of Engineering, Universidad Diego Portales, UDP.
- 2011 [Best Teacher Award](#) of the Escuela de Informática y Telecomunicaciones, Faculty of Engineering, Universidad Diego Portales, UDP.
- 2010 [Teacher Leadership Award](#) of the Faculty of Engineering at Universidad Diego Portales, UDP.
- 2010 [Doctoral dissertation received the highest honors](#) (mention *très Honorable*) from University Pierre et Marie Curie, UPMC - Paris VI (France).
- 2007 [Best Paper Award](#) on Computer Vision and Application in Pacific-Rim Symposium on Image and Video Technology – PSIVT. Dec.
- 2004 [Master thesis received the highest honors](#) from Universidad de Santiago de Chile, USACH.
- 2004 [First place in Engineering in Information Technology](#). Universidad de Santiago de Chile, USACH (among 98 students).

## Professional Projects

- 2024 WilaTech: “Sistema de monitero de desgaste de escobilla de grafito”. Role: Architect solution engineer/developer.
- 2020 IOLink: “Herramienta de segmentación de microscopia de peces y órganos internos”. Role: Architect solution engineer (80k USD).

- 2017 Walmart-LIDER. “Monitoreo remoto basado en IoT”: Achievements: Desarrollo de sistema de monitoreo en máquinas de congelado, medición de temperatura, humedad y puertas, y Sistema de monitoreo en sala de servidor: Medición de corriente, temperatura, humedad”, Role: Architect solution engineer /developer (15k USD).
- 2017 Innova Chile (Voucher). “Desarrollo del prototipo de un sistema inteligente de reconocimiento de imágenes para la optimización del proceso de molienda SAG de mineral a través del uso racional de medios de molienda”, Role: Architect solution engineer /developer. Company: EM-Elecmetal. Developers: IO-link. Grant no. 16ITE1-70889 (120k USD).
- 2015 InnovaChile (Voucher). “Mejora Significativa del proceso de producción de repuestos mineros, mediante la incorporación de un sistema en línea de control para su fabricación”. Role: TI engineer designer / developer. Achievements: Desarrollo de una plataforma en línea para el monitoreo de la producción. (\$14k USD)
- 2015 InnovaChile (Voucher). “Desarrollo de equipo de medición, registro y alerta de desgaste de escobillas de grafito en monitores de corriente continua para equipos mineros de alta criticidad operativa”. Role: Engineer developer. (\$12K USD).

#### PHD CURRENT STUDENTS

- 1. 2024. Jorge León: “Condicionando Imagen-a-Imagen con Audio”, Director: Miguel Carrasco, Doctorado en Data Science, Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez (UAI).
- 2. 2024. Luis Oliveros: “Analizar el comportamiento del mecanismo de atención de los Visual Transformers y evaluar su rendimiento en relación a la atención visual humana.”, Director: Miguel Carrasco, Doctorado en Data Science, Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez (UAI).

#### ALUMNI PHD

- 1. 2023. Sebastián Muñoz: “Fitness Landscape Analysis of Multi-Attribute Vehicle Routing Problems”, Director: Karol Suchan (UDP), Co-Director: Miguel Carrasco (UAI), Doctorado en Sistemas Complejos, Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez (UAI).

#### ALUMNI. MASTER DEGREE

- 1. 2025. Bruno Perry: “Evaluación comparativa de algoritmos de reconocimiento de actividad sospechosa”, Master of Science in Data Science (MSDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez
- 2. 2025. Sebastián. Novoa: “Comparación de la percepción y atención humana en visión por computador utilizando Vision Transformer”, Master of Science in Data Science (MSDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
- 3. 2024. Abril Karpuj: “Detección de patrones en representaciones artísticas asociados a posibles trastornos de salud mental en los artistas: Un análisis comparativo de estilos de arte utilizando aprendizaje profundo”, Master of Science in Data Science (MSDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
- 4. 2024. Antonio Villarroel: “Modelamiento de profundidad de sentadilla para arbitraje asistido en powerlifting”, Master of Science in Data Science (MSDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
- 5. 2024. Matías. Ramírez: “Análisis de las características y elementos visuales de imágenes basado en Deep Learning para reconocer y predecir las emociones que transmite una imagen publicitaria”. Master of Science in Data Science (MSDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
- 6. 2024. José Aranda: “Comparación de atención visual: ViT y humana”, Master of Science in Data Science (MSDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.



7. 2024. Mauricio Gahona, Jonathan Toro, Alejandro Truan, Luis Manríquez: “Diseño y construcción de un predictor granulométrico para control de calidad en operaciones mineras”, Master of Artificial Intelligence, (MIA), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
8. 2023. Raúl Dastres: “Generación automática de obras artísticas mediante el análisis de las emociones utilizando Generative Adversarial Networks”. Magíster en Ciencias de la Ingeniería (MCI), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
9. 2023. Constanza Fainberg: “Análisis de Conjunto Alternativo para Mejorar Rendimiento de Modelo de Reconocimiento Facial Invariante a la Edad”, Master of Science in Data Science (MSDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
10. 2023. Joaquín. Alvarado: “Obtención de superficies de objetos 3D a través de imágenes RGB-D”. Master of Science in Data Science (MSDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
11. 2023. Juan Pablo Benavente, Daniel Franzani, Pietro Quercia: “Diseño y evaluación de un modelo de detección de portonazos mediante Redes Neuronales Convolucionales”. Master in Artificial Intelligence (MIA), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
12. 2023. Cristóbal Portilla: “Análisis del comportamiento geométrico del crecimiento de colonias bacteriana”. Master of Science in Data Science (MSDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
13. 2023. José Castillo: “Detección automática de la bacteria *Beggiatoa* en fondos marítimos basados en tratamiento digital de videos por medio de Redes Neuronales Convolucionales”. Magíster en Ciencias de la Ingeniería (MCI), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
14. 2022. Germán Oviedo: “Análisis del uso del color en las representaciones visuales en el contexto de la pandemia de la COVID-19 para la detección de las emociones utilizando técnicas de minería de datos”, Magíster en Ciencias de la Ingeniería (MCI), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
15. 2021. Ingris Figueroa, Manuel Ramos, Nicolás Rodríguez y Eduardo Oñate: “Aplicación de redes neuronales en la inspección de áreas de extracción en minería subterránea”, Master in Artificial Intelligence (MIA), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
16. 2021. Luis Medinelli, Juan Mercado, Paula Leita: “Aplicación de técnicas de Deep Learning en el reconocimiento de emociones humanas en imágenes de baja resolución”, Master in Artificial Intelligence (MIA), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
17. 2021. Felipe Ortiz: “Optimización de flotación de minerales utilizando algoritmos de inteligencia artificial”, Master in Data Science (MDS), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
18. 2015. Juan Pablo Meneses: “Gestión y Monitoreo de EPP para la construcción”, Magíster en Gestión y Emprendimiento Tecnológico (MGET), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
19. 2014. Cristian Larenas: “Monitoreo Animal en tiempo real a través de sensores”, Magíster en Gestión y Emprendimiento Tecnológico (MGET), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.
20. 2014. Enrique Cáceres: “Interacción entre personas con discapacidad motriz y aplicaciones para el desarrollo de habilidades cognitivas mediante dispositivo de seguimiento ocular”, Master in Computer Engineering, Escuela de Informática y Telecomunicaciones. Universidad Diego Portales (UDP).
21. 2013. J. González: “Guía de Televisión Remota para GTD Imagen”, Magíster en Gestión y Emprendimiento Tecnológico (MGET), Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez.



22. 2022. T. Wachter: "Extracción de emociones en obras artísticas mediante Redes Neuronales Convolucionales", Ingeniería Civil Informática. Universidad Adolfo Ibáñez.
23. 2022. A. Mardones: "Generación de Arte utilizando Inteligencia Artificial", Ingeniería Civil Informática. Universidad Adolfo Ibáñez.
24. 2021. J. Sandoval: "Análisis cuantitativo de la representación visual de elementos de signos en el contexto COVID-19", Ingeniería Civil Informática. Universidad Adolfo Ibáñez.
25. 2019. A. Aylwin, A. Fuentes, A. Rebolledo: "Sistema de monitoreo para flujos en la producción de harina", Capstone project, Ingeniería Civil Industrial, mención TI. Universidad Adolfo Ibáñez.
26. 2019. A. Zamorano: "Modelo predictivo de rutas de navegación de usuarios en el sitio WEB usando cadenas de Markov", Capstone Project, Ingeniería Civil Industrial, mención TI. Universidad Adolfo Ibáñez.
27. 2019. F. Atala, J.L. Vallejos: "Desarrollo de Sistema de Monitoreo para Biodigestor Doméstico", Capstone Project, Ingeniería Civil Industrial – mención BioIngeniería, Ingeniería Civil Informática, Universidad Adolfo Ibáñez.
28. 2018. J. Acuña, J. Aránguiz, D. Marín: "Sistema de control para pernos de fricción", Ingeniería Civil en Minería / Industrial. Capstone Project. Centro de Minería UAI. Co-guía. Prof. Cristián Cáceres. Universidad Adolfo Ibáñez.
29. 2018. J. Fernández, B. Jackson, S. Undurraga: "Automatización del control de calidad a través de visión artificial", Ingeniería Civil Industrial – mención TI. Capstone Project, JPPrint. Universidad Adolfo Ibáñez.
30. 2017. G. Duarte, B. Sade: "Perfiles de túneles mineros". Ingeniería Civil en Minería, Co-guía: Prof. Cristian Cáceres. Universidad Adolfo Ibáñez.
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32. 2015. C. Ojeda, G. Ferrari: "Bundi: controla tu entorno". Ingeniería Civil Industrial, mención TI. Universidad Adolfo Ibáñez.
33. 2015. M. Cabezón: "Verni: Sistema de Control y Automatización para invernaderos", Ingeniería Civil Industrial, mención TI. Universidad Adolfo Ibáñez.
34. 2012. A. García: "Interacción humano-computador por medio de detección y proyección de movimiento", Ingeniería Civil Informática. Universidad Diego Portales.
35. 2012. R. Schalchli: "Sistema de recomendación de productos de supermercados a través de una interfaz móvil mediante reconocimiento de patrones", Ingeniería Civil Informática. Universidad Diego Portales.
36. 2012. M. Ortega and A. Viada: "Sistema de detección de gestos de forma activa", Universidad Diego Portales.
37. 2012. V. Pozo: "Sistema de reconocimiento de objetos utilizando detección de patrones", Ingeniería Civil Informática. Universidad Diego Portales.
38. 2011. F. del Campo: "Caracterización de la intención humana en movimientos de aprehensión utilizando un sistema de adquisición de imágenes y un acelerómetro", Ingeniería Civil Informática. Universidad Diego Portales.

## JURY COMMITTEE

1. 2024. (Ph.D). Eduardo Villegas Jaramillo, "Metodología heterogénea para la inspección visual automática basada en técnicas de aprendizaje inexactamente supervisado", [Universidad Nacional de Colombia \(UNAL\)](#), Facultad de Ingeniería y Arquitectura, Departamento de Ingeniería Industrial, Thesis Director: Dr. Ing. Mauricio Orozco Alzate.
2. 2022 (Ph.D) Juan Manuel Rozas, "Predicción de out-of-stock utilizando Machine Learning: aplicación en una empresa elaboradora y comercializadora de alimentos envasados para retail", Doctor of Complex Systems Engineering of [Universidad](#)

- [Adolfo Ibáñez \(UAI\)](#), Facultad de Ingeniería y Ciencias, Thesis Director: Prof. Gonzalo Ruz and Dr. Marcos Goycoolea.
3. 2022 (M.Sc) Alejandro Díaz, “Evaluación del efecto visual servoing en speech enhancement con arreglo de micrófonos lineal en interacción humano-robot móvil”, Magíster en Ciencias de la Ingeniería, mención eléctrica, [Universidad de Chile \(UCH\)](#), Facultad de Ciencias Físicas y Matemáticas, Thesis Director: Prof. Néstor Becerra.
  4. 2019 (Ph.D.) Pablo Henriquez, “New developments for randomized neural networks”, Doctor of Complex Systems Engineering of [Universidad Adolfo Ibáñez \(UAI\)](#), Facultad de Ingeniería y Ciencias, Thesis Director: Prof. Gonzalo Ruz.
  5. 2017. (Ph.D.) Carlos Mera Banguero, “Detección de defectos en sistemas de Inspección Visual Automática a través del Aprendizaje de Múltiples Instancias”, [Universidad Nacional de Colombia \(UNAL\)](#), Facultad de Minas, Departamento de Ciencias de la Computación y Decisión, Thesis Director: Prof. John W. Branch.
  6. 2016. (Ph.D.) Orlando Erazo, “A Predictive Model for User Performance Time with Natural User Interfaces based on Touchless Hand Gestures”. [Universidad de Chile](#). Thesis Director: José A. Pino
  7. 2015. (M.Sc.) Juan Reyes, “3D Scene Reconstruction”. [Universidad Técnica Federico Santa María \(UTFSM\)](#). Thesis Director: Luis Salinas.
  8. 2014. (Ph.D.) Miguel Solís, “Aprendizaje reforzado inverso en sistemas de control con estados no observables”. [Universidad Técnica Federico Santa María \(UTFSM\)](#). Thesis Director: Héctor Allende.
  9. 2014. (M.Sc.) Tomás Mardones. “Combinación de representaciones compactas de imágenes para el problema de recuperación de imágenes”, [Universidad Técnica Federico Santa María \(UTFSM\)](#). Thesis Director: Héctor Allende.
  10. 2014 (M. Eng) Felipe Fuentes, “Evaluación de algoritmos para corrección ortogonal de imágenes, obtenidas mediante UAV usadas para generar mosaicos y modelos 3D”, [Universidad de Santiago de Chile \(USACH\)](#). Thesis Director: Fernando Contreras.
  11. 2013. (Ph.D.) Tomás Mardones, “Combinación de representaciones compactas de imágenes para el problema de recuperación de imágenes”, [Universidad Técnica Federico Santa María \(UTFSM\)](#). Thesis Director: Héctor Allende.
  12. 2013. (Ph.D.) Irene Zuccar. “Reconocimiento automático de objetos 3D usando un número reducido de imágenes de rayos X”, [Pontificia Universidad Católica de Chile \(PUC\)](#). Thesis Director: Domingo Mery (Thesis Proposal).
  13. 2012. (M.Sc.) Germán Mondragon, “Metodología para el diseño de un clasificador múltiples vistas sobre radiografías RX: Aplicación para la búsqueda de gatillos de armas pequeñas dentro de equipajes”, [Pontificia Universidad Católica de Chile \(PUC\)](#). Thesis Director: Domingo Mery.

## Research & Projects

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1. Carrasco, M., González-Martín, C., Navajas-Torrente, S. and Dastres, R.: “Level of Agreement between Emotions Generated by Artificial Intelligence and Human Evaluation: A Methodological Proposal”. *Electronics* **(2024)**, 13(20). doi.org/10.3390/electronics13204014
2. González-Martín, C., Carrasco, M., and Wachter Wielandt, T. G. **(2024)**. Detection of Emotions in Artworks Using a Convolutional Neural Network Trained on Non-Artistic Images: A Methodology to Reduce the Cross-Depiction Problem. *Empirical Studies of the Arts* . vol 42(1) https://doi.org/10.1177/02762374231163481
3. Cano-Martínez M.J., Carrasco, M., Sandoval J, González-Martín C.: “Quantitative Analysis of Visual Representation of Sign Elements in COVID-19 Context”. *Empirical Studies of the Arts*. **(2023)** vol41 (1).pp 31-51. doi.org/10.1177/02762374221104059
4. González-Martín, C.; Carrasco, M.; Oviedo, G. “Analysis of the Use of Color and Its Emotional Relationship in Visual Creations Based on Experiences during the Context

- of the COVID-19 Pandemic”. *Sustainability* **(2022)**, 14, 12989. doi.org/10.3390/su142012989
5. Orvañanos-Guerrero, M. T., Acevedo, M., Sánchez, C.N., Cisneros-Barba, J., Carrasco, M.; Velázquez, R.: “Optimización del balanceo de un mecanismo plano mediante redistribución de masas”, *Ingeniare. Revista chilena de ingeniería*, vol.30, (1) pp. 134-144. **(2022)** dx.doi.org/10.4067/S0718-33052022000100134 **(SCOPUS)**
  6. Carrasco, M.; Araya-Letelier, G.; Velázquez, R.; Visconti, P. Image-Based Automated Width Measurement of Surface Cracking. *Sensors* **(2021)**, 21, 7534. doi.org/10.3390/s21227534
  7. Tachiquin, R., Velázquez, R., Del-Valle-Soto, C., Gutiérrez, C.A., Carrasco, M., De Fazio, R., Trujillo-León, A., Visconti, P., Vidal-Verdú, F.: “Wearable Urban Mobility Assistive Device for Visually Impaired Pedestrians Using a Smartphone and a Tactile-Foot Interface”, *Sensors* **(2021)**, 21, 5274. doi.org/10.3390/s21165274
  8. De Fazio, R., Giannoccaro, N., Carrasco, M., Velázquez, R., Visconti, P.: “Wearable devices and IoT applications for symptom detection, infection tracking, and diffusion containment of the COVID-19 pandemic: a survey”. *Frontiers of Information Technology & Electronic Engineering* (ISSN 2095-9184) 22, 1413-1442 **(2021)**. doi.org/10.1631/FITEE.2100085
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  16. Carrasco, M., Toledo, P., Tischler, N.D.: “Macromolecule Particle Picking and Segmentation of a KLH Database by Unsupervised Cryo-EM Image Processing”, *Biomolecules*, 9:12, **(2019)**, doi.org/10.3390/biom9120809
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  19. Velázquez, R., Pissaloux, E., Rodrigo, P., Carrasco, M., Giannoccaro N., Lay-Ekuakille, A.: “An Outdoor Navigation System for Blind Pedestrians Using GPS and Tactile-Foot Feedback”, *Applied Sciences*. 8: 578 **(2018)**: doi.org/10.3390/app8040578

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21. Carrasco, M., Álvarez, F., Velázquez, R., Concha, J., Perez-Cotapos, I.: "Inline Force Sensor Development for Electrical Motors for Mining Operations in Chile: A New Inspection Protocol", *IEEE Latin American Transaction*, 16:1, 66-74., February (2018). doi.org/10.1109/TLA.2018.8291456 (**SCOPUS**)
22. Araya-Letelier, G., Antico, F.C., Carrasco, M., Rojas, P., García-Herrera, C.M.: "Effectiveness of new natural fibers on damage-mechanical performance of mortar", *Construction and Building Materials* (Elsevier), 152:672-682, October (2017) doi.org/10.1016/j.conbuildmat.2017.07.072
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34. del-Campo, F., Carrasco, M.: "Identification of human movements of apprehension with hidden Markov model using and acceleration sensor", *Journal of Communication and Computer*, vol.9.(6), pp.653-659. (2012) (**EBSCO**).

#### INTERNATIONAL CONFERENCES

35. R. Becerra and M. Carrasco, "Impact of Project-Based Learning methodology on the academic performance of engineering students during the COVID-19 pandemic", 2023 World Engineering Education Forum - Global Engineering Deans Council (WEEF-GEDC), Monterrey, Mexico, 2023, pp. 1-9, (**IEEE-SCOPUS**) doi: 10.1109/WEEF-GEDC59520.2023.10344039.

36. R. Becerra and M. Carrasco: "Evaluation of academic performance with project-based learning in times of pandemic and post pandemic", 21st LACCEI, Leadership in Education and Innovation in Engineering in the Framework of Global Transformations: Integration and Alliances for Integral Development, Buenos Aires, Argentina, **2023**. [dx.doi.org/10.18687/LACCEI2023.1.1.1571](https://doi.org/10.18687/LACCEI2023.1.1.1571) (**SCOPUS**)
37. G. Araya-Letelier; P. Maturana; M. Soledad Gomez; M. Carrasco; F. Antico; C. Burbano: "Desempeño fracto-mecánico de morteros reforzados con fibras plásticas recicladas", XV Congreso Internacional de Patología y Recuperación de Estructuras, CINPAR 2019: Salta, Argentina, **2019**.
38. G. Araya-Letelier; M. Carrasco; C. Burbano; S. Kunze, U. Reidel; M. Gutiérrez: "Control de fisuración de mezclas de adobe reforzado con fibras sintéticas y naturales", XV Congreso Internacional de Patología y Recuperación de Estructuras, CINPAR 2019: Salta, Argentina, **2019**.
39. A. Beghelli; J. Briede; M. Carrasco; P. Prieto: "Generic generative design systems to imprint personalities in consumer products: Preliminary results", 21st International Conference on Engineering Design (ICED17), University of British Columbia, Vancouver, Canada, Aug. 21-25., **2017**. (**SCOPUS**)
40. G. Araya-Letelier, F. C. Antico, P. Parra, M. Carrasco: "Fiber reinforced mortar, pig hair, industrial waste, flexural strength, compressive strength, impact strength", International Conference – Towards a Sustainable Urban Environment (EBUILT-2016), Cluj Napoca, Romania, Nov. 16-19., **2016**.
41. A. Viada, M. Ortega, M. Carrasco: "Active System for Hand Motion Recognition", In Proceedings of the 38th Latin-American Conference on Informatics (CLEI), Medellín, Colombia, Oct. 1-5. (IEEE-CS), **2012**. (**SCOPUS**)
42. M. Carrasco: "Multiple partial solutions for the point-to-point correspondence problem in three views", in Proceedings of the 8th IEEE International Conference on Intelligent Computer Communication and Processing (ICCP), Cluj-Napoca, Romania, Aug. 30 Sept.(IEEE-CS, pp155-158), **2012**. (**SCOPUS**) [doi.org/10.1109/ICCP.2012.6356179](https://doi.org/10.1109/ICCP.2012.6356179)
43. M. Carrasco, D. Mery: "Bifocal matching using multiple geometrical solutions", in Proceedings of the 5th Pacific-Rim Symposium on Image and Video Technology (PSIVT). Gwanju, Korea, Nov. 20-23, **2011**. [doi.org/10.1007/978-3-642-25346-1\\_18](https://doi.org/10.1007/978-3-642-25346-1_18)
44. F. del Campo and M. Carrasco: "Characterizing human grasping movements by means of an acceleration sensor", in Proceedings of Applied Computing Conference (ACC). Angers, France, Nov. 17-19, **2011**.
45. M. Carrasco, X. Clady: "Prediction of user's grasping intentions based on the eye-hand coordination", In Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). Taipei, Taiwan, Oct. 18-22, **2010**. (**SCOPUS**) [doi.org/10.1109/IROS.2010.5650024](https://doi.org/10.1109/IROS.2010.5650024)
46. M. Carrasco and X. Clady: "Utilisation de la coordination main-oeil pour la prediction d'un geste de prehension", In Proceedings of the 17ème conférence en Reconnaissance des Formes et Intelligence Artificielle (RFIA). Caen, France, Jan 19-22, **2010**.
47. M. Carrasco and X. Clady: "Prediction of user's intention based on the hand motion recognition", in Proceedings of the XXVIII International Conference of the Chilean Computer Society (SCCC). Santiago, Chile, Nov. 9-14, **2009**.
48. M. Carrasco, L. Pizarro and D. Mery: "Image Acquisition and Automated Inspection of Wine Bottlenecks by Tracking in Multiple Views", in Proceedings of 8<sup>th</sup> International Conference on Signal Processing, Computational Geometry and Artificial Vision (ISCGAV) pp. 82-89. Rhodes Island, Greece, Aug. 20-22, **2008**.
49. M. Carrasco and D. Mery: "Automatic Multiple Visual Inspection on Non-Calibrated Image Sequence with Intermediate Classifier Block", in Proceedings of the 2nd Pacific-Rim Symposium on Image and Video Technology (PSIVT). Santiago, Chile, Dec 17-19, **2007**. *Best Paper Award on Track Computer Vision and Applications*. [doi.org/10.1007/978-3-540-77129-6\\_34](https://doi.org/10.1007/978-3-540-77129-6_34) (**SCOPUS**)

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51. D. Mery and M. Carrasco: "Automated Multiple View Inspection of Metal Castings", IEEE/SPIE, 8<sup>th</sup> International Conference on Quality Control by Artificial Vision (QCAV). Le Creusot, France, May 23-25, **2007**.
52. D. Mery and M. Carrasco: "Advances on Automated Multiple View Inspection", in Proceedings of IEEE Pacific-Rim Symposium on Image and Video Technology (PSIVT). Hsinchu, Taiwan, Dec. 11-13, **2006**.
53. D. Mery and M. Carrasco: "Automated multiple view inspection based on uncalibrated image sequences", in 14th Proceedings of the Scandinavian Conference on Image Analysis (SCIA). Joensuu, Finland, Jun. 19-22, **2005**.

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#### NATIONAL CONFERENCES -CHILEAN AND FRENCH MEETINGS-

54. A. Beghelli, C. Díaz, I. Cabrera, M. Carrasco, G. Huerta, S. Moreno, J. Villalón C. Astudillo, R. Cereceda, I. Ortuzar, N. Pérez, C. Pieringer, C. Tamayo, "Enseñanza de programación de computadores al servicio de la innovación", Actas de Encuentro Chileno de Computación (ECC), Santiago, Dic. **2015**.
55. A. García, M. Carrasco: "Interacción Humano-Computador en un escritorio virtual". en Actas del XXI Encuentro Chileno de Computación (ECC). Valparaíso Nov.12-16, **2012**.
56. M. Carrasco and X. Clady: "Predicción de la intención humana basado en la coordinación Mano-Ojo", in Primer Congreso de Estudiantes de Postgrado Ingeniería (CEPIUC), Pontificia Universidad Católica de Chile, Chile, May 29, **2009**.
57. M. Carrasco: "Automatic Multiple Visual Inspection on Non-calibrated Image Sequence with Intermediate Classifier Block", GDR ISIS/Club EEA, Métrologie 3D par vision, Lyon, France. March, 27, **2008**.
58. M. Carrasco, R. Portugal, and B. Peralta: "Reconocimiento Biométrico de Audio y Rostro: Un sistema viable de Identificación", in XVII Congreso Chileno de Control Automático ACCA, Universidad de la Frontera, Chile, Jan 10-12, **2007**.
59. R. Portugal and M. Carrasco: "Ensamble de Algoritmos Bayesianos con Árboles de decisión: una alternativa de clasificación", XVII Congreso Chileno de Control Automático ACCA, Universidad de la Frontera, Chile, Jan 10-12, **2007**.
60. M. Carrasco, A. Cansado, and A. Soto: "Detección de patrones de fallas utilizando técnicas de análisis no supervisado", XII Encuentro Chileno de Computación ECC. Universidad Austral de Chile, Chile, Nov. 7-11, **2005**.
61. M. Carrasco and D. Mery: "Inspección visual automática usando análisis trifocal en una secuencia de imágenes no calibradas", in XII Encuentro Chileno de Computación ECC. Universidad Austral de Chile, Chile, Nov. 7-11, **2005**.

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#### DEGREE THESIS

62. M. Carrasco, "Non-Calibrated Multiple Views: Applications and Methodologies", Doctoral thesis in Computer Science (Informatique). Université Pierre et Marie Curie – UPMC (France) and Pontificia Universidad Católica de Chile. Jan 25, **2010**.
63. M. Carrasco, "Segmentation of welding defects using digital image processing techniques", Department of Information Engineering. Master of Engineering Sciences in Information Technology. Universidad de Santiago. May 27, **2004**.

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#### BOOK CHAPTERS

64. M. Carrasco, D. Mery: "Robust Algorithm for Nondestructive Testing of Welds Seams", in Ultrasonic and Advanced Methods for Nondestructive Testing and Material Characterization, World Scientific Publishing 2007, pp. 635-658. doi.org/10.1142/9789812770943\_0027

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#### INTERNATIONAL PROJECTS



1. Eureka + CORFO (innovaChile): **Role: Research director**, Title “LIDAR-AR: a real-time construction monitoring tool for mining and civil tunnels and slope construction progress using augmented reality and lidar technology” (2025-2026). (**Members: Chile, Spain**): Grant: 24CVEK- 264744. (more info at: <https://eurekanetwork.org>)
2. RRReMaker. Research and Innovation Staff Exchange (RISE). H2020-MSCA-RISE-2020. Horizon 2020 Marie Skłodowska-Curie (2021-2024). (**Members: Spain, Italy, France, Chile, Greece, Perú, Switzerland, Malta**). **Principal Researcher (in Chile)**, researcher associate. The main objective of this project is to develop an artificial intelligence (AI) based maker platform for the design and production of handcrafted, rapid prototyped and reconditioned products, based on the availability of used goods and recyclable waste collected, getting inputs from, and connecting together, digital manufacturers and traditional crafts, designers/creative companies and green companies, establishing a new hybrid managing model based on the communities of knowledge, ecodesign and democratization invention, integrating orange, sharing and circular economy. URL <https://www.rrremaker.com/>
3. STIC-AMSud. Title: “FERMI: Feature Extraction and Recognition Methods for Biological Images Understanding”. (2014-2016). (**Members: Peru, Brazil, France and Chile**). STIC-AmSud regional project. **Principal Researcher (in Chile)**. This project aims at developing of new algorithms, techniques, and tools to process biological digital images to detect and recognize patterns into the images. An important issue is that images can be acquired from different sources (micrography, electronic microscopy, digital images, microarrays, and others) and can represent various biological organisms and natural objects. With this project we will join the expertise of the research groups involved from the Pontifical Catholic University of Peru (Peru), University of Sao Paulo (Brazil), Pontifical Catholic University of Chile (Chile), Adolfo Ibáñez University (Chile) and the Institut de Biologie Structurale at Grenoble (France).
4. BRAHMA. UPMC-ISIR, France. (2008-2009). **Role: Doctoral student researcher**. Title: “Utilisation de la coordination oeil-main pour la prédiction d'un geste de préhension”. This project aims to develop a novel approach to recognize the user's gesture based on the visual information captured from the user perspective. Generally, most motion recognition methods capture user's movements by tracking body parts. Instead, I developed a system that captures the scene using the user's gaze, and the grasp movement. My fellowship was funding by CONICYT – Colegio Doctoral Franco-Chileno under grant no. 21050185 and by the School of Engineering at Pontificia Universidad Católica de Chile.

#### CHILEAN PROJECTS (CORFO, FONDECYT, FONDEF, FIC-REGIONAL)

5. FIC-Regional (2020-2022). Role: **Co-Director**. Title: Transferencia de Tecnología Inteligente para la seguridad en la pequeña minería subterránea del Distrito Minero 55 Chancón". Main Director: Miguel Herrera Marchant, Grant: IDI 40017833-0.
6. CORFO (contratos tecnológicos) (2018-2020). Role: Technical Researcher/developer. Title: “Desarrollo de modelos predictivos usando machine learning para la toma de decisiones en la producción de arándanos bajo condiciones actuales y proyectadas de cambio climático”. Project supported by HORTIFRUT-UAI. Grant: 17COTE83081.
7. UAI-2030 [CORFO]. (2018). Role: **Co-director**, researcher. Title: “Determinación de curva granulométrica de suelos a través de análisis óptico en profundidad”. Project supported by UAI-Built.
8. FONDEF Idea-CONICT (2013-2015). Role: Technical Researcher. Title: “Desarrollo y evaluación de algoritmos de data mining para la predicción del riesgo de crisis en pacientes ambulatorios de un hospital pediátrico”. Main director: Sebastian Ríos, University of Chile. Grant: CA13i-10300.



9. FONDECYT-CONICYT (Initiation into research competition) **(2011-2014)**. Role: **Principal Director**. Title: "Characterization of reach-to-grasp movements based on active perception systems". This project proposes a novel approach to detect reach-to-grasp movements by means of computer vision techniques. My solution fuses two viewpoints, the first of which is obtained from an eye-tracker device capturing the user's head perspective and the second viewpoint is captured by a wearable camera attached to the user's wrist. Project supported by CONICYT under grant no. 11100098. (\$102.000 USD)
10. DCC-PUC, Chile. **(2007-2008)**. Role: Student researcher (PhD). Title: "Multiple View Visual Inspection". This project aims to develop a machine to evaluate the quality of wine glass bottles. My research consists in generating a robust multiple view inspection scheme in a non-calibrated way. The main motivation is the development of new computer vision techniques that may be applied as quality control methods to different manufactured products. Project partially supported by CONICYT ACT-32 and the School of Engineering at Pontificia Universidad Católica de Chile.
11. DCC-PUC, Chile. **(2005-2006)**. Role: Student researcher (PhD). Title: "Tracking of potential defects in metal castings". This project aims to develop an algorithm to classify potential defects from real defect using the epipolar geometry in multiples views. Project partially supported by CONICYT under grant no. 1040210.
12. DIINF-USACH, Chile. **(2003-2004)**. Role: Student researcher (M.Eng). Title: "Segmentation of welding defects". This project aims to develop an algorithm capable of segmenting welding defects using robust digital image processing techniques. Project partially supported by CONICYT under grant no. 1040210.

#### SEMINARS, LECTURES, WORKSHOPS

- 2024 Expositor, "Feria de Matemáticas y Tecnología", Workshop: "Connecting the Future: Introduction and Practice with the Internet of Things", Colegio Santa Úrsula, Vitacura Santiago, Chile. Julio, 23.
- 2024 Expositor, "Buenas Prácticas docentes". Jornada Docencia en Ingeniería y Ciencias UAI. Universidad Adolfo Ibáñez, Chile, Feb, 29
- 2023 Expositor, "Detection of Emotions in Artworks", Escuela Predoctoral 2023, Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez, Chile, Oct, 11.
- 2022 Expositor, "Innovando con datos, Fortaleciendo la fiscalización pública", Seminario: Análisis de los informes de carga para encontrar embarcaciones de pesca fraudulenta, Escuela de Gobierno, Universidad Adolfo Ibáñez, Chile. Aug, 10.
- 2018 Expositor, "II Feria de Robótica", Charla: Visión Humana como sistema de control, Instituto Nacional, Santiago, Chile. Nov 30.
- 2018 Invitado Panel Curricular, 7º Congreso TIC: "Arquitecturas tecnológicas habilitantes para el desarrollo económico del país", Universidad Diego Portales. Nov 21.
- 2018 Expositor, "1er Tribunal Ambiental", Proyectos Aplicados con Visión Artificial, Facultad de Ingeniería y Ciencias, UAI. Nov 13.
- 2018 Workshop, "Primer Congreso de Realidad Virtual, Mixta e Inmersiva en Santiago de Chile", Visión Humana como sistema de control, organized by VAIR Tech. Oct, 11.
- 2017 Workshop, "Genuino Day 2017", Human Computer Interaction, organized by Faculty of Engineering and Science, Universidad Adolfo Ibáñez, Viña del Mar, March 31.
- 2016 Expositor, Ciclo de Charlas: Estadística Estratégica para la toma de decisiones, "Análisis en múltiples vistas. Aplicaciones y Metodologías". Facultad de Ingeniería y Ciencias, Universidad Adolfo Ibáñez, Sep 29.
- 2016 Workshop, "Genuino Day 2016", Human Computer Interaction, organized by Faculty of Engineering and Science, Universidad Adolfo Ibáñez, April 4.
- 2016 Expositor, 2<sup>nd</sup> Active Learning in Engineering Education Workshop, organized by Faculty of Engineering and Science, Universidad Adolfo Ibáñez, Jan 14-15.

- 2015 Expositor, Semana de la Docencia, organized by the Centro de Innovación y Aprendizaje, Universidad Adolfo Ibáñez, Oct. 30.
- 2013 AlDyNet, Workshop on Algorithms and Randomness, organized by the Faculty of Engineering and Science, (UAI) in collaboration with INRIA Sophia-Antipolis (France), Universidad Adolfo Ibáñez, Chile, Nov, 21.
- 2012 Workshop, Introduction to Image Processing, organized by the student branch of IEEE-UDP, Faculty of Engineering, Universidad Diego Portales, (total time 7.2Hrs) Oct, 9-30.
- 2012 Lecturer, Computer Vision Seminar, Department of Computer Science, School of Engineering, Pontificia Universidad Católica de Chile. Oct., 04.
- 2012 Lecturer, Programa de Postítulo en Informática y Gestión (INGES), Pontificia Universidad Católica de Chile. Jun, 28, 2012.
- 2009 Lecturer, Semana de Ingeniería, Universidad Diego Portales, Chile. Oct, 6.
- 2009 Expositor, First Postgraduate Engineering Student (CEPIUC), Pontificia Universidad Católica de Chile, Chile. May, 29.
- 2006 Expositor, First Academic-Entrepreneurial Meeting on Computer Vision in Nondestructive Tests (VCEND). Pontificia Universidad Católica de Chile, Sept. 13.

## Other studies~ training

### WORKSHOPS AND TRAINING

- 2023 Active learning and learning sequences. Prof. Francisco Ayala Aguirre, TEC. Monterrey. July.
- 2023 [International Engineering Educator, Ing.Paed.IGIP, Innova HiEd Academy](#), Facultad Regional Buenos Aires, Universidad Tecnológica Nacional, UTN. Argentina (two year program).
- 2020 Coding Dojo, Silicon Valley, San José, California, USA. February.
- 2011 Innovative Teaching for Deeper Learning, Harvard University, organized by LASPAU. Cambridge. USA. April.
- 2007 Student training assistantships. Centro de Desarrollo Docente de la Vicerrectoría Académica. Pontificia Universidad Católica de Chile. May.
- 2006 Industrial Robotics Workshop. Parallax, RAMBAL. Chile (10 hrs).
- 2005 dotNET. Microsoft 5 Star program at the Pontificia Universidad Católica de Chile. April to July.
- 2005 Training in Scientific and Technical Writing. Prof. Jean-Luc Dumont -JL Consulting. Pontificia Universidad Católica de Chile. January.

### ELEMENTARY AND HIGH SCHOOL EDUCATION

- 1994 Colegio San Ignacio A.O. (Santiago, Chile)  
Elementary and High School Diplomas (1983-1994)
- 1994 Award for Excellence in Ignatian Spirit. Colegio San Ignacio (High School).
- 1993 Award for Excellence in Ignatian Spirit. Colegio San Ignacio (High School).

### LANGUAGES

- Spanish Native language.
- English Advanced Intermediate Level.
- French Advanced Intermediate Level.

## Interests

### PHOTOGRAPHY EXPOSITOR

- 2008 Digital photography selected to be published in the fifth edition of Schmap Budapest Guide. [www.schmap.com](http://www.schmap.com), Nov. 2008
- 2006 Digital photography expositor at Centro Cultural España, Sep.
- 2006 Expositor at FotoBlogs'06. First digital photography meeting in Chile. Printed exposition. Biblioteca de Santiago, Aug-Sept.
- 2004 Expositor at the first photography festival in Chile. "Foto al Aire Libre", Parque Forestal. Santiago. FotoAmérica '04. Nov.

## Memberships

- IEEE member (since 2005)
- Member of the SCCC (Sociedad Chilena de Ciencia de la Computación).