

Curriculum vitae

Fernando Soldevila Torres



Name: Fernando Soldevila Torres
Date of birth: April 15th, 1988
Place of birth: Valencia, Spain
Address: Castellón de la Plana, España
Personal website: <https://fsolt.es>
Research: [Google Scholar](#)

Work experience

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| 10/2024–Present | Post-doctorate researcher at <i>Universitat Jaume I</i> (Castellón, Spain)
Supervisor: Dr. Daniel Torrent
Duties: Research work at the GROC·UJI photonics group in the field of picosecond ultrasonics. |
| 10/2022-9/2024 | Post-doctorate researcher at <i>Institute des Nanosciences de Paris</i> (Paris, France)
Supervisor: Dr. Olga Boyko
Duties: Research work at the group of Acoustics for Nanosciences in the field of picosecond ultrasonics. |
| 10/2019-09/2022 | Post-doctorate researcher at <i>Laboratoire Kastler-Brossel</i> (Paris, France)
Supervisor: Prof. Dr. Sylvain Gigan
Duties: Research work at COMEDIA photonics group in the field of imaging and 3D localization through scattering media. |
| 02/2019-09/2019 | Post-doctorate researcher at <i>Universitat Jaume I</i> (Castellón, Spain)
Supervisor: Dr. Enrique Tajahuerce.
Duties: Research work at GROC·UJI photonics group in the field of computational imaging using single-pixel detectors. |
| 10/2014-01/2019 | PhD Student at <i>Universitat Jaume I. Computational imaging with single-pixel detectors and applications in multidimensional imaging.</i>
Grant Universitat Jaume I PREDOC/2013/32. |
| 6/2014-10/2014 | Grant holder at research project: Dispositivos fotónicos avanzados para formación de imagen y procesamiento de materiales. <i>Universitat Jaume I, Physics Dpt., with Dra. María Gladis Mínguez Vega.</i> |

- 5/2013-12/2013 Research scientist at Programa Gerónimo Forteza (13I106/05). *Universitat Jaume I*.
- 9/2012-12/2012 Grant holder at research project: Conformado temporal de pulsos mediante elementos ópticos difractivos. *Universitat Jaume I, Physics Dpt., with Dra. María Gladis Mínguez Vega*.

Education

- 2013-2019 PhD studies at *Universitat Jaume I*.
PhD thesis: Multidimensional computational imaging using single-pixel detectors
- 2012-2013 Master on Advanced Physics (photonics) at *Universitat de València, España*.
Master thesis: Spectropolarimetric imaging systems with single-pixel detectors.
- 2007-2012 Physics Degree at *Universitat de València, Spain*.
Degree thesis: Multispectral imaging systems with single-pixel detectors.

Skills

- Computer: Matlab, Mathematica, LabVIEW, Python, Inkscape, Gimp, LaTeX.
- Languages: Spanish (mother tongue), Catalan (mother tongue), English (fluent, written and spoken)

Research visits

- 9/2017-02/2018 Prof. Sylvain Gigan research group at *Laboratoire Kastler-Brossel*, Paris (France).

List of publications

- 2024 H. Sarafranz, T. Nöbauer, H. Kim, F. Soldevila, S. Gigan, and A. Vaziri, 'Speckle-enabled in vivo demixing of neural activity in the mouse brain', *Biomed. Opt. Express* 15, 3586-3608 (2024)
- 2023 C. Vaz Rimoli, C. Moretti, F. Soldevila, E. Brémont, C. Ventalon, S. Gigan, 'Demixing fluorescence time traces transmitted by multimode fibers', *Nat. Comm.* 15.1 (2024): 6286
- 2023 F. Soldevila, C. Moretti, T. Nobauer, H. Sarafranz, A. Vaziri, S. Gigan, 'Functional imaging through scattering media via fluorescence speckle demixing and localization', *Optics Express*. 31, 21107-21117.

- 2023 A. Ghezzi, A.J.M. Lenz, F. Soldevila, E. Tajahuerce, V. Vurro, A. Bassi, G. Valentini, A. Farina, C. D'Andrea, '*Computational based time-resolved multispectral fluorescence microscopy*', APL Photonics, 8 (4).
- 2022 L. Zhu, F. Soldevila, C. Moretti, A. D'Arco, A. Boniface, X. Shao, H. B. de Aguiar, S. Gigan, '*Large field-of-view non-invasive imaging through scattering layers using fluctuating random illumination*', Nat. Comm. 13, 1477.
- 2021 F. Soldevila, A.J.M. Lenz, A. Ghezzi, A. Farina, C. D'Andrea, E. Tajahuerce, '*Giga-voxel multidimensional fluorescence imaging combining single-pixel detection and data fusion*', Opt. Lett. 46, 4312-4315.
- 2019 B. Sturm, F. Soldevila, E. Tajahuerce, S. Gigan, H. Rigneault, H. B. de Aguiar, '*High-sensitivity high-speed compressive spectrometer for Raman imaging*'. ACS Photonics 6 (6), 1409-1415.
- 2019 F. Soldevila, J. Dong, E. Tajahuerce, S. Gigan, H. B. de Aguiar, '*Fast compressive Raman bio-imaging via matrix completion*'. Optica 6, 341-346.
- 2018 H. González, Ll. Martínez-León, F. Soldevila, M. Araiza-Esquivel, J. Lancis, E. Tajahuerce. '*High sampling rate single-pixel digital holography system employing a DMD and phase-encoded patterns*'. Optics Express. 26, pp. 20342-20350.
- 2018 F. Soldevila, V. Durán, P. Clemente, J. Lancis, E. Tajahuerce. '*Phase imaging by spatial wavefront sampling*'. Optica. 5, pp. 164-174.
- 2018 F. Soldevila, P. Clemente, E. Tajahuerce, J. Lancis. 'Single-Pixel Imaging Using the Hadamard Transform'. Encyclopedia of Modern Optics (Second Edition). 4, pp. 193-198.
- 2016 F. Soldevila, P. Clemente, E. Tajahuerce, N. Uribe-Patarroyo, P. Andrés, J. Lancis. '*Computational imaging with a balanced detector*'. Scientific Reports. 6, pp. 29181.
- 2016 F. Soldevila, V. Durán, P. Clemente, E. Irles, M. Fernández-Alonso, E. Tajahuerce, J. Lancis. '*Compressive Polarimetric Sensing*'. Optical Compressive Imaging. A. Stern, CRC Press. pp. 207.
- 2015 F. Soldevila, E. Salvador-Balaguer, P. Clemente, E. Tajahuerce, J. Lancis. '*High-resolution adaptive imaging with a single photodiode*'. Scientific Reports. 5, pp. 14300.
- 2015 V. Durán, F. Soldevila, E. Irles, P. Clemente, E. Tajahuerce, P. Andrés, and J. Lancis. '*Compressive imaging in scattering media*,' Optics Express. 23, pp. 14424-14433.

- 2014 E. Tajahuerce, V. Durán, P. Clemente, E. Irles, F. Soldevila, P. Andrés and J. Lancis. '*Image transmission through dynamic scattering media by single-pixel photodetection*', Optics Express. 9, pp. 16945 - 16955.
- 2014 F. Soldevila, E. Irles, V. Durán, P. Clemente, M. Fernández-Alonso, E. Tajahuerce and Jesús Lancis, '*Spectropolarimetric imaging techniques with compressive sensing*', Multi-dimensional Imaging. B. Javidi, E. Tajahuerce, P. Andrés (Eds.), Wiley-IEEE Press, Chichester (UK), ISBN: 978-1-118-44983-7.
- 2013 F. Soldevila, E. Irles, V. Durán, P. Clemente, Mercedes Fernández-Alonso, Enrique Tajahuerce and Jesús Lancis, '*Single-pixel polarimetric imaging spectrometer by compressive sensing*', Applied Physics B. 113, pp. 551-558

Posters and presentations

- 07/2023 XVII INTERNATIONAL CONFERENCE ON PHONON SCATTERING IN CONDENSED MATTER, poster: Surface Acoustic Wave propagation on nanostructured photoresist thin films fabricated by soft lithography.
- 11/2021 XIII Reunión Nacional de Óptica (RNO 2021), poster: Giga-voxel multidimensional imaging by single-pixel detection and data fusion.
- 07/2021 Computational Optical Sensing and Imaging 2021, talk: Multispectral Fluorescence Lifetime Imaging with Single-Pixel Cameras and Data Fusion.
- 06/2021 European Conference on Biomedical Optics 2021, talk: Multispectral time-resolved fluorescence imaging by single-pixel detection and data fusion.
- 06/2019 SPIE Optical Coherence Imaging Techniques and Imaging in Scattering Media, World of Photonics Congress, Munich, Germany, poster presentation: Computational phase imaging using spatio-temporal wavefront modulation.
- 04/2019 Focus on Microscopy, London, United Kingdom, talk: Fast Compressive Raman Microspectroscopy.
- 07/2018 XII Reunión Nacional de Óptica (RNO), Castellón, Spain, talk: Phase imaging using a digital micromirror device.
- 06/2018 2018 International Conference Laser Optics (ICLO), St. Petersburg, Russia, talk: Wavefront sensing by single-pixel imaging techniques.
- 05/2018 SPIE Photonics Europe, 2018, Strasbourg, France, talk: Quantitative phase imaging by using a position sensitive detector.
- 04/2018 ECONOS 2018, Milan, Italy, talk: Fast Single-Pixel Microspectroscopy using Low-Rank Matrix Estimation.
- 02/2018 Quantitative Phase Imaging IV, in SPIE Photonics West, San Francisco, USA, poster presentation: Quantitative phase imaging using a programmable wavefront sensor.
- 02/2018 Emerging Digital Micromirror Device Based Systems and Applications X, in SPIE Photonics West, San Francisco, USA, talk: Single-pixel imaging using balanced detection and a digital micromirror device.
- 07/2016 Computational Optical Sensing and Imaging (COSI), Heidelberg, Germany, talk: Use of balanced detection in single-pixel imaging.
- 02/2015 SPIE Photonics West, BIOS, San Francisco, USA, poster presentation: Resolution analysis in compressive multidimensional microscopy.
- 02/2015 SPIE Photonics West, BIOS, San Francisco, USA, talk: Structured

- illumination enables image transmission through scattering media.
- 11/2014 Latin America Optics & Photonics 2014, Cancún, Mexico, poster presentation: Compressive single-pixel multispectral Stokes polarimeter. ISBN 978-1-55752-825-4.
- 08/2014 International Conference in Optics, ICO-23, Santiago de Compostela, Spain, poster presentation: Single-pixel multispectral Stokes polarimeter by compressive sensing.
- 08/2014 International Conference in Optics, ICO-23, Santiago de Compostela, Spain, invited talk: Computational imaging with single-pixel photodetection: applications in scattering media.
- 07/2014 13th International Workshop on Information Optics (WIO 2014), Neuchatel, Sweden, invited talk: Computational imaging with single-pixel detection: Applications in scattering media.
- 07/2013 12th International Workshop on Information Optics (WIO 2013), Tenerife, Spain, invited talk: 'Single-pixel hyperspectral imaging polarimeter for full Stokes Parameter Measurement'.
- 07/2013 XXXIV Reunión Biental de la Real Sociedad Española de Física y 23º Encuentro Ibérico de Enseñanza de la Física, Valencia, Spain, talk: 'Single-pixel spectral polarimetric camera by compressive sensing'.
- 07/2013 Imaging and Applied Optics, Computational Optical Sensing and Imaging (COSI), OSA Optics and Photonics, Arlington, Virginia (USA), poster presentation: 'Single-pixel spectropolarimetric imaging by compressive sensing'.

Outreach

2014-2019

Science dissemination with the student group 'Grupo de Òptica' (<https://fsolt.es/student-chapter/>). We founded the student group to disseminate science among the general public. Being under the umbrella of different scientific societies (The Optical Society of America, SPIE, European Physical Society), we raised funds to build small scientific workshops on high-schools, small towns, and universities. We also participated in general public scientific activities and science festivals, such as Pint of Science Castellón, Con-necta amb la ciència, International Day of Light, and Practica a l'UJI, among others. During these years, we reached more than 10.000 people during the events we assisted and/or organized.

2020-Present

Science dissemination podcast Ciencia o Ficción Podcast (<https://cienciaoficcion.com/category/podcast/>), where we discuss about the science that appears in different movies, books, tv shows, and other forms of art.

Awards

Best student paper award at Photonics West 2018 -Emerging DMD-Based Systems and Applications Conference

2019 OSA Outstanding Reviewer Recognition (<https://opg.optica.org/content/reviewer/portallist/item/outstanding-reviewers/>)