GIANNI MATTEUCCI, PHD

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SUMMARY

I am a retired Geophysicist interested in mentoring and teaching about Exploration Geophysics and Climatology.

WORK EXPERIENCE

- Exxon and ExxonMobil from 1991 to 2021, multiple affiliates (EPR, URC, EMEC, EMIL, UIS, UBD).

- I retired in 2021 as a Senior Geophysical Advisor, after almost a 30 year career. I spent about 50% of my career on research projects, developing new technology in geophysics and in geoscience visualization, and the remaining 50% in applying such technologies on multiple projects from data worldwide.

- I worked directly on 9 wells/prospects, indirectly on many more, mostly in professional and technical positions, identifying prospects, de-risking their chance of success, assisting during drilling, advising on the type of borehole data to acquire, analyzing them, and quantifying the extent of the discoveries for field development.

- I developed, and managed multiple geophysical technologies (seismic attribute technology in the 1990s, seismic data quality analysis in early 2000s, spectral decomposition in the mid 2000s, and geo-seismic pattern recognition technology for DHI screening after 2012), often leading by example in informal roles, mentoring and advising colleagues and visiting geoscientists from partner companies.

- I worked many projects worldwide, often in clastics environments, mostly in deep water, sometimes on carbonates, and on a few projects of unconventional reservoirs (1997-99 Kuwait, 2018 US Permian Basin).

- 2005-2011 Technical Recruiting at US and European universities

- The common thread of my career was to extract quantitative information from **the amplitude of seismic data**, mostly from 3D multi-stack and pre-stack datasets.

- My main areas of expertise are:

  - Quantitative Seismic Reservoir Characterization, calibration to reservoir properties, attribute analysis, and visualization,

  - Identification and mitigation of seismic artifacts (geologic and man-made), mitigation of overburden effects,

  - Seismic processing as it affects reservoir property estimation,

  - Seismic Data Quality Analysis, Seismic Data Conditioning for stratigraphic interpretation and for DHI analysis,

  - Rock property analysis; and Well tie analysis on PSDM volumes,

  - AVO and DHI analysis for identifying leads and de-risking prospects,

  - Seismic forward and inverse modeling, including identification and modeling of multiples and converted waves for guided processing,

- Statistics and geostatistics,
- Spectral Analysis: Spectral Decomposition, and Spectral Shaping.

- I worked many projects worldwide, for example: in the USA (offshore and onshore, including Alaska), Chad, China, Kuwait, Offshore West Africa for Nigeria, Equatorial Guinea, Angola, Mauritania, and also Tanzania and Mozambique, Canada, Sakhalin (Russia), Australia, Libya, Malta, Italy, Norway, Turkey, Romania, Mexico, Guyana, Malaysia, Brazil, and many others.

EDUCATION

Yale University   **New Haven, Connecticut   1984 to 1991**

Ph.D. (1991) and M.Phil. (1986) in Geophysics, with a thesis in paleoclimatology: data analysis and modeling. "The role of stochastic noise on the abrupt climatic transitions of the Pleistocene", 284pp, Aug 1991, advisor Prof. Barry Saltzman

Universita' degli Studi di Bologna   Bologna, Italy.   1978 to 1985

M.Sc. (1985) and B.Sc. (1983) "magna cum laude" equivalent in Physics, with a thesis on ice sheet dynamic modeling. "Ice sheets modeling and the problems of the Ice Ages", 223pp, Dec1983, advisor Prof. GiampPietro Puppi

AWARDS AND ACKNOWLEDGEMENTS

- 1979-1983 Undergraduate Scholarship at the University of Bologna, Bologna, Italy
- 1984 IBM Research Fellowship, Rome, Italy
- 1984-1985 Yale University Scholarship, New Haven, CT, USA
- 2000 ExxonMobil-Kuwait Oil Company Kra Al-Maru Joint Technical Study 1996-200 Recognition
- 2003 ExxonMobil Outstanding Instructor Award
- 2005 ExxonMobil Outstanding Mentor Award
- 2019 ExxonMobil Innovation Creativity Excellence (ICE) Award

TEACHING EXPERIENCE

- During my career I mentored, formally and informally, more than 30 geoscientists. Some of them later became supervisors and managers.

- From 2002 to 2020, I lectured on Seismic Attributes, Quantitative Seismic Attribute Analysis, Calibration of Seismic Attributes to Reservoir Rock Properties, Spectral Decomposition, Spectral Shaping, and AVO with ExxonMobil affiliates worldwide and at multiple universities (U of TX in Austin, U of CA at Berkeley, Stanford Univ, U of Houston, Delft Univ. NL, Imperial College UK, U of Tripoli Libya).

- From 2017 to 2020 I performed about 40 workshops and training sessions in GeoSeismic Pattern Recognition (Seismic Data Conditioning and Feature Identification and Analysis) for Upstream Geoscientists in the US, Canada, Europe, Africa, Australia, and Malaysia, with applications to 3D and 2D seismic data sets from North and South America, Africa, Eurasia, and Australia.

- From 1995 to 2002 I trained about 400 upstream geoscientists in Seismic Attribute Analysis courses across the US and Europe. I also taught lectures in internal courses in 3D Seismic Interpretation, Applied Seismic Interpretation, Geophysical Applications Lecture Series, DHI and AVO Workshop, 1997-2019
- From 1995 to 2000 I was an Adjunct Associate Professor of Geology and Geophysics at Rice University, Houston, TX
    - I gave a few lectures in Exploration Geophysics and Climate Variability classes. Recruited candidates. The summer Internship project of 1997 & 1998 led to filing of a patent and became the topic of a PhD thesis in Mathematics. I also set up a joint collaborative study in 1999.

PUBLICATIONS

- Author of 9 papers/contributions in Exploration Geophysics, 6 in Paleoclimatology, and about 40 ExxonMobil internal reports and contributions to symposia, 1 IBM internal report
- 5 US Patents (2 also worldwide): Seismic Continuity (1999), Multi-Scale Map-Based Geometric attributes (2002), Bellocchio (Identification and Mitigation of the effects of the Overburden, 2003), Context-Based GeoSeismic Object Identification (2014), Adaptive Structure-Oriented Operator (2016)
- Extended Abstract Reviewer and Session Chairman for multiple SEG Conferences (2013-2019)
- Complete list available upon request

MEMBERSHIPS

Member of the Society of Exploration Geophysicists (SEG), Geophysical Society of Houston (GSH), Houston Geological Society (HGS), American Geophysical Union (AGU), and Sigma Xi.

OTHER INTERESTS AND ACTIVITIES, PERSONAL

- Naturalized US Citizen, dual nationality: USA and Italy
- Happily married, with three adult daughters.
- Volunteer science instructor at elementary and middle schools, 1996-2007, Spring Branch Independent School District, Houston, TX, and at high school, 2010-2011, ACS Cobham, Surrey, UK.
- 1986 Secretary and then President of the Dana Club for the graduate students of the Dept. of Geology and Geophysics at Yale University, New Haven, CT.
- 1980-1982 Founder and President of the film society "La Lanterna Magica", Bologna, Italy
- My hobbies are cooking, photography, football (the European kind), watching movies, supporting Ferrari and Ducati in Formula 1 and Moto GP races, and traveling.
- I make the best Tiramisu' in town! (let us see who keeps reading until this point and ask me about it! He/she may get a good sample.)

1. **1983, Matteucci Gianni**, "Ice sheet modeling and the problem of the Ice Ages". *(in Italian) B.Sc. Thesis, 223pp, University of Bologna, Italy, Dec 1983.*

2. **1984, Matteucci Gianni**, "Stochastic resonance in a simple Energy Balance Climate Model". *(in Italian) IBM Italy Internal Note 31, 52pp, Rome Italy, Sept 1984.*

3. **1988, Matteucci Gianni**, "Studies of simple energy balance models in climate theory". In: European Geophysical society, XIII General Assembly, *Annales Geophysicae, special issue, 211, March 1988.*

4. **1989a, Matteucci Gianni**, "Orbital forcing in a stochastic resonance model of the Late Pleistocene climatic variations". *[Serial] Climate Dynamics. 3; Pages 179-190.* https://link.springer.com/article/10.1007/BF01058234

5. **1989b, Matteucci Gianni**, "Analysis of the probability distribution of the late Pleistocene climatic record; implications for model validation". *In: AGU 1989 fall meeting. [Abstract, Serial, Conference Document] Eos, Transactions, American Geophysical Union. 70, Page 1137,*

6. **1990a, Matteucci Gianni**, "A study of the climatic variability of the full Pleistocene using a stochastic resonance model". *In: AGU 1990 spring meeting. [Abstract, Serial, Conference Document] Eos, Transactions, American Geophysical Union. 71; 17, Page 465.*

7. **1990b, Matteucci Gianni**, "Analysis of the probability distribution of the late Pleistocene climatic record; implications for model validation". *[Serial] Climate Dynamics. 5; Pages 35-52.* https://link.springer.com/article/10.1007/BF00195852

8. **1991a, Matteucci Gianni**, "A study of the climatic regimes of the Pleistocene using a stochastic resonance model". *[Serial] Climate Dynamics. 6; 2, Pages 67-81.* https://link.springer.com/article/10.1007/BF00209981

9. **1991b, Matteucci Gianni**, "The role of stochastic noise in the abrupt climatic transitions of the Pleistocene". Ph.D. Thesis, 284pp, Yale University, New Haven, Connecticut. https://www.proquest.com/docview/303937793?pq-origsite=gscholar&fromopenview=true

10. **1992a, Matteucci Gianni** "Multiple equilibria in a new diffusive energy balance climate model; the meaning of the thin ice cap instability". *In: AGU 1992 spring meeting. [Abstract, Serial, Conference Document] Eos, Transactions, American Geophysical Union. 73; 14, spring meeting supplement, Page 50.*

11. **1992b, Matteucci Gianni**, "Application of a new diffusive nonlinear energy balance model to the investigation of the Pleistocene climatic variability". *In: AGU 1992 spring*

meeting. [Abstract, Serial, Conference Document] Eos, Transactions, American Geophysical Union. 73; 14, spring meeting supplement, Page 48 (invited).

12. **1993, Matteucci Gianni**, "Multiple equilibria in a zonal energy balance climate model; the thin ice cap instability". *[Serial] Journal of Geophysical Research, D, Atmospheres. 98; 10, Pages 18,515-18,526.*
https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/93JD01740

13. **1996a, Matteucci Gianni**, "Seismic attribute analysis and calibration: a case study from the Gulf of Mexico". *In: SPE Technical symposium, Dharan, Saudi Arabia, 4.*

14. **1996b, Matteucci Gianni**, "Seismic attribute analysis and calibration; a general procedure and a case study". *In: Society of Exploration Geophysicists, 66th annual international meeting; technical program, expanded abstracts with authors' biographies. [Abstract, Serial, Conference Document] SEG Annual Meeting Expanded Technical Program Abstracts with Biographies. 66; Pages 373-376.* SEG Expanded Abstracts **15**, 373 (1996)
https://library.seg.org/doi/10.1190/1.1826647

15. **1999, Matteucci Gianni** , "Method for measuring lateral continuity at a specified subsurface location from seismic data", Patent US005884229A, 16Mar1999, Exxon Production Research Company, Houston, TX, 19pp., filed 03Apr1997
https://patents.justia.com/patent/5884229

16. **2000,** Cassiani Daniel H., **Matteucci Gianni**, and Mohammed Abdul Latif, "Seismic attribute analysis of the Jurassic Najmah-Sargelu Formations, Western Kuwait". *Al Husseini Moujahed (editor) In: GEO 2000; 4th Middle East geosciences conference and exhibition; conference abstracts and authors biography. [Abstract, Serial, Conference Document] GeoArabia (Manama). 5; 1, Page 66.*

17. **2001, Matteucci, Gianni** (ExxonMobil Upstream Research Company, Houston, TX USA), Cassiani Daniel H. (ExxonMobil Exploration Company, Houston TX USA), Mohammed Abdullatif Y. (Kuwait Oil Company, Kuwait) *"Using Seismic Attributes and Forward Modeling to Characterize Producibility in a Fractured Carbonate Reservoir",* 71th SEG Annual meeting, Society of Exploration Geophysicists, Tulsa, OK, USA. SEG Expanded Abstracts **20**, 536 (2001). https://library.seg.org/doi/pdf/10.1190/1.1816670

18. **2002a,** Deal Michael M. **Matteucci Gianni**, Kim Young C. , and Romero Art E, "Turning ray amplitude inversion; mitigating amplitude attenuation due to shallow gas". *In: Society of Exploration Geophysicists, international exposition and 72nd annual meeting; technical program, expanded abstracts with authors' biographies. [Abstract, Serial, Conference Document] SEG Annual Meeting Expanded Technical Program Abstracts with Biographies. 72; Pages 2078-2081.* SEG Expanded Abstracts **21**, 2078 (2002)
https://library.seg.org/doi/pdf/10.1190/1.1817111

19. **2002b,** Burtz Olivier M. **Matteucci Gianni**, and Meyer William, "Model-based calibration of band-limited impedance data; Hoover Field". *In: Society of Exploration Geophysicists, international exposition and 72nd annual meeting; technical program, expanded abstracts*

with authors' biographies. [Abstract, Serial, Conference Document] SEG Annual Meeting Expanded Technical Program Abstracts with Biographies. 72; Pages 1735-1738, SEG Expanded Abstracts **21**, 1735 (2002). https://onepetro.org/SEGAM/proceedings-abstract/SEG02/All-SEG02/SEG-2002-1735/90329

20. **2002c, Matteucci Gianni**, Zimmerman Linda J., and Deal Michael M, "Bellocchio: a new technique for detecting and mitigating artifacts from seismic data". *In: Society of Exploration Geophysicists, international exposition and 72nd annual meeting; technical program, expanded abstracts with authors' biographies. [Abstract, Serial, Conference Document] SEG Annual Meeting Expanded Technical Program Abstracts with Biographies. 72; Pages 1519-1522.* SEG Expanded Abstracts **21**, 1519 (2002). https://library.seg.org/doi/pdf/10.1190/1.1816955

21. **2002d,** Chu Dezhi, Araujo Fernanda, **Matteucci Gianni**, Eastwood John E., Stone William N., and Burner S.A., "*Integrated seismic Reservoir Characterization study at Mobile Bay Field, Gulf of Mexico",* Paper CHI2.4 at 72 SEG in Salt Lake City, UTAH Oct 2002. Society of Exploration Geophysics, 72nd Annual International Meeting; SEG Annual Meeting Expanded Technical Program Abstracts with Biographies, 72, 2002. SEG Expanded Abstracts **21**, 434 (2002).

22. **2002e, Matteucci Gianni**, Cassiani Daniel H, and Ives Larry E., "Method for characterization of multi-scale geometric attributes", Patent US006490526B2, 03Dec2002,m ExxonMobil Upstream Research Company, Houston, TX, 18pp., filed 09Mar2001 https://patents.justia.com/patent/6490526

23. **2003, Matteucci Gianni,** Wang Yuan, and Zimmerman Linda J., "Method for estimating and removing artifact noise from seismic data", Patent US2003/0176975A1 18Sep2003, , also on 05Oct2004, Patent US006801473B2, ExxonMobil Upstream Research Company, Houston, TX, 26pp., filed 12Mar2003. https://patents.justia.com/patent/6801473

24. **2005**, Fahmy William A., **Matteucci Gianni**, Butters Dana, and Zhang Jie, "Successful application of spectral decomposition technology toward drilling a key offshore development well", SEG Expanded Abstracts **24**, 262 (2005). https://library.seg.org/doi/abs/10.1190/1.2144316

25. **2006,** Chen Ganglin, Finn Chris, Neelamani Ramesh, Gillard Dominique, **Matteucci Gianni,** and Fahmy William A., "Spectral decomposition response to reservoir fluids from a deepwater reservoir", SEG Expanded Abstracts **25**, 1665 (2006).

26. **2008**, Chen Ganglin, Finn Chris, Neelamani Ramesh, Gillard Dominique, **Matteucci Gianni,** and Fahmy William A., "Spectral decomposition response to reservoir fluids from a deepwater West Africa reservoir", Geophysics, Vol 73 Issue 6, C23-C30, Nov2008. https://library.seg.org/doi/full/10.1190/1.2978337 https://doi.org/10.1190/1.2978337

27. **2008**, William A. Fahmy; **Gianni Matteucci**; John Parks; Mike Matheney, "Extending the Limits of Technology to Explore Below the DHI Floor; Successful Application of Spectral Decomposition to Delineate DHI's Previously Unseen On Seismic Data", Paper

presented at the 2008 SEG Annual Meeting, Las Vegas, Nevada, November 2008, Paper Number: SEG-2008-0408, Published: November 09 2008 https://onepetro.org/SEGAM/proceedings-abstract/SEG08/All-SEG08/SEG-2008-0408/94500

28. **2014,** Erhan Bas, **Gianni Matteucci**, and 7 others, "Context based Geo-seismic object identification", Patent US2014/0278115 18Sep2014, also as WO2014150262A1, ExxonMobil Upstream Research Company, Houston, TX, and General Electric Company, Schenectady, NY, 37pp., filed 31Dec2013 https://patents.justia.com/patent/9952340

29. **2016**, Vincent Favreau, **Gianni Matteucci,** and Prasad Sumant , "Adaptive structure-oriented operator", Patent US2016/0216390A1 28Jul2016, also as 25Sep2018, Patent US9952340B2 and US10082588B2, ExxonMobil Upstream Research Company, Houston, TX, 14pp., filed 18Nov2015 And 28Jul2016, World Publication Number WO 2016/118223 A1, Priority data 22Jan2015, 26pp. https://patents.justia.com/patent/10082588