

Curriculum Vitae

INFORMAZIONI PERSONALI

Nome CARMELO
Cognome MINEO
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FORMAZIONE TITOLI

Education

- **Jul 2012 - Nov 2015** PhD in Electronic & Electrical Engineering, University of Strathclyde, Glasgow, UK;
- **Sep 2009 - Nov 2011** Master's degree in Mechanical Engineering, University of Palermo, Italy;
- **Sep 2006 - Jul 2009** Bachelor's degree in Mechanical Engineering, University of Palermo, Italy;

Employment

- **Since Mar 2020** Horizon2020 **Marie-Curie Research Fellow**, Department of Engineering, University of Palermo (Italy);
- **Feb 2018 - Mar 2020** Research Fellow, Department of Electronic & Electrical Engineering (EEE), University of Strathclyde, Glasgow, Scotland, UK;
- **July 2015 - Jan 2018** Research Associate, EEE department, University of Strathclyde, UK;
- **Jul 2012 - Jun 2015** Prince of Wales Innovation Scholar - University of Strathclyde PhD Student with industrial placement at TWI Technology Centre (Port Talbot, UK);
- **Jan 2012 - Jun 2012** Research Assistant, Dipartimento di Ingegneria Chimica Gestionale Informatica e Meccanica (DICGIM), University of Palermo, Italy;
- **Jan 2011 - Apr 2011** University student work experience, NDE S.R.L., Palermo, Italy;
- **Mar 2009 - Apr 2009** University student work experience, Officine Enea, Capaci, Italy.

ATTIVITA' DIDATTICA

Teaching

- **2017 - 2020** Small Group Tutorials for first year students (EE107), University of Strathclyde;
- **2017 - 2018** Tutor for EM502: Advanced Systems Engineering, University of Strathclyde;
- **2016 - 2017** Invited guest lecturer for EM474: Robotics, Systems and Control, University of Strathclyde;
- **2015 - 2016** Tutor for EE312: Instrumentation & Microcontrollers, University of Strathclyde.

Supervision of students

- **Sept 2018 - Mar 2020** Second supervisor of two PhD students (University of Strathclyde);
- **Sept 2019 - Mar 2020** Supervision of five MSc students' final year projects (University of Strathclyde);
- **Jan 2018 - June 2018** Supervision of five MSc students' final year projects (University of Strathclyde);
- **Jan 2017 - Apr 2017** 3 groups of 3 MSc students supervised for the case studies course on Advanced Systems Engineering (University of Strathclyde - EM502).

RICERCHE FINANZIATE

Funding

- **Mar 2020 - Mar 2022** **Horizon 2020 Marie-Curie Research Fellowship**, Enabling Robot Adaptive Behaviours for NDT Inspections in Dynamic Contexts (EraBid) (€172k, PI) (<https://cordis.europa.eu/project/id/>)

[835846](#))

- **Sept 2019 – Aug 2020** Advanced Forming Research Centre (AFRC), Route to Impact 2019/2020. Academy Intelligent Transferring System with Flexible and Cooperative Robots for Advanced Composite Manufacturing (£28k, Co-I);
- **Jan 2019 – Mar 2019** National Nuclear Laboratory - Consultancy project for robotic demonstrations at Workington NNL laboratory (£3k, PI) (<https://youtu.be/eq80gH0zCv8>);
- **Jan 2018 – Dec 2018** Innovate UK 104068 - Alpha Glovebox Decommissioning Feasibility Study (£156k overall, £30k for my work-package, Co-I);
- **Dec 2017 – Mar 2018** AFRC, Route to Impact 2017/2018. Funded project: Flexible and Intelligent Path Planning and Control of Industrial Robots towards Autonomous Hot Forging in the Digital Manufacturing Age (£28k, Co-I);
- **Nov 2017 – Nov 2019** Wing of the Future (WOF) – Single client project funded by Spirit AeroSystems, for inspection of aerospace wing structures (£800k, Co-I);
- **May 2016 – Apr 2020** EPSRC EP/N018427/1 - Autonomous Inspection in Manufacturing & Remanufacturing (AIMaReM) (£1.98M - I contributed to proposal writing and I am responsible of work-package on adaptive robot control strategies);
- **Dec 2016 – Mar 2017** Advanced Forming Research Centre (AFRC), Route to Impact 2016/2017. Funded project: Automated Metrology and Digitalization of Large and Complex Geometries (£26k, PI);
- **July 2012 – Jun 2015** Prince of Wales Innovation Scholarship (POWIS) (£75k, Appointed PhD student).

INCARICHI / CONSULENZE

Commissions of trust

Served as reviewer for the following journals: Robotics and Computer-Integrated Manufacturing (Elsevier), Industrial Robot (Emerald Insight), Journal of Intelligent & Robotic Systems (Springer), Experimental Techniques (Springer), Sensors (MDPI), Computers and Electronics in Agriculture (Elsevier), NDT & E International (Elsevier), Robotics and Autonomous Systems (IEEE), Transactions on Industrial Informatics (IEEE), Journal of Manufacturing Science and Technology (CIRP).

External recognitions

- **Jun 2019 - May 2020** Vice-chair of the Aerospace Working Group of the British Institute of Non-Destructive Testing (BINDT);
- **Apr 2017 - Mar 2020** Representative of the Centre of Ultrasonic Engineering (University of Strathclyde) at the Composites Group of the British Institute of Non-Destructive Testing (BINDT);

ASSOCIAZIONI SCIENTIFICHE

Membership to bodies and scientific institutes

- **Since Sept 2019** Full member of the American Society of Mechanical Engineers (ASME);
- **Since Aug 2019** Full member of the British Institute of Non-Destructive Testing (BINDT);
- **Since Jul 2017** Member of the Institute of Electrical and Electronics Engineers (IEEE);
 - IEEE Robotics and Automation Society
 - IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society
- **Since April 2012** Member of the Italian body of Chartered Engineers of Palermo (Italy);

PUBBLICAZIONE

Peer-reviewed papers

1. Y. Javadi, ..., C. Mineo, et al., ***Ultrasonic phased array inspection of a wire plus arc additive manufactured (WAAM) sample with intentionally embedded defects***, Additive Manufacturing (2019);

2. M. Siddiqi, ..., C. Mineo, et al., **Low cost three-dimensional virtual model construction for remanufacturing industry**, Journal of Remanufacturing, 9(2), pp. 129-139 (2019);
3. J. Zabalza, ..., C. Mineo, et al., **Smart sensing and adaptive reasoning for enabling industrial robots with interactive human-robot capabilities in dynamic environments—a case study**, Sensors (Switzerland), 19(6), pp. 1354 (2019);
4. Y. Javadi, ..., C. Mineo, et al., **Ultrasonic phased array inspection of wire + arc additive manufacture samples using conventional and total focusing method imaging approaches**, Insight: Non-Destructive Testing and Condition Monitoring, 61(3), pp. 144-148 (2019);
5. R. Fuentes, C. Mineo, et al., **A probabilistic compressive sensing framework with applications to ultrasound signal processing**, Mechanical Systems and Signal Processing (2018);
6. C. Casarini, ..., C. Mineo, et al., **Enhancing the Sound Absorption of Small-Scale 3-D Printed Acoustic Metamaterials Based on Helmholtz Resonators**, IEEE Sensors Journal 2018, 18(19), pp. 7949-7955 (2018);
7. M. Morozov, ..., C. Mineo, R. Summan, **Off-line scan path planning for robotic NDT**, Measurement 122 (2018) 284-290;
8. C. Mineo, S. G. Pierce, R. Summan, **Novel algorithms for 3D surface point cloud boundary detection and edge reconstruction**, Journal of Computational Design and Engineering (2018);
9. C. Mineo, R. Summan, J. Riise, C. N. MacLeod, S. G. Pierce, **Index Based Triangulation method for efficient generation of large three-dimensional ultrasonic C-scans**, Insight-Non-Destructive Testing and Condition Monitoring (2017);
10. C. Mineo, S. G. Pierce, P. I. Nicholson, I. Cooper, **Introducing a novel mesh following technique for approximation-free robotic tool path trajectories**, Journal of Computational Design and Engineering (2017);
11. C. Mineo, S. G. Pierce, P. I. Nicholson, I. Cooper, **Robotic path planning for non-destructive testing – A custom MATLAB toolbox approach**, Robotics and Computer-Integrated Manufacturing 37 (2016): 1-12;
12. C. Mineo, B. Wright, I. Nicholson, I. Cooper, G. Pierce, **PAUT inspection of complex-shaped composite materials through six DOFs robotic manipulators**, Insight-Non-Destructive Testing and Condition Monitoring 57, no. 3 (2015): 161-166;
13. C. Mineo, D. Cerniglia, A. Pantano, **Numerical study for a new methodology of flaws detection in train axles**, Ultrasonics 54, no. 3 (2014): 841-849;
14. C. Mineo, D. Cerniglia, A. Pantano, **Surface waves on cylindrical solids: Numerical and experimental study**, Ultrasonics 53, no. 4 (2013): 913-921;
15. D. Cerniglia, A. Pantano, C. Mineo, **Influence of laser beam profile on the generation of ultrasonic waves**, Applied Physics A 105, no. 4 (2011): 959-967.

Invited presentations

1. C. Mineo, Seminar on **Novel data visualisation approaches for ultrasonic inspection of complex geometries**, Shanghai University, (Apr 2018);
2. C. Mineo, M. Siddiqi, **Industry 4.0: Automated disassembly & inspection for manufacturing and remanufacturing**, Scottish Institute for Remanufacture Conference Workshop, University of Strathclyde (Glasgow, UK), 7th March 2017;
3. C. Mineo, **Robotics for NDE**, Technology Transfer event for RCNDE members and Associate members, University of Warwick (Coventry, UK), 30th Jan 2017.

Most relevant conference contributions

1. J. Riise, C. Mineo, et al., **Adapting robot paths for automated NDT of complex structures using ultrasonic alignment**, AIP Conference Proceedings (2019);
2. R. Su, C. Mineo, et al., **Multi-aperture beamforming for automated large structure inspection using ultrasonic phased arrays**, AIP Conference Proceedings (2019);
3. Y. Javadi, C. Mineo, et al., **Intentional weld defect process: From manufacturing by robotic welding machine to inspection using TFM phased array**, AIP Conference Proceedings (2019);
4. R. Summan, C. Mineo, et al. A novel visual pipework inspection system, AIP Conference Proceedings (2018);
5. C. Mineo, M. Vasilev, et al., **Enabling robotic adaptive behaviour capabilities for new industry 4.0 automated quality inspection paradigms**, NDT 2018 - 57th Annual Conference of the British Institute of Non-Destructive Testing;
6. Y. Javadi, C. Mineo, et al., **Ultrasonic phased array inspection of wire plus arc additive manufacture (WAAM) samples using conventional and total focusing method (TFM) imaging approaches**, NDT 2018 - 57th Annual Conference of the British Institute of Non-Destructive Testing;
7. M. Ingram, A. Nordon, T. Gachagan, T. Mulholland, C. Mineo, E. Becker, M. Hegarty, **In-situ Ultrasonic Imaging of Dynamic Process Streams: System Calibration and Image Processing**, SciX Conference, Reno (Nevada, USA), October 2017;
8. R. Fuentes, K. Worden, I. Antoniadou, C. Mineo, S.G. Pierce, E.J. Cross, **Compressive sensing for direct time of flight estimation in ultrasound-based NDT**, The 11th International Workshop on Structural Health Monitoring (IWSHM), Stanford (California, USA), September 2017;
9. C. Mineo, R. Summan, C. MacLeod, S. G. Pierce, **Introducing a new method for efficient visualization of complex shape 3D ultrasonic phased-array C-scans**, IEEE International Ultrasonics Symposium (IUS), Washington (DC, USA), September 2017;
10. C. Mineo, C. MacLeod, M. Morozov, S. G. Pierce, R. Summan, J. Powell, P. McCubbin, C. McCubbin, G. Munro, S. Paton, D. Watson, D. Lines, **Fast ultrasonic phased array inspection of complex geometries delivered through robotic manipulators and high speed data acquisition instrumentation**, IEEE IUS Conference, Tours (France), September 2016;
11. M. Morozov, J. Riise, R. Summan, S. G. Pierce, C. Mineo, C. N. MacLeod, R. H. Brown, **Assessing the accuracy of industrial robots through metrology for the enhancement of automated non-destructive testing**, IEEE MFI Conference, Baden-Baden (Germany), September 2016;

12. C. Mineo, C. MacLeod, M. Morozov, S. G. Pierce, R. Summan, T. Rodden, D. Kahani, J. Powell, P. McCubbin, C. McCubbin, G. Munro, S. Paton, D. Watson, **Flexible integration of robotics, ultrasonics and metrology for the inspection of aerospace components**, 43rd QNDE Conference, Atlanta (Georgia, USA), July 2016;
13. C. Mineo, J. Riise, G. Pierce, I. Nicholson, I. Cooper, **Robotic path planning for non-destructive testing through RoboNDT**, 54th BINDT Annual Conference, Telford (UK), September 2015;
14. I. Cooper, C. Mineo, B. Wright, R. Freeman, P. I. Nicholson, D. Liaptsis, **Rapid Inspection of Composite and Additive Manufactured Components using Advanced Ultrasonic Techniques**, 26th Advanced Aerospace Materials and Processes (AeroMat) Conference, Long Beach, California (USA), May 2015;
15. I. Cooper, I. Nicholson, D. Liaptsis, B. Wright, C. Mineo, **Development of a fast inspection system for complex aerospace structure**, 6th International Symposium on NDT in Aerospace, Madrid (Spain), November 2014;
16. C. Mineo, B. Wright, I. Nicholson, I. Cooper, G. Pierce, **PAUT inspection of complex shaped composite materials through 6 DOFs robotic manipulators**, 53rd BINDT Conference, Manchester (UK), September 2014;
17. C. Mineo, G. Pierce, I. P. Nicholson, I. Cooper, **Robotic path planning for non-destructive testing of complex shaped surfaces**, QNDE Conference 2014, Boise (USA), July 2014;
18. I. Cooper, I. Nicholson, D. Liaptsis, C. Mineo, B. Wright, **The Development of a Fast Inspection System for Complex Aerospace Composite Structure**, 25th Advanced Aerospace Materials and Processes (AeroMat) Conference, Orlando (Florida), June 2014;
19. C. Mineo, S. G. Pierce, M. Morozov, P. I. Nicholson, I. Cooper, **Computer-Aided Tool Path Generation for Robotic Non-Destructive Inspection**, 52nd BINDT Conference, Telford (UK), September 2013;
20. C. Mineo, D. Herbert, M. Morozov, S. G. Pierce, P. I. Nicholson, I. Cooper, **Robotic Non-Destructive Inspection**, 51st BINDT Conference, Daventry (UK), September 2012;

AMBITI DI RICERCA

Current research interests comprise all aspects of the design, modelling, development and operation of robotically enabled sensing systems, including advanced programming, instrument interfacing and data collection in academic and industrial environments.

- Scopus Author ID: 55573798800
- Research ID: C-8207-2017
- ORCID: orcid.org/0000-0002-5086-366X

ALTRE ATTIVITA

Awards

- **Jan 2018** Bob Service Award from British Institute of Non-Destructive Testing;
- **Sep 2016** John Grimwade 2015 Award for the best paper to appear in the BINDT Insight journal in 2015 (60 papers were published by the journal in 2015);
- **May 2016** University of Strathclyde Engineering Faculty Knowledge Exchange award, for the excellence of the research undertaken during the VIEWS project;

Professional certifications

- **Sept 2019** Postgraduate Certificate in Academic Practice (PgCert), awarded by the University of Strathclyde;
- **Apr 2014** PCN Level II weld inspector - Licenced for ultrasonic inspection of welds in plates and pipes (License 325757);
- **July 2012** KUKA Robot Programming (License Wed B00444);
- **Mar 2012** Chartered Industrial Engineer (n. 8817, Industrial sector, Palermo, Italy).