



## *Guido Alfaro Degan*

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### *Personal Information*

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### *Education*

PhD Degree in Mechanical and Industrial Engineering, ROMA TRE University, November 2<sup>nd</sup>, 2001 – October 31<sup>st</sup>, 2004. Graduation Thesis: Development of stochastic and deterministic methods to assess the environmental impact from quarrying activities.

Master Degree in Mechanical Engineering, ROMA TRE University, July 10<sup>th</sup>, 2000. Graduation thesis: *Airborne Noise in quarrying activities: forecasting models and risk analysis methods.*

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### *Current position*

Currently employed by the Department of Engineering (Mechanical Engineering Section), Roma TRE University as:

**Associate Professor** of: Health and Safety and Risk Assessment Techniques (Mech Eng);

Industrial sites Safety (Civil Eng);

Environmental Impact of Quarries (Mech. Eng)

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### *Scientific Research*

Expert in the research field applied to Industrial and Civil sites, with a particular regard to Quarrying activities. The main part of the research studies is focused both on environmental impact induced by industrial sites and on professional exposure to pathogenic agents typical of the quarry environment. The whole research activity is developed on Prevention of Occupational and Environmental Risks (POER).

In summary, the main interests intercept the following topics:

- Dynamic assessment of risk accidents;
- Establishment of phenomenological relations between occupational parameters (noise, vibration, dust, luminance) and production processes;
- Modeling and monitoring of environmental impacts (e.g. air pollution emissions, blast vibration, noise, etc.) by means of deterministic and stochastic methods;
- Assessing and evaluating the visual impacts of quarrying works by means of quantitative approaches;
- Designing and appraising underground quarries, as well as utilizing the underground space for various windowless uses;
- Monetizing the externalities of quarrying activity using primary and secondary environmental valuation techniques;
- Developing restoration and rehabilitation plans for active and abandoned quarrying sites;
- Conducting human health and environmental risk assessments;
- Utilizing quarrying waste and by-products, etc.

In many of the cited topics geostatistical tools are used for mathematical modelling in order to forecast the environmental impact of industrial sites and estimate occupational doses of exposure to pollutants. Methods such as Kriging with external drift or Intrinsic Random Functions are used with an integrated approach, combining deterministic and probabilistic methods, which often appears to guarantee more reliable results.

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### *Awards*

National Scientific Qualification for FULL Professor obtained in October 9<sup>th</sup>, 2019

Faculty Position as Associate at the Department of Engineering, Roma TRE University from 1<sup>st</sup> Jan 2011

Researcher position at the Mechanical and Industrial Engineering Department Roma TRE University from 1<sup>st</sup> Jan 2004.

PhD student with university full financial support, 1<sup>st</sup> November, 2003 – 31<sup>st</sup> October, 2006. The PhD activity was mainly focused on mathematical models to forecast spatial variability of pathogenic agents in quarrying activities

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### ***Research Projects***

#### ***Principal/ Co-investigator in international and national research projects:***

2010. Ministry of Education, University and Research (Local Research Program) – “Development of monitoring techniques to assess environmental impact arising from airborne dust in quarrying activities”. (Co- Investigator).

2009 Ministry of Education, University and Research (Local Research Program) – “Development of monitoring techniques to assess occupational risks arising from pathogen agents in quarrying activities”. (Co- Investigator).

#### ***Principal /Co- Investigator in research activities funded by private companies:***

2016 – Chef Express s.p.a. - Occupational Health and Safety Management System: applications, problems and review in an international company (Co- Investigator).

2012 - Az. Montenevoso s.r.l. - Development of a multi-step method to assess the visual impact alteration induced by quarrying activities in the district of Nepi (Co- Investigator);

2011 – Eco Practice s.r.l. -Behavior Based Safety: development of BBS techniques in the mining industry (Co- Investigator);

2009-2010 – Cava Nenni & figli s.r.l. -Risk assessment techniques in quarrying activities: application to airborne dust (Principal Investigator);

2006 - Cava Nenni & figli s.r.l. - Environmental Impact Assessment of the quarrying district of Vallerano (Principal Investigator) .

#### ***Co-investigator in research activities funded by public boards:***

2015-2016 University of Roma Tre. Risk assessment and Occupational safety at Workplace. (D. Lgs. 81/08). Principal Investigator.

2008-2009 Met. Ro. s.p.a. Risk assessment and Occupational safety at Workplace. (D. Lgs. 81/08). Co- Investigator.

2008-2009 Met. Ro. s.p.a. Risk assessment and Occupational safety at temporary construction sites. (D. Lgs. 81/08, Titolo IV). Co- Investigator.

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### ***Teaching***

2011 to date. Bachelor degree in Mechanical Engineering, ROMA TRE University, Safety at Work and Environmental protection, Course Manager;

2011 to date. Master and Bachelor degree in Mechanical Engineering, ROMA TRE University, Risk assessment techniques and Environmental Impact Methods, Course Lecturer & Manager;

2011 to date. Master and PhD degree in Mechanical Engineering, ROMA TRE University, Probabilistic Models and Geostatistical Methods in Industrial Management, Course Manager and Lecturer;

2011 to date. Master and Bachelor degree in Civil Engineering, ROMA TRE University, Safety and Work Managing in Sites, Course Manager • 2014 to date. Master and Bachelor degree in Mechanical Engineering, ROMA TRE University, Laboratory of Industrial Safety and Risk Assessment, Course Lecturer;

2011 to date. Master and Bachelor degree in Mechanical Engineering, ROMA TRE University, Risk assessment techniques and Environmental Impact Methods, Course Lecturer;

- 2011 to date. Master degree in Mechanical Engineering, ROMA TRE University, Probabilistic Models and Geostatistical Methods in Industrial Management, Course Manager and Lecturer;

- 2009 to date. Master degree in Mechanical Engineering, ROMA TRE University, Quarries and environmental Impact, Course Manager;

- 2003 to date. Master degree in Mechanical Engineering, ROMA TRE University, Safety and Health in working activities, Course Manager and Lecturer;

- 2015. Master in Second Grade School Teaching (TFA), Education in Environmental Engineering, Course Manager and Lecturer
- 2013 to date. Master in Second Grade School Teaching (PAS), Education in Safety management Systems, Course Manager and Lecturer;
- 2006-2009. Master degree in Mechanical Engineering, ROMA TRE University, Risk assessments methods, Lecturer and Teaching Assistant;
- 2005-2008. Master degree in Mechanical Engineering, ROMA TRE University, Occupational Safety and Health management Techniques, Course Manager;
- 2013. Master in Second Grade Environmental Impact Methods (MUTECA), University of Roma Tor Vergata, Risk assessment methods in industrial activities. Course Manager and Lecturer
- 2014 to date. Master in Second Grade Occupational Safety in Health Facilities, University of Roma Tre - Ospedale Pediatrico Bambin Gesù, Risk assessment methods, Course Manager and Lecturer.
- 2005-2006. Master in Second Grade, Sustainable Metropolitan Transport, Risk assessment procedures, Lecturer and Teaching assistant.

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### *Membership and International activities*

**Member of the Editorial Board** of the following International Journals:

WIT Building Environment edited by Wessex Institute of Technology;

WIT Engineering Sciences edited by Wessex Institute of Technology;

WIT Ecology and Environment edited by Wessex Institute of Technology;

Invitations as **reviewer** for International Journals (more than 20 reviews to date):

International Journal of Safety and Security Engineering, published by Wessex Institute of Technology (WIT PRESS) both in paper format (ISSN: 2041-9031) and online (ISSN: 2041-904);

American Journal of Environmental Sciences published by Science Publications (SCIPUB) both in paper format (ISSN: 1553-345X) and online (ISSN: 1558-3910);

Scienze e Ricerche ISSN 2283-5873;

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### *Publications*

The above research activities have led to the publishing of more than 40 papers at international conferences and in journals.

[45] Alfaro Degan G, Coltrinari G., Lippiello D. (2018). Effects of ground conditions on whole-body vibration exposure on cars: A case study of drivers of armored vehicles. WIT Transactions on the Built Environment Volume 176, 2018, Pages 431-438. ISSN ISSN: 17433509. DOI: 10.2495/UT170371

[44] Alfaro Degan G, Coltrinari G., Lippiello D. (2017). Risk assessment of whole body-vibration associated with the operation of load-haul-dump mining vehicles in quarry activities: A case study. Proc. of the 17<sup>th</sup> International Multidisciplinary Scientific GeoConference & Expo SGEM 2017, Volume 1, 2017, ISSN: 13142704. 10.5593/sgem2017/11/S04.132

[43] Alfaro Degan G, Coltrinari G., Lippiello D. (2017). Analysis of ground-transducer coupling in monitoring vibration from railways: a case study. International Journal of Transport Development and Integration, Volume 1, Issue 2, pages: 290-300. DOI: 10.2495/TDI-V1-N2-290-300.

[42] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2016). Application of a multi stage method to assess the landscape alteration induced by quarrying sites: a comparative analysis. American Journal of Environmental sciences, Volume 12, Issue 5, pages: 317-327. 10.3844/ajessp.2016.317.327.

[41] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2016). Comparison of Stochastic and Deterministic Methods for Mapping Environmental Noise from Opencast Quarries. American Journal of Environmental sciences, Volume 12, Issue 2, pages: 68-76. doi: 10.3844/ajessp.2016.68.76.

- [40] Alfaro Degan G, Coltrinari G., Lippiello D, Pinzari, M. (2016). Risk assessment of the whole body vibration exposure for drivers of armoured vehicles: a case study. *International Journal of Safety and Security Engineering*, Volume 6, Issue 1, pages: 53-62. doi: 10.2495/SAFE-V6-N1-53-62
- [39] Alfaro Degan G, Lippiello D, Pinzari M. (2015). Landscape changes due to quarrying activities as a project parameter for urban planning. *International Journal of Sustainable Development and Planning*, 10 (6), p. 843-862. ISSN: 1743-761X, doi: 10.2495/SDP-V10-N6-843-862.
- [38] Alfaro Degan G, Coltrinari G., Lippiello D. (2015). Urban tram induced vibrations: Real time monitoring of historical buildings in the centre of Rome. *Proc. of the 15<sup>th</sup> International Multidisciplinary Scientific GeoConference & Expo SGEM 2015*, Volume 1, Issue 5, 2015, Pages 1031-1038, ISSN: 13142704.
- [37] Alfaro Degan G, Lippiello D, Pinzari M (2015). Environmental Noise Impact from opencast quarries: a comparison between stochastic and deterministic approaches. *Proc. of the 15<sup>th</sup> International Multidisciplinary Scientific GeoConference & Expo SGEM 2015*, Volume 3, Issue 1, 2015, Pages 263-270. ISSN: 13142704.
- [36] Alfaro Degan G, Lippiello D, Pinzari M (2015). Application of IRF-Kriging to the mapping of environmental noise generated by quarrying plants. *WIT Transactions on Modelling and Simulation*, Vol. 59, p. 455-466, WIT Press, ISSN 1743-355X. doi:10.2495/CMEM150411.
- [35] Alfaro Degan G, Lippiello D, Pinzari M (2015). Occupational hazard prevention and control in quarry environment: exposure to airborne dust. *WIT Transactions on the Built Environment*, Vol. 151, p. 27-38, WIT Press, ISSN 1743-3509. doi:10.2495/SAFE150031.
- [34] Alfaro Degan G, Lippiello D, Pinzari M (2015). Whole body vibrations: experimental assessment of anthropometric differences on the effects of WBV exposure in quarry workers. *WIT Transactions on the Built Environment*, Vol. 151, p. 61-72, WIT Press, ISSN 1743-3509, doi:10.2495/SAFE150061.
- [33] Alfaro Degan G, Lippiello D, Pinzari M (2015). Field Evaluation of PM<sub>10</sub> detectors in quarry environment. *International Journal of Sustainable Development and Planning*, 10 (3), p. 361-372. ISSN: 1743-761X, doi: 10.2495/SDP-V10-N3-361-372
- [32] Alfaro Degan G, Lippiello D, Picciolo L., Pinzari M. (2014). Visual impact from quarrying activities: a case study for planning the residential development of surrounding areas. *WIT TRANSACTIONS ON ECOLOGY AND THE ENVIRONMENT*, vol. 181, p. 125-135, WIT Press, ISSN: 1743-3541, doi: 10.2495/EID140111.
- [31] Alfaro Degan G, Lippiello D, Pinzari M (2013). Opencast quarries: vibration assessing methods. In: *Mine Planning and Equipment Selection. Proceedings of the 22nd MPES Conference*. vol. 2, p. 253-260, ISBN: 978-3-319-02677-0, Dresden, Germany, 14-19 October 2013, doi: 10.1007/978-3-319-02678-7\_26.
- [30] Alfaro Degan G, Lippiello D, Pinzari M. (2013). Effectiveness of airborne dust control strategies in opencast quarrying activities: A case study near Rome. *GEAM. GEOINGEGNERIA AMBIENTALE E MINERARIA*, 139 (2), p. 5-12, ISSN: 1121-9041.
- [29] Alfaro Degan G, Lippiello D, Pinzari M. (2013). Monitoring airborne dust in a Italian basalt quarry: comparison between sampling methods. *WIT TRANSACTIONS ON ECOLOGY AND THE ENVIRONMENT*, vol. 174, p. 75-84, ISSN: 1743-3541, doi: 10.2495/AIR130071.
- [28] Alfaro Degan G, Lippiello D, Lorenzetti S, Pinzari M. (2013). Vibration assessing models: comparison between methods. *WIT TRANSACTIONS ON BIOMEDICINE AND HEALTH*, Vol. 16, p. 59-69, WIT Press, ISSN: 1743-3525, doi: 10.2495/EHR130061
- [27] Alfaro Degan G, Lippiello D, Pinzari M (2012). Total Suspended Particulate from mobile sources in an Italian opencast quarry: a proposal to improve US EPA ISC3 model. In: *Guedes Soares. Advances in Safety, Reliability and Risk Management*. Troyes - France, LEIDEN:CRC Press/Balkema, ISBN: 9780415683791.
- [26] Alfaro Degan G, Lippiello D, Lorenzetti S, Pinzari M (2012). Caratteristiche corporee e vibrazioni trasmesse: ricerca di una possibile correlazione. *RIVISTA ITALIANA DI ACUSTICA*, vol. 36, p. 41-46, ISSN: 0393-1110.
- [25] Alfaro Degan G, Lippiello D, Pellegrini A, Pinzari M (2011). Previsione di vibrazioni in cava: implementazione di un modello ibrido. In: *Cocchi, Semprini, Guidorsi, Barbaresi. 38° convegno nazionale A.I.A., Rimini, 08-10 ottobre 2011*, ISBN: 9788888942346.
- [24] Alfaro Degan G, Lippiello D, Pinzari M, Rullo S (2011). Ricognizione sui metodi di coltivazione delle cave per splateamento. *GEOLOGIA DELL'AMBIENTE*, vol. 3, p. 2-6, ISSN: 1591-5352.
- [23] Alfaro Degan G., Lippiello, D., Urbani, V. (2010). La valutazione del rischio connessa ad esposizione a vibrazioni nel comparto estrattivo: un caso di studio. *Atti del I convegno Nazionale "Lavoro e sicurezza" Work & safety*, Guidonia, 26 settembre 2010 pp. 91-111.

- [22] Alfaro Degan G., Cianci, V., Lippiello, D. (2010). Sovraccarico biomeccanico degli arti superiori: applicazioni e sperimentazioni. Atti del I convegno Nazionale "Lavoro e sicurezza" Work & safety, Guidonia, 26 settembre 2010 pp. 14-39.
- [21] Alfaro Degan G., Lippiello, D., Pellegrini, A. (2010). La valutazione del rischio da Stress Lavoro Correlato: un'esperienza sul campo. Atti del I convegno Nazionale "Lavoro e sicurezza" Work & safety, Guidonia, 26 settembre 2010 pp. 69-90.
- [20] Alfaro Degan G., Ciavarella, ., Lippiello, D. (2010). Modello di organizzazione, gestione e controllo D. Lgs. 231/01: aspetti normativi e valutazioni sperimentali in materia di salute e sicurezza sui luoghi di lavoro. Atti del I convegno Nazionale "Lavoro e sicurezza" Work & safety, Guidonia, 26 settembre 2010 pp. 40-56.
- [19] Alfaro Degan, G., Lippiello, D., Lorenzetti, S., Multari, F., Pinzari, M. (2009). Combined evaluation of the noise and vibration at a travertine quarry. Proc. of the 16<sup>th</sup> International Congress on Sound and Vibration (ISCV 16). Krakow Poland, 5-9 July 2009.
- [18] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2009). Occupational health and safety management systems: comparison between BS OHSAS 18001: 2007 and Italian Decree 81/2008. WIT Transactions on Biomedicine and Health, Vol. 14, pp. 401-409. doi:10.2495/EHR090391
- [17] Alfaro Degan G., Lippiello D., Pinzari M., Raspa G. Improvement of forecasting noise levels in confined spaces by means of geostatistical methods. (2008). Proceedings of the 6<sup>th</sup> European Conference on Geostatistics for Environmental Applications GeoENV VI - Geostatistics for environmental applications. Springer Science+Business Media B.V. Ed: Amilcar Soares, Maria Joao Pereira, Roussos Dimitrakopoulos. Pagg. 37-44,.
- [16] Alfaro Degan, G., Lippiello, D., Paradisi, G., Pinzari, M. (2007) Operatori addetti alla ristorazione a bordo treno: Studio della esposizione a vibrazioni e rumore" Atti del XXXIV Convegno Nazionale dell'Associazione Italiana di Acustica, AIA. Firenze 13-15 giugno 2007, pp. 978-88-88942-20-9
- [15] Alfaro Degan, G., Lippiello, D., Pica, L., Pinzari, M. (2007) Metodi geostatistici applicati alla valutazione di impatto ambientale acustico di una cava di basalto. Atti del XXXIV Convegno Nazionale dell'Associazione Italiana di Acustica . AIA. Firenze, 13-15 giugno 2007, pp. ISBN:13 978 88942 20 3
- [14] Alfaro Degan G., Ceccaroni, A., Lippiello D., Pinzari M. (2007). Mechanical vibration and noise exposure on board of aircrafts. Proc of the 36<sup>th</sup> International Congress and Exhibition on Noise Control Engineering (Internoise 2007), Volume 2, pages 792-801. ISBN: 9781605603858
- [13] Alfaro Degan, G., Di Bona, G., Lippiello, D., Pinzari, M. (2006). PM10 dispersion modelling in quarrying activities: a comparison of an ISC3 approach to a mono/multivariate geostatistical estimation. WIT Transactions on Ecology and the Environment, vol. 86, pp. 111-120. Doi: 10.2495/AIR06012.
- [12] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2006). Geostatistic and airborne dust: an Italian limestone quarry". Proc. of the 15<sup>th</sup> International symposium on mine planning and equipment selection MPES 2006 Torino 20-22 Settembre 2006, Vol. II pp. 923-928. ISBN 90 13 42 4 0
- [11] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2006). Quarrying activities and dust emissions: a geostatistical method in risk analysis. Journal Of Konbin, vol. 1, pp. 269-277. ISBN/ISSN: 1895-8281.
- [10] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2006) Comparison between indoor sound pressure level forecasting models Proc of the 6<sup>th</sup> International Conference on Auditorium Acoustics. Copenhagen, Denmark 5-7 maggio 2006, pp. 125-130. ISBN: 978-160423586-9.
- [9] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2006). Previsione di campo acustico: un approccio geostatistico nell'analisi di rischio. Atti del XXXIII Convegno Nazionale dell'Associazione Italiana di acustica. AIA. Ischia 10 maggio 2006. vol. 1, pp. 295-398). ISBN/ISSN: 88-88942-13-0.
- [8] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2005). Sound pressure level forecasting: a geostatistic approach in risk analysis. ACTA ACUSTICA UNITED WITH ACUSTICA vol. 92 - suppl1, pp. S36. ISSN: 1610-1928.
- [7] Alfaro Degan, Lippiello, Pinzari. (2005). A geostatistic approach to the Functional Analysis Space Technique: a case of study". Proc of the International Congress ESREL 2005, Gdansk, 27 Giugno 2005. Vol. I pp. 45-52. ISBN 0-41538342
- [6] Alfaro Degan, G., Lippiello, D., Pinzari, M., Cigna, C., Lovera, E., Patrucco, M. A simplified measurement and analysis approach for the assessment of the environmental noise from mining activities. Proc of the International Congress Internoise 2005, Rio De Janeiro, 7 Agosto 2005. Vol. 2, Pages 1567-1576. ISBN: 978-162276339-9

[5] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2005). Comparazione sperimentale fra metodi geostatistici applicati alla previsione di impatto ambientale acustico. Un caso di studio. Atti del XXXII Convegno Nazionale dell'Associazione Italiana di Acustica, AIA, Ancona, 15 Giugno 2005. pages 73-78. ISBN 88-88942-09-2.

[4] Alfaro Degan, G., Di Fabio, C., Lippiello, D., Pinzari, M. Valutazione dell'influenza sul rumore ai recettori per il transito di automezzi in servizio su strade limitrofe. Atti del XXXII Convegno Nazionale dell'Associazione Italiana di Acustica AIA, Ancona 15 Giugno 2005. pp183-186. ISBN 88-88942-09-2

[3] Alfaro Degan, G., Lippiello, D., Pinzari, M. (2005). Coltivazione di Tufo: Determinazione del livello di potenza delle macchine tracciatrici e tagliablocchi. Atti del XXXII Convegno Nazionale dell'Associazione Italiana di Acustica AIA, Ancona 15 Giugno 2005. pp.313-316 ISBN 88-88942-09-2.

[2] Alfaro Degan G., Lippiello D., Pinzari M. (2003). Dust propagation: a method in risk analysis. Proc of the 3<sup>rd</sup> Safety and Reliability International Conference – KONBIN 2003- 26-30 May 2003; Gdynia, Poland). pp 45-53.

[1] Alfaro Degan G., Lippiello D., Pinzari M. (2003). Particolato aerodisperso in una cava di granulati del Centro Italia. Atti del Convegno Nazionale A.N.E.L.P.A. Aggregati per le costruzioni- (28 Marzo 2003;Bologna, Italia).pp 126-146.

Pursuant to Law 675/96, I authorize the processing of my personal data for their selection and communication needs. I also declare to be informed of the rights set forth in Article 13, which I am entitled to

  
In fede  
Guido Alfaro Degan

Roma, December 19 th 2019