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|  | **Emerging Security Challenges Division**  **Science for Peace and Security Programme**  **Curriculum Vitae** |

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| Family Name | | First Name | | | Title | Job Title | | | |
| Tomei | | Sonia | | | PhD | ████ | | | |
| Institution | | | Address | | | | | Country | |
| CNIT RaSS | | | Galleria g.B. Gerace 18, Pisa | | | | | Italy | |
| Telephone | Fax | | | Email | | | Nationality | | Date of Birth |
| +390503820819 | +39 050 3820571 | | | Sonia.tomei@cnit.it | | | Italian | | 30/08/1985 |

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| Education | degrees, universities, and dates |

Sonia Tomei was born in Pisa in 1985. She received her Bachelor’s (2008) and Master’s (2010) Degree both in Telecommunication Engineering at the University of Pisa. From 2011 to 2012 she has been a Ph.D student at the University of Pisa (Italy) and the University of Adelaide (South Australia) under a jointly Cotutelle Agreement..

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| Employment | employers, positions, and dates |

Sonia Tomei is an Italian researcher at CNIT (Consorzio Nazionale nteruniversitario per le Telecomunicazioni) in Pisa, where she has been working since 2011. She received her Bachelor’s (2008) and Master’s (2010) Degree both in Telecommunication Engineering at the University of Pisa. She spent the second year of her PhD course at the University of Adelaide (South Australia) studying the propagation effects on HF Skywave MIMO radars. After the Ph.D, supported by the University of Pisa (Italy) and the University of Adelaide (Australia) under a Cotutelle Agreement, she focused her research activity in the field of radar imaging and radar signal processing, gaining experience about ISAR techniques and Compressive Sensing among others. Lately she is working on the application of Artificial Intelligence for target classification in radar. Sonia is author of several papers and book chapters presented in leading international journals and conferences. She is currently involved in the management and research of several national and international projects funded by IT MoD, EDA and European Commission. She has been the NPD of the project NORMA (NOise imaging Radar network for covert air and MAritime borders Security) under the NATO SPS MYP grant G5465 (May 2018-Feb.2022).

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| Research | brief description of past and current research and the field(s) of specialization |

Sonia’s main research activities include radar signal and image processing, especially ISAR imaging, as well as target classification techniques based on micro-Doppler effects.

The value of her research activity is demonstrated by sever papers published in international journals, books and presented at national and international conferences.

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| Current Research Activities | titles of ongoing activities; please give the names and institutions of any international collaborators |

Current research activity includes radar image signal processing at CNIT-RASS

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| *Ongoing research activity* | *Institution of affiliation* | *Main international collaborations* |
| Radar image Signal Processing,  Data fusion | CNIT-RASS | Rheinmetall, Onerea, Indra, Hensoldt, Fraunhofer, Norvegian FFI and others |
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| Role/Activity | Please describe the project-specific role and activity(ies) you will undertake |

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| *Project-specific role* | *Main tasks* |
| Principal Investigator for radar processing | * Development of algorithms and techniques for radar signal and image processing * Development of algorithms and techniques for target detection and classification based on micro-Doppler effects * Architectural design of radar components |

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| Period of Involvement (estimated) | The period/dates for which you will be involved and receive a stipend |

From March 25, 2024 to September 25, 2026

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| Publications | up to three recent publications relevant to this project plan |

Journals

1. Tomei, S.; Martorella, M.; Coleman, C.J.; Berizzi, F.: ’Propagation effects on high frequency skywave multiple-input–multiple-output radar’, IET Radar, Sonar & Navigation, 2015, DOI: 10.1049/iet-rsn.2014.0554
2. Tomei, Sonia; Bacci, Alessio; Giusti, Elisa; Martorella, Marco; Berizzi, Fabrizio: ’Compressive sensing-based inverse synthetic radar imaging imaging from incomplete data’, IET Radar, Sonar & Navigation, 2015, DOI: 10.1049/iet-rsn.2015.0290
3. Alessio Bacci, Daniele Staglianò, Elisa Giusti, Sonia Tomei, Fabrizio Berizzi, Marco Martorella,Compressive sensing for interferometric inverse synthetic aperture radar applications,IET Radar, Sonar & Navigation, 2016, DOI: 10.1049/iet-rsn.2015.0563
4. E. Giusti, D. Cataldo, A. Bacci, S. Tomei, M. Martorella, “ISAR Image Resolution Enhancement:Compressive Sensing vs State of the Art Super-Resolution Techniques”, February 2018, IEEE Transactions on Aerospace and Electronic Systems DOI10.1109/TAES.2018.2807283
5. Multi-bistatic Radar for space surveillance and tracking D. Cataldo,L. Gentile, S. Ghio, E. Giusti Member IEEE, S. Tomei, M. Martorella Senior Member IEEE, Submitted to AES Magazine, January 2020

Conference

1. Bacci, A.; Stagliano, D.; Giusti, E.; Tomei, S.; Berizzi, F.; Martorella, M., "3D interferometric ISAR via compressive sensing," European Radar Conference (EuRAD), 2014 11th , vol., no., pp.233,236, 8-10 Oct. 2014, doi: 10.1109/EuRAD.2014.6991250
2. Tomei, S.; Martorella, M.; Coleman, C.J.; Berizzi, F., "OTH Skywave MIMO signal model and target detection in presence of multipath," Radar Conference (Radar), 2014 International , vol., no., pp.1,5, 13-17 Oct. 2014, doi: 10.1109/RADAR.2014.7060402
3. Tomei, S.; Coleman, C.J.; Martorella, M.; Berizzi, F., "The effect of Travelling Ionospheric Disturbances upon the performance of an HF skywave MIMO radar," Radar Conference (RADAR), 2013 IEEE , vol., no., pp.1,6, April 29 2013-May 3 2013, doi: 10.1109/RADAR.2013.6586047
4. Elisa Giusti, Sonia Tomei, Alessio Bacci, Marco Martorella, Fabrizio Berizzi, “Autofocus for CS based ISAR Imaging in the presence of gapped data”, CoSeRa 2013, Bonn
5. Elisa Giusti, Qiu Wei, Alessio Bacci, Sonia Tomei, Marco Martorella, “Super resolution ISAR imaging via Compressive Sensing”, EUSAR 2014 May 3, 2018 © European Union, 2002 – 2018 |
6. S. Tomei, A. Bacci, E. Giusti, M.Martorella, F. Berizzi, “ISAR Imaging via Compressive sensing: a review”, Nato set 213, 12-12/05/2014, Tallin, Estonia
7. E. Giusti, A. Bacci, S.Tomei, M. Martorella, “Compressive Sensing based ISAR: Performance evaluation”, IRS 2015
8. A. Bacci, E. Giusti, S. Tomei, M. Martorella and F. Berizzi , “Time-Slotted FMCW MIMO ISAR with Compressive Sensing Image Reconstruction “, CoSeRa 2015
9. A. Bacci, E. Giusti, D. Cataldo, S. Tomei and M. Martorella, ISAR Resolution Enhancement via Compressive Sensing: a Comparison with state of the art SR Techniques, CoSeRa2016
10. NORMA - Noise Imaging Radar Network For Covert Air And Maritime Border Security, Proceedings of the NATO SPS Cluster Workshop on Advanced Technologies, September 2019, Leuven, Belgium

Book Chapters

1. Berizzi, F.; Tomei, S., Bacci, A., “SAR Processing”, in “Radar imaging for Maritime Observation”, Berizzi, F.; Martorella, M. & Giusti, E. (Eds.), CRC Press Taylor & Francis Group, 2016, 19-48
2. Martorella, M.; Cataldo, D.; Gelli, S., Tomei, S.., “Bistatic ISAR”, in “Radar imaging for Maritime Observation”, Berizzi, F.; Martorella, M. & Giusti, E. (Eds.), CRC Press Taylor & Francis Group, 2016, 71-103
3. A. Bacci, E. Giusti, S. Tomei, D. Cataldo, M. Martorella, F. Berizzi, "Compressive Sensing for Inverse Synthetic Aperture Radar Imaging", Chapter 5 of "Compressive Sensing of Earth Observation", CRC Press (Taylor and Francis Group), Edited by C.H. Chen, 2017

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| Honours | awards, fellowships, professional societies, etc. |

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