



Luca Santoro

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EDUCATION

Ph.D.

Politecnico di Torino - Alstom

2021÷now

Research title: "Active thermography approach for defect detection in welded joints: influence of process parameters and working conditions"

M.Sc. in Mechanical Engineering (international)

110/110

Politecnico di Torino

2019÷2021

Thesis: "Lock-in thermography for residual stresses investigation in steel welded joints"

B.Sc. in Mechanical Engineering 102/110

Politecnico di Torino

2016÷2019

Thesis: "Fatigue characterization of chemical etched laminates and fatigue limit prediction by murakami method"

CERTIFICATIONS

CSWIP 3.1 welding inspector level 2

The Welding Institute

ANSA-META basic training for CFD

Beta CAE

Energy certicator's Albo

Dipartimento Energia della Regione Siciliana

Ingegnere Industriale Abilitato

Ordine degli ingegneri della provincia di Siracusa

PROFESSIONAL EXPERIENCES

Technical Manager

Studio di ingegneria Luca Santoro

2020÷now

Guest Scientist

Technical university of Munich (TUM)

2023 (6 months)

Use of thermography for quick characterization of mechanical properties of additive manufactured civil engineering components

Internship

ADES Group

2021 (3 months)

Development of an innovative technique for residual stresses detection in steel welded joint by means of active thermography

RESEARCH FIELDS AND SKILLS

Research fields

- Mechanical High Cycle Fatigue and passive thermography
- Active thermography (laser, induction)
- In-line thermography for arc welding process

Skills

- Mechanical characterization of materials
- Proficient user: Python, Matlab, MSC Nastran, MSC Marc, Ansys, Ansa Beta CAE

PATENTS

- **Metodologia Per Il Controllo Non Distruttivo Di Giunti Saldati Tramite Termografia Attiva.** Brevetto nazionale - Inventori: [Manuela De Maddis](#) [Valentino Razza](#) [Luca Santoro](#)
- **Metodologia di identificazione delle tensioni residue su materiali e componenti mediante tecniche di termografia attiva.** Brevetto nazionale e internazionale - Inventori: [Luca Corsaro](#) [Francesca Maria Cura](#) [Luca Santoro](#) [Raffaella Sesana](#)

Researchgate: <https://www.researchgate.net/profile/Luca-Santoro-6>

1. Vittoria Borghese, Luca Santoro, Silvia Santini, Raffaella Sesana. "Correlation between thermal and density properties of chestnuts: preliminary results of experimental non-destructive testing." Archives of Civil and Mechanical Engineering, vol. 24, no. 3, 2024, Springer. doi: 10.1007/s43452-024-00969-8.
2. Raffaella Sesana, Raffaella R, Luca Santoro, Vittoria Borghese, Silvia Santini. "Correlazioni Preliminari tra Proprietà Termiche e Densità nelle Strutture in Legno con Prove Non Distruttive." INGENIO-WEB.IT, 2024.
3. Luca Santoro, Raffaella Sesana, Johannes Diller, Christina Radlbeck, Martin Mensinger. "Dissipative and thermal aspects in cyclic loading of additive manufactured AISI 316L." Engineering Failure Analysis, 2024, Elsevier. doi: 10.1016/j.engfailanal.2024.108446.
4. Luca Santoro, Michele Quercio, Aldo Canova, Raffaella Sesana. "Measuring Thermal and Electrical Performances of Additively Manufactured Magnetic Shielding Material: An Active Thermography Approach." Nondestructive Testing and Evaluation, 2024, Taylor & Francis Limited. doi: 10.1080/10589759.2024.2305703.
5. Raffaella Sesana, Luca Santoro. "Proposal for kf effective notch factor estimation for life assessment of welded joint based on geometric parameters." Engineering Failure Analysis, 2024, Elsevier. doi: 10.1016/j.engfailanal.2023.107944.
6. Raffaella Sesana, Luca Santoro, Francesca Cura, Rosario Molica Nardo, Piergiorgio Pagano. "Assessing thermal properties of multipass weld beads using active thermography: microstructural variations and anisotropy analysis." International Journal, Advanced Manufacturing Technology, vol. 5-6, 2023, Springer. doi: 10.1007/s00170-023-11951-8.
7. Francesca M. Cura, Luca Santoro, Raffaella Sesana, Luca Corsaro. "Assessments on material thickness and coating in laser spot active thermography." Proceedings ICEM20 Experimental Mechanics in Engineering and Biomechanics, 2023, FEUP, Oporto, pp. 1051-1058. ISBN: 978-989-54756-6-7.
8. Luca Santoro, Vittoria Borghese, Silvia Santini, Raffaella Sesana, Francesca Maria Cura, Luca Corsaro. "Density estimation of historical wooden elements through means of thermographic correlation approach." Proceedings Book of ART'23, 2023, AIPND, Brescia, pp. 1-6.
9. Luca Santoro, Valentino Razza, Manuela De Maddis. "Frequency-based analysis of active laser thermography for spot weld quality assessment." International Journal, Advanced Manufacturing Technology, vol. 5-6, 2023, Springer Nature. doi: 10.1007/s00170-023-12845-5.
10. Luca Santoro, Raffaella Sesana, Francesca Maria Cura, Luca Corsaro. "In line defect detection in steel welding process by means of thermography." Proceedings ICEM20 Experimental Mechanics in Engineering and Biomechanics, 2023, FEUP, Oporto, pp. 1059-1068. ISBN: 978-989-54756-6-7.
11. Luca Santoro, Raffaella Sesana, Rosario Molica Nardo, Francesca Maria Cura. "Infrared in-line monitoring of flaws in steel welded joints: a preliminary approach with SMAW and GMAW processes." International Journal, Advanced Manufacturing Technology, vol. 5-6, 2023, Springer Nature. doi: 10.1007/s00170-023-12044-2.
12. Manuela De Maddis, Valentino Razza, Luca Santoro. "Metodo per il controllo non distruttivo di giunti saldati, mediante termografia attiva." Miscellanea, 2023.
13. Luca Corsaro, Francesca Maria Cura, Luca Santoro, Raffaella Sesana. "Metodologia di identificazione delle tensioni residue su materiali e componenti mediante tecniche di termografia attiva." Miscellanea, 2023.
14. Raffaella Sesana, Francesca Cura, Luca Corsaro, Luca Santoro, Marie Marguerite Dugand. "La termografia attiva applicata allo studio della corrosione nei materiali metallici: un caso studio." PnD Verona 2022 Conferenza Nazionale sulle Prove non Distruttive Monitoraggio Diagnostica, 2022, AIPND, Brescia, pp. 1-8.
15. Francesca Cura, Raffaella Sesana, Luca Corsaro, Luca Santoro. "La termografia attiva applicata allo studio della fatica nei materiali metallici: un caso studio." PnD Verona 2022 Conferenza Nazionale sulle Prove non Distruttive Monitoraggio Diagnostica, 2022, AIPND, pp. 1-8.
16. Raffaella Sesana, Aldo Canova, Michele Quercio, Luca Santoro. "L'utilizzo dell'induzione magnetica come sorgente termica per l'analisi dei difetti mediante termografia attiva: risultati preliminari." PnD Milano 2022 Conferenza Nazionale sulle Prove non Distruttive Monitoraggio Diagnostica, 2022, AIPND, Brescia, pp. 1-9.

Autorizzo al trattamento dei dati personali ai sensi
degli articoli 13 e 14 del regolamento Europeo (UE)
2016/679 e del Decreto Legislativo 196/2003.

