

CV Date

02/01/2025

Part A. PERSONAL INFORMATION

First Name	Arantzazu		
Family Name	Villanueva Larre		
Sex	Not Specified	Date of Birth	
ID number Social Security, Passport			
URL Web	http://www.unavarra.es/gi4e		
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A.1. Current position

Job Title	Catedrática de Universidad		
Starting date	2024		
Institution	Universidad Pública de Navarra		
Department / Centre	Departamento de Ingeniería Eléctrica, Electrónica y de Comunicación/Grupo de Investigación de Ingeniería Biomédica / Escuela Técnica Superior de Ingenieros Industriales y de Telecomunicación/Instituto Smart Cities (ISC)/Instituto de Investigación Médica de Navarra (IDISNA)		
Country		Phone Number	
Keywords	Artificial intelligence; Multimodal interaction; Medical images; Image processing		

Part B. CV SUMMARY

Arantxa Villanueva Larre is a Full Professor in the Department of Electrical, Electronic, and Communication Engineering at the Public University of Navarre (UPNA). She is a member of the Biomedical Engineering research group, the Smart Cities Institute (where she serves on the standing committee), and the Navarre Institute for Health Research (IDISNA). Her research focuses on image analysis, with two main lines: eye-tracking systems and medical image analysis.

She leads the GI4E group (<http://www.unavarra.es/gi4e>) at UPNA and the Medical Imaging group at IDISNA (<https://www.idisna.es/investigacion/a602>), coordinating researchers from various institutions involved in medical research in Navarre. Her leadership is evident in European projects such as COGAIN (VI Framework Programme) and VIVA (Horizon Europe), where she coordinates essential work packages, achieving high-impact results such as standards, publications, and patents. Specifically, she led WP5: Eye Tracking Systems Development in COGAIN and currently coordinates WP4: Software and Algorithms in VIVA, involving researchers from multiple countries, institutions, and companies.

Nationally, she has led five projects, including the ongoing PID2020-118014RB-I00 project focused on gaze estimation using neural networks, as well as studies on gaze-based interfaces and machine learning techniques for eye-tracking systems.

In the medical field, she has developed algorithms for muscle and fat segmentation in MRI and ultrasound, collaborating with multidisciplinary teams. Regionally, she has led three collaborative projects and participated in 13 others funded through competitive calls.

Her scientific output includes over 30 JCR-indexed articles (29 Q1-Q2) and numerous conference contributions, with three recognized research periods (sexenios). Her Scopus metrics include: h-index of 22, 80 publications, 1558 citations, and (as of 2014) with 28.1%

international collaboration, 28% of documents in the top 25% most cited worldwide, and 69.6% of documents published in the top 25% journals by CiteScore.

In technology transfer, her collaboration with Bosch Sensortec stands out. This partnership, part of the VIVA project, focuses on the joint development of key technologies, the creation of high-impact scientific publications, and innovative solutions in eye tracking. Additionally, she organizes events such as the upcoming UPNA-BOSCH workshop in Lund, strengthening the synergy between both institutions. In total, Villanueva has led seven out of 13 contracts, including collaboration with Irisbond (<https://www.irisbond.com/>), which exploits a patent co-developed by her team. In medical imaging, she closely collaborates with the Clínica Universidad de Navarra (CUN) on joint projects. Some of these industry collaborations have contributed to her fourth recognized period (sexenio) in technology transfer.

She has trained numerous researchers, many of whom have pursued distinguished careers in academia and industry. She has supervised six doctoral theses, including international collaborations, and is currently supervising three more.

She actively participates in organizing international conferences, such as ETRA and ECEM, where she has held prominent roles as Poster Chair and Doctoral Consortium Chair in several editions of ETRA, as well as General Co-Chair at ECEM 2013. She will also serve as general chair of ETRA 2027, to be held in Pamplona.

She collaborates on international committees such as the CIE TC 6-64, has been a member of UNITA (<https://univ-unita.eu/Sites/>), a European University Project, and has conducted research stays at prestigious institutions such as the IT University of Copenhagen and Simon Fraser University. Her efforts consistently promote the internationalization of research. Additionally, she engages in outreach activities and serves as a reviewer for scientific journals and funding institutions.

In management, she has served as the Department Secretary, Director of the Faculty Area since 2013, a member of the Governing Council (2020-2023), and is currently a member of the UPNA Assembly.

Part C. RELEVANT ACCOMPLISHMENTS

C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. (n° x / n° y): position / total authors. If applicable, indicate the number of citations

- 1 **Scientific paper.** Echeverria-Chasco, Rebeca; Martin-Moreno, Paloma L.; Aramendía-Vidaurreta, Veronica; et al; Fernández-Seara, Maria A. 2024. Diagnostic and Prognostic Potential of Multiparametric Renal MRI in Kidney Transplant Patients. Journal of Magnetic Resonance Imaging. 60-4, pp.1650 – 1663-1650 – 1663.
- 2 **Scientific paper.** Dote-Montero, Manuel; Merchan-Ramirez, Elisa; Oses, Maddi; et al; Labayen, Idoia. 2024. Efficacy of different 8 h time-restricted eating schedules on visceral adipose tissue and cardiometabolic health: A study protocol. Nutrition, Metabolism and Cardiovascular Diseases. 34-1, pp.177 – 187-177 – 187.
- 3 **Scientific paper.** Anne Oyarzun-Domeño; Izaskun Cía; Rebeca Echeverria-Chasco; et al; Arantxa Villanueva. 2023. A deep learning image analysis method for renal perfusion estimation in pseudo-continuous arterial spin labelling MRI. Magnetic Resonance Imaging-Q3. 104, pp.39-51. ISSN 0730-725X. <https://doi.org/10.1016/j.mri.2023.09.007>

- 4 **Scientific paper.** Cristina Cadenas-Sanchez; María Medrano; Arantxa Villanueva; Rafael Cabeza; Fernando Idoate; Maddi Osés; F.B. Ortega; Idoia Labayen. 2023. Differences in specific abdominal fat depots between metabolically healthy and unhealthy children with overweight/obesity: The role of cardiorespiratory fitness. *Scandinavian Journal of Medicine & Science in Sports*-Q1. 33-8, pp.1462-1472. ISSN 1600-0838. <https://doi.org/10.1111/sms.14372>
- 5 **Scientific paper.** Idoia Labayen; Cristina Cadenas-Sanchez; Fernando Idoate; et al; Rafael Cabeza. 2023. Liver Fat, Bone Marrow Adipose Tissue, and Bone Mineral Density in Children With Overweight. *The Journal of Clinical Endocrinology & Metabolism*-Q1. ISSN 0021-972X. <https://doi.org/10.1210/clinem/dgad429>
- 6 **Scientific paper.** Rebeca Echeverria-Chasco; Paloma L. Martin-Moreno; Nuria Fernandez-Garcia; et al; Maria A. Fernandez-Seara. 2023. Multiparametric renal magnetic resonance imaging: A reproducibility study in renal allografts with stable function. *NMR in Biomedicine*-Q2. 36-2. ISSN 09523480. <https://doi.org/10.1002/nbm.4832>
- 7 **Scientific paper.** Santiago Mañosas; Aritz Sanz; Cristina Ederra; et al; Mauro Malve. 2022. An Image-Based Framework for the Analysis of the Murine Microvasculature: From Tissue Clarification to Computational Hemodynamics. *Mathematics* - Q1. 10-23. ISSN 2227-7390. <https://doi.org/10.3390/math10234593>
- 8 **Scientific paper.** Raquel Chocarro; Monica Cortiñas; Arantxa Villanueva. 2022. Attention to product images in an online retailing store: an eye-tracking study considering. *Journal of Electronic Commerce Research* - Q3. 23-4. ISSN 1526-6133.
- 9 **Scientific paper.** Andoni Larumbe; Gonzalo Garde; Sonia Porta; Rafael Cabeza; Arantxa Villanueva. 2021. Accurate Pupil Center Detection in Off-the-Shelf Eye Tracking Systems Using Convolutional Neural Networks. *Sensors* - Q1. 21-15. ISSN 1424-8220. <https://doi.org/10.3390/s21206847>
- 10 **Scientific paper.** Cristina Cadenas-Sanchez; Fernando Idoate; Arantxa Villanueva; Rafael Cabeza; Idoia Labayen. 2021. Intermuscular abdominal fat fraction and metabolic-associated fatty liver disease: Does the link already exist at childhood?. *Journal of Hepatology* - Q1. ELSEVIER SCIENC. ISSN 0168-8278. <https://doi.org/10.1016/j.jhep.2021.05.011>
- 11 **Scientific paper.** Gonzalo Garde; Andoni Larumbe; Benoit Bossavit; Sonia Porta; Rafael Cabeza; Arantxa Villanueva. 2021. Low-Cost Eye Tracking Calibration: A Knowledge-Based Study. *Sensors* - Q1. 21-15. ISSN 1424-8220. <https://doi.org/10.3390/s21155109>
- 12 **Scientific paper.** Martinikorena, I.; Larumbe-Bergera, A.; Ariz, M.; Porta, S.; Cabeza, R.; Villanueva, A.2020. Low Cost Gaze Estimation: Knowledge-Based Solutions. *IEEE Transactions on Image Processing* - Q1. 29, pp.2328-2343. ISSN 1941-0042. <https://doi.org/10.1109/TIP.2019.2946452>
- 13 **Scientific paper.** Cortinas M.; Cabeza R.; Chocarro R.; Villanueva A.2019. Attention to online channels across the path to purchase: An eye-tracking study. *Electronic Commerce Research and Applications* - Q1. 36. ISSN 15674223. <https://doi.org/10.1016/j.elerap.2019.100864>
- 14 **Scientific paper.** Martinikorena, Ion; Cabeza, Rafael; Villanueva, Arantxa; Urtasun, Iñaki; Larumbe, Andoni. 2018. Fast and robust ellipse detection algorithm for head-mounted eye tracking systems. *Machine Vision and Applications* - Q3. 29-5, pp.845-860. ISSN 0932-8092. <https://doi.org/10.1007/s00138-018-0940-0>

C.3. Research projects and contracts

- 1 **Project.** Intervención integral para el cambio de hábitos alimentarios basados en el control de la ración: Optimización más validación tecnológica y ensayo clínico. Eva Almirón. 01/01/2025-31/12/2027.
- 2 **Project.** Vision optics with Integrated VCSELs and Autofocal Lenses. VIVA. HORIZON-KDT-JU-2023-2-RIA-Topic-1. Arantxa Villanueva (UPNA). 01/07/2024-30/06/2027.
- 3 **Project.** EFIGRO-UP, Estudio longitudinal de la salud hepática y cardiovascular en población pediátrica con sobrepeso: identificación de marcadores de progresión de esteatosis hepática. Gobierno de Navarra-Departamento de Salud. Idoia Labayen. (Universidad Pública de Navarra). 23/12/2021-22/12/2024. 79.513 €.

- 4 Project.** PC139-140 PORTIONS-4, Implementación de estrategias para el cambio de hábitos alimentarios basadas en el control de la ración: desarrollo metodológico y estudio piloto.. Gobierno de Navarra-Departamento de Industria. Arantxa Villanueva Larre. (Universidad Pública de Navarra-Universidad de Navarra). 01/12/2022-30/11/2024. 146.842,25 €.
- 5 Project.** TED2021-129513B-C21, La interacción con los Asistentes Virtuales: sus efectos en la atención y emoción y el papel de la privacidad. -Interaction with Virtual Assistants: its effects on attention and emotion and the role of privacy. Ministerio de Ciencia e Innovación, Agencia Estatal de Investigación (AEI), Unión Europea NextGenerationEU/PRTR. Raquel Chocarro. (Universidad Pública de Navarra). 01/12/2022-30/11/2024. 59.570 €.
- 6 Project.** PID2020-118014RB-I00, Retos de un sistema de estimación de mirada empleando componentes de propósito general/Challenges of Eye Tracking Off-the-Shelf (ChETOS).. Ministerio de Ciencia e Innovación, Agencia Estatal de Investigación (AEI). Arantzazu Villanueva Larre. (Universidad Pública de Navarra). 01/09/2021-01/09/2024. 45.133 €.
- 7 Project.** EXTREME, Efectos del ejercicio físico y restricción horaria de la ingesta sobre la esteatosis hepática y la salud cardiometabólica en adultos con obesidad: Eficacia, factibilidad y mecanismos. Proyecto EXTREME. Consejo Superior de Deportes-Union Europea (Next Generation). Idoia Labayen. (Universidad Pública de Navarra). 01/04/2023-30/11/2023. 143.423,91 €.
- 8 Project.** 0011-1411-2020-000079, Emotional Films. Disruptivo concepto de nuevo formato audiovisual que varía en función de las emociones del espectador, de manera dinámica y transparente. Aplicaciones complementarias en psicología, sociología y pedagogía. Gobierno de Navarra-Departamento de Desarrollo Económico. Mikel Galar Idoate. (Universidad Pública de Navarra). 2020-2022. 1.215.934,18 €.
- 9 Project.** PC181-182 RM-RENAL, RM-Renal. Desarrollo y evaluación de una técnica de imagen por resonancia magnética multiparamétrica para predecir de forma precoz la disfunción del injerto renal tras el trasplante. Gobierno de Navarra-Departamento de Desarrollo Económico. María Asunción Fernandez Seara. (Clínica Universidad de Navarra). 2020-2022. 129.629,13 €.
- 10 Project.** TIN2017-84388-R, Técnicas de aprendizaje automático para sistemas de seguimiento de mirada. Ministerio de Economía y Competitividad. Arantzazu Villanueva Larre. (Universidad Pública de Navarra). 01/01/2018-31/12/2020. 66.913 €.
- 11 Project.** TIN2014-52897-R, Interacción ubicua basada en la mirada para dispositivos móviles. Ministerio de Economía y Competitividad. Arantzazu Villanueva Larre. (Universidad Pública de Navarra). 01/01/2015-31/12/2018. 79.376 €.
- 12 Project.** TIN2009-12247, Universalización de las interfaces de ordenador basadas en seguimiento de mirada. Ministerio de Ciencia e Innovación; Universidad Pública de Navarra. Arantzazu Villanueva Larre. (Universidad Pública de Navarra). 01/01/2010-31/12/2012. 99.462,01 €.
- 13 Project.** 511598, Communication by Gaze Interaction. Comisión Europea (VI Programa Marco). Arantxa Villanueva Larre. (Universidad Pública de Navarra). 01/09/2005-31/08/2009. 49.000 €.
- 14 Contract.** Evaluación preliminar del producto MAMU Rafael Cabeza. 12/09/2022-11/12/2022. 3.800 €.
- 15 Contract.** Contrato de investigación NEW GRAVITY-UPNA (Emotional Films) Carlos Del Río Bocio. 18/10/2019-18/04/2020. 1.500 €.
- 16 Contract.** Pupil Center Detection Arantzazu Villanueva Larre. 18/01/2016-18/05/2016. 8.070 €.
- 17 Contract.** Mejora de un sistema de control del ratón por seguimiento de la mirada Rafael Cabeza Laguna. 07/09/2006-06/01/2007. 9.768 €.

C.4. Activities of technology / knowledge transfer and results exploitation

Sonia Goñi Lopez; Javier San Agustin Lopez; Aitziber Mendiguren Gonzalez; Juan Jose Cerrolaza Martinez; Arantxa Villanueva Larre; Rafael Cabeza Laguna. 200700409. Sistema de seguimiento ocular para el gobierno de un ordenador. Spain. 17/11/2009. IRISCOM SISTEMAS S.L..