2022 HONORS & AWARDS Ceremony

6:30–7:30 P.M. TUESDAY, 30 AUGUST 2022

Sponsored By

OXY
One of the most important functions of a professional society is honoring those who have made significant contributions to the profession and science. This function is implicit in SEG’s stated objective “to promote the science of exploration geophysics and related fields, including applications and research, to foster the common scientific interests of geophysicists, and to maintain a high professional standard among its members.” Moreover, the founders of the SEG underscored this importance though explicit references in the bylaws.

Our profession has many components: the science of exploration geophysics; the education of geophysicists, other professionals, and the general public; collaboration with professionals in related fields; and application of geophysical knowledge to economically find and develop natural resources, characterize the near surface, and mitigate Earth hazards. The 2022 Honors and Awards Program recognizes superior achievement in all of these areas. The distinguished recipients of this year’s awards are role models for excellence in our profession, and the Society is proud to honor their contributions.

Please join me in recognizing and honoring these individuals and institutions. Indeed, it is through these awards and their associated accomplishments that we define the highest aspirations of SEG and its members.

William Abriel
Chair, Honors and Awards Committee
2021-2022

HONORS & AWARDS COMMITTEE

William L. Abriel
Nancy J. House
Robert R. Stewart
Rick Miller
Maurice M. Nessim
2022 Awards

— Distinguished Awards —

SEG Distinguished Instructor Short Course  
Joe Dellinger

SEG Distinguished Lecturer  
Laura Bandura

SEG-AAPG Distinguished Lecturer  
Roel Snieder

SEG Honorary Lecturer, Latin America  
Carlos Calderón-Macías

SEG Honorary Lecturer, Europe  
Klaus Holliger

SEG Honorary Lecturer, Middle East and Africa  
Ariel Lellouch

SEG Honorary Lecturer, North America  
Partha Routh

SEG Honorary Lecturer, Pacific South  
Mojtaba Rajabi

SEG Honorary Lecturer, South and East Asia  
Elita Li

SEG Virtual Near Surface Global Lecturer  
Susan Hubbard

— Student Chapter Awards —

Most Improved Student Chapter, Best Student Chapter

— Established Awards of the Society —

Outstanding Educator  
Dario Grana

J. Clarence Karcher Award  
Mehdi Aharchaou, Leonardo Azevedo, Shuvajit Bhattacharya

Life Membership  
Gustavo Carstens

Special Commendation  
Samir Abdelmoaty, Ed K. Biegert, GeoFORCE Texas

Craig J. Beasley Award  
University of Bucharest

Distinguished Achievement Award  
Zonge International

Reginald Fessenden Award  
Yike Liu, Kamini Singha

Honorary Membership  
Aria Abubakar, Sergey Fomel

Virgil Kauffman Gold Medal  
Xianhuai Zhu

Maurice Ewing Medal  
Öz Yilmaz

— Achievement Awards —

Best Student Paper Presented at IMAGE 2021  
W. Anderson McAliley

Best Student Poster Paper Presented at IMAGE 2021  
Carmine Cutaneo

Best Paper Presented at IMAGE 2021  
Ali Tura, James Simmons, Matt Copley, Sima Daneshvar, Andrea Damasceno, Joseph Stitt

Best Poster Paper Presented at IMAGE 2021  
Dustin Blymyer, Klaas Koster, Graeme Warren

Best Paper in The Leading Edge in 2021  
Fabien Allo, Jean-Philippe Coulon, Jean-Luc FORMENTO, Romain Reboul, Laure CAPAR, Mathieu Darnet, Benoit Issautier, Stéphane Marc, Alexandre Stopin

Best Paper in Interpretation in 2021  
Nelson Sánchez, Jael Pacheco, Mario A. Guzmán-Vega, Andrés Mora, Brian Horton

Best Paper in GEOPHYSICS in 2021  
Eric Duveneck, Michael Kiehn, Anu Chandran, Thomas Kühnel
DISTINGUISHED AWARDS

Joe Dellinger
SEG Distinguished Instructor Short Course

Laura Bandura
SEG Distinguished Lecturer

Roel Snieder
SEG-AAPG Distinguished Lecturer

Carlos Calderón-Macías
SEG Honorary Lecturer, Latin America

Klaus Holliger
SEG Honorary Lecturer, Europe
Ariel Lellouch
SEG Honorary Lecturer, Middle East and Africa

Partha Routh
SEG Honorary Lecturer, North America

Mojtaba Rajabi
SEG Honorary Lecturer, Pacific South

Elita Li
SEG Honorary Lecturer, South and East Asia

Susan Hubbard
SEG Virtual Near Surface Global Lecturer
The Outstanding Educator Award honors individuals for excellence in geophysics education, and is awarded to a person who, in the unanimous opinion of the Honors and Awards Committee and the Board, merits such recognition, based on their educational qualities and contributions that may include:

- Outstanding contributions in teaching of geophysics classes at any educational level;
- Impact on education programs by commitment to excellence in geophysics education;
- Special dedication to advising, supervising, and mentoring students;
- Providing extraordinary inspiration to the next generation of geophysics professionals.

A maximum of two awards can be given each year.

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<td>Scott Smithson</td>
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<td>Ilya Tsvankin</td>
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<td>Kristina Keating</td>
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Dario Grana is one of the most well-known geoscientists for rock physics and seismic reservoir characterization. His work is highly cited, and his publications have had a large impact on the scientific community. At the beginning of our PhD study, we were slightly intimidated by his scientific stature, but we soon discovered a fantastic human being with whom students feel very comfortable discussing scientific problems as well as academic issues. After several years at the University of Wyoming as PhD students, we can state that Dario is an inspiration in science, a mentor, and most of all a friend. We believe that his credentials meet all the educational qualities and contributions that the SEG Outstanding Educator Award requires.

In nine years at the University of Wyoming, Dario has taught hundreds of students. His pedagogical approach has three main focuses: (1) teaching graduate students the fundamentals and the state of the art of rock physics, geostatistics, and seismic reservoir characterization, which reflect Dario's main research interests; (2) educating undergraduate and graduate students on mathematical methods for subsurface modeling and strengthening the mathematical skills and abilities of students in geosciences; and (3) promoting diversity, equity, and inclusivity in geoscience, which is historically one of the least diverse STEM fields. Dario also offered summer classes for precollegiate high school programs at Stanford University and the University of Wyoming with the goal of promoting geosciences and mathematics among the future generations of college students.

Dario has had an outstanding impact on the geophysics education programs at the University of Wyoming and all over the world thanks to his classes, invited lectures and seminars, and publications, including his recent textbook *Seismic Reservoir Modeling*, published with Tapan Mukerji (Stanford University) and Phillipe Doyen (formerly CGG). Dario is well known in the scientific community for his short courses for professional associations and industry and for his lectures on rock physics, seismic inversion, and reservoir characterization. He is an excellent communicator and constantly interacts with the audience during and after his lectures.

Dario is recognized as an exceptional advisor and mentor for undergraduate and graduate students and postdoctoral scholars. He is always willing to help his students and collaborators. This quality reflects at all levels, from undergraduate advising to postdoctoral scholarship mentoring. He has established himself as a great inspiration for future generations of geoscientists. His classes, seminars, lectures, presentations, publications, and books will be the pillars of reservoir characterization studies for many young geophysicists. His leadership and example will be a driving force for many students and researchers in our community. His effort to promote diversity, equity, and inclusion is also laudable. Dario is currently leading a seminar series on diversity in geosciences to discuss proactive ideas to improve the inclusivity and safety of our workplace and scientific community.

In summary, Dario is an exceptional teacher, a fantastic advisor, and a prominent researcher. His research is always well received and appreciated by colleagues and students. After contacting multiple students and collaborators for this nomination, we came to realize how many lives Dario has touched in his career and the impact he has had on the next generation of geophysicists thanks to his inspirational knowledge and teaching abilities. Dario is certainly one of the best educators in our geophysics community.

by Mingliang Liu and Mohit Ayani
J. CLARENCE KARCHER AWARD

In honor of the memory of Clarence Karcher and his enormous contribution to exploration geophysics, the J. Clarence Karcher Award is given in recognition of significant contributions to the science and technology of exploration geophysics by a young geophysicist of outstanding abilities who, in the unanimous opinion of the Honors and Awards Committee and the Board of Directors, merits such recognition. Recipients must be less than 35 years of age on 1 November of the year preceding presentation of this award. A maximum of three awards can be given each year.

2022 Mehdi Aharchaou
Leonardo Azevedo
Shuvajit Bhattacharya

2021 Niels Grobbe
Xukai Shen
Jiajia Sun

2020 Fangyu Li
Siddharth Misra
Xinming Wu

2019 Xinding Fang
Hejun Zhu

2018 Yunyue Elita Li
Matteo Ravasi
Tieyuan Zhu

2017 Sjoerd de Riddern
Waruntorn (Jane)
Kanitpanyacharoen
Tristan van Leeuwen

2016 Dario Grana
Nishank Saxena

2015 Joost van der Neut
Germán Rubino
Yingcai Zheng

2014 Ivan Pires de Vasconcelos
Elliot Grunewald

2013 David F. Halliday
Sam T. Kaplan
Gilles Hennenfent

2012 Jyoti Behura
Pawan Dewangan
Alison E. Malcolm

2011 Mostafa Naghizadeh
Ramesh (Neelsh)
Neelamani
Guojian Shan

2010 Deyan Draganov
Jeffrey Shragge

2009 Bogdan G. Nita
Haiyan Zhang

2008 Dirk-Jan van Manen

2007 Robert G. Clapp
Antoine Guittion
Matthew M. Haney

2006 Kristopher A. Innanen

2005 Mustafa Naser Al-Ali
Andrey Bakulin
Simon A. Shaw

2004 Henning Kuehl
Yu Zhang

2003 Edward Jenner

2002 Oleg V. Mikhailov
Rob Vestrum

2001 Sergey Fomel
Muhammad Saggaf

2000 Fernanda Araújo
Gasparotto
Tapan Mukerji
Tamas Nemeth

1999 Kenneth H. Matson
Andreas Rüger

1998 Tariq Ali Alkhalifah
John E. Eastwood
Jörg Schleicher

1997 Eric Verschuur
Spyros K. Lazaratos
Vladimir Grechka

1996 Maarten de Hoop
David E. Lumley
James W. Rector III
Mehdi Aharchaou

Mehdi Aharchaou is a geophysicist with ExxonMobil who has made innovative contributions to some of the most challenging problems facing the seismic exploration community. He has been integral to advancements in machine learning applications, broadband preprocessing of towed streamer data, prestack Q compensation using sparse tau-p operators, and adaptive deghosting, to name just a few. His deep intellectual curiosity is routinely noted by his collaborators. He has had breakthrough contributions in the extremely challenging area of artificial intelligence-based acquisition where he targeted bandwidth extension through knowledge transfer between ocean-bottom nodes and towed streamers using machine learning-based strategies. Aharchaou’s advancements in integrated broadband preprocessing has industry-wide impact with implications for full-waveform inversion using artificial intelligence and machine learning.

Within a decade of joining the energy industry, Mehdi Aharchaou has made strong technical contributions to multiple exploration geophysics areas. Mehdi’s academic background includes three master’s degrees – two in electrical engineering (with a focus on statistical signal processing) from École Normale Supérieure, Toulouse, and Georgia Institute of Technology and one in geophysics from Rice University. This provides him with a solid foundation in signal processing and coding, which are proving to be key enablers for his strong technical contributions to the field of geophysics. Mehdi has a deep intellectual curiosity and an aptitude and willingness to learn new skills to address technical challenges. He also has a broad range of technical interests and an ability to “connect the dots” between disparate observations and glean meaningful and actionable insights from them.

Mehdi readily shares his technical insights and results, both within ExxonMobil and with others in the industry. He is a prolific writer, publishing peer-reviewed papers in Geophysics, The Leading Edge, and First Break, and has numerous U.S. patents. He also is a frequent presenter at the annual SEG and European Association of Geoscientists and Engineers conferences and has been a guest on the SEG Seismic Soundoff podcast. In addition to presenting technical results, he has increasingly taken on leadership roles in organizing and chairing professional society postconvention technical workshops and meetings.

Mehdi started his career in ExxonMobil in the Upstream Research Company, using his signal processing skills to aid in the development of broadband seismic processing, a technology area that evolved rapidly over the last decade and changed how marine streamer seismic data are processed and analyzed. He contributed in the areas of noise reduction, wavelet processing (deghosting, debubble, zero-phasing), trace interpolation, and multiple attenuation.

As broadband processing technology stabilized and moved from research to commercial application, Mehdi shifted his research to how artificial intelligence and machine learning can help address more general geophysical problems. Like others exploring within this technical area, he cast a wide net and looked at many potential applications. Mehdi published pioneering papers on applications of deep learning to noise attenuation and bandwidth extension in seismic data. This allowed him to significantly broaden his network beyond processing specialists and collaborate with others who are more on the interpretation and applications side of geophysics. In doing so, he continued to grow the breadth of his geophysical knowledge. These fruitful collaborations have led to improvements in 4D seismic analysis and seismic inversion.

In the last year, Mehdi moved from the research team to a production processing team, taking his knowledge and expertise directly to the technical challenges of the business. In this short time, he has already made a positive impact on the ability of practitioners to perform subsurface characterization and thus make better decisions regarding field production plans.

Outside of work, Mehdi enjoys spending time with his wife and two boys, Adam and Samy, and is passionate about discovering different parts of the United States with them. Mehdi is a visual arts aficionado and has been drawing and oil painting from real life for many years, especially doing several plein air paintings during the last years. He aspires to one day have his own exhibition. Besides reading about science and geophysics, he enjoys reading nonfiction books and French literature. Mehdi is also a big soccer fan. He regularly plays soccer games as a midfielder and has been a devoted Real Madrid fan since childhood.
Leonardo Azevedo is a professor of civil engineering, architecture, and georesources at the Instituto Tecnico, Lisboa, Portugal. He is a rarity in the applied-geophysics community in that he has demonstrated a talent for integrating geostatistics into a wide range of geophysics applications. His primary focus has been geostatistical application to seismic amplitude variation with offset inversion and uncertainty in nonlinear geophysical problems. Azevedo has authored more than 42 peer-reviewed papers and accumulated an h-index of 14 at this early stage in his career. Not only has he contributed to energy exploration applications, but he is also engaged in hydrogeophysics research and the application of near-surface geophysics for landfill characterization and risk assessment. Azevedo has consistently been engaged with state-of-the-art research in seismic inversion to tackle uncertainty quantification challenges. He has contributed to the Society with service as an associate editor of Geophysics, and he is the faculty advisor for his university’s SEG student chapter. Azevedo has already made significant contributions to our science and has been an advocate for multidisciplinary integration and collaboration.

Leonardo Azevedo is one of the most talented and respected young geoscientists in our scientific community and his work is highly recognized and valued by all colleagues. He has a deep knowledge of a broad spectrum of topics in geoscience, including exploration geophysics, rock physics, seismology, geostatistics, and inverse theory. In recent years, Leonardo has published several peer-reviewed journal papers and book chapters on different geoscience topics and coauthored a book with Amilcar Soares on geostatistical reservoir modeling. His research interests show an extraordinary scientific curiosity and demonstrate his ability to apply his knowledge to complex modeling problems in geoscience. His publications on geostatistics and subsurface modeling had a large impact on the scientific community, as proved by the outstanding number of collaborations.

Leonardo is an excellent colleague to work with and his collaborations have led to prominent results in several fields of geophysics. Among his results, I want to cite the integration of inverse theory and geostatistics in spatial sampling and optimization for geophysical inverse problems. Leonardo applied these methods to several geoscience problems, such as seismic inversion, hydrocarbon reservoir characterization, CO₂ sequestration, and geothermal problems. Some excellent examples of application of advanced modeling techniques to highly relevant scientific problems include the geostatistical characterization of hydrocarbon reservoirs using model order reduction and geostatistical methods, the petrophysical inversion method based on geostatistical simulations conditioned on well log and seismic data, and his book on geostatistical inverse methods.

In addition to his outstanding publication record, Leonardo is an excellent teacher and communicator. His seminars and presentations are well received by colleagues, and his lectures are very popular among students and peers. I had the chance to interact with some of Leonardo’s graduate students, and they all have a great appreciation for the excellent mentoring they have received from him. Leonardo is also very active in our scientific community: he interacts with colleagues during scientific conferences, participates in debates and discussions, reviews several papers every year, and collaborates with international colleagues. In the last few years, he has invited several scholars to visit his research group. These collaborations are important not only for his research activity, but also for the students to have the opportunity to interact with respected members of the scientific community.

To conclude, I believe that Leonardo is one of the most prominent young researchers in exploration geophysics. I confidently predict that he will be one of the research leaders in the field of seismic reservoir characterization and will become one of the most known and respected members of the SEG community.
Shuvajit Bhattacharya

Shuvajit Bhattacharya is a researcher at the Bureau of Economic Geology at the University of Texas at Austin. Characterized as a “rising star in our profession,” Bhattacharya is an impactful applied geophysicist with expertise in petrophysics, seismic attributes, and machine learning. The significance and impact of his work are broad across the interpretation community. This is demonstrated by the popularity of his publications showing the quantitative integration of several 3D seismic attributes, petrophysics, and rock physics to identify and map sweet spots, one such publication being the most downloaded article in Interpretation in 2020. He has also contributed to our science with contributions in machine learning, carbon sequestration, and integration of 3D attributes with deep learning. With his crossdisciplinary focus and attention to scientific rigor, he has already become a sought-after reviewer at this early stage in his career. Bhattacharya’s service to the Society is noteworthy and includes service as cochair of technical sessions at Annual Meetings, multiple assignments as special issue editor for Interpretation, and deputy associate editor of Interpretation.

by Satinder Chopra

It is with great pleasure that I write this citation for Shuvajit Bhattacharya on receiving SEG’s prestigious J. Clarence Karcher Award. Shuvajit is an outstanding applied geophysicist and petrophysicist whose career so far is characterized by the application of geoscience for subsurface interpretation. He has been at the forefront when it comes to applying new state-of-the-art techniques or modeling for the interpretation of seismic and petrophysical data for a fundamental understanding of the subsurface, with implications on prospect generation and development. His achievements over the last decade have brought credit to our profession, and it continues.

During the last two decades, the focus of exploration activity in North America shifted toward unconventional low-permeability reservoirs that are exploited by horizontal wells and multistage hydraulic fracturing technology. Shuvajit sensed this early and worked on the petrophysical joint inversion modeling and machine learning-assisted shale lithofacies analysis of the Bakken Formation in the Williston Basin for his Ph.D. in 2016 from West Virginia University under Timothy Carr. Shuvajit taught at the University of Alaska, Anchorage, as an assistant professor of geophysics for three years and delivered courses on geophysics and petrophysics, in addition to advising students. He also carried out different research projects on integrated 3D seismic, petrophysics, and machine learning for hydrocarbon exploration and carbon storage in Alaska and other areas in the United States. His published work on the integrated 3D seismic attributes and petrophysics revealed the heterogeneities of the low-resistivity Nanushuk-Torok shaly sand reservoirs on the North Slope, Alaska, which became the most downloaded article in the Interpretation journal in 2020. These reservoirs are touted as major recent discoveries in the frontier. In 2020, he joined the Bureau of Economic Geology at the University of Texas at Austin as a Research Associate. He is busy carrying out quantitative 3D seismic interpretation and petrophysical analysis and developing new concepts and workflows for unconventional reservoirs, geothermal energy, and carbon dioxide and hydrogen storage. These are critical to mitigating climate change.

Shuvajit’s recent work on multivariate unsupervised time series clustering and ensemble class-based machine learning has shown potential solutions to some fundamental challenges of using machine learning with borehole geophysical data, such as attribute interdependence, cyclicity, and multimodality. Shuvajit’s approach (Toeplitz inverse covariance-based clustering with adaptive window) incorporates interdependence among attributes, which is fundamental and often ignored.

Shuvajit’s research is of the highest caliber and has been published 16 times in some of the leading geophysics journals and in more than 50 conference papers and abstracts, which many others have cited. More recently, Shuvajit has published two books, *A Primer on Machine Learning in Subsurface Geosciences* and *Advances in Subsurface Data Analytics*, which will help professional geoscientists understand and appreciate current trends and future potential in machine learning approaches applied to the geosciences.

Besides the high-quality technical work, Shuvajit has generously devoted his time to professional outreach and volunteering. He has been deputy associate editor for Interpretation since 2020 and has been the associate and assistant editor for three special issues of this journal.

Achieving all the above-mentioned accomplishments early in his career can only be a sign of what more Shuvajit will show us in the future. I have no doubt that he will continue to contribute to the constantly evolving and highly interesting field of subsurface geoscience. His significant scientific contributions and achievements deserve encouragement and recognition from peers. The 2022 SEG J. Clarence Karcher Award is a fitting recognition of the outstanding contributions Shuvajit has made so far and will encourage him to explore and address the challenges that are being faced by practitioners in our industry.
## LIFE MEMBERSHIP

Life Membership may be conferred on persons who have voluntarily rendered exceptionally meritorious service to the Society, which, in the unanimous opinion of the Board of Directors, warrants recognition.

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 SEG awards Life Membership this year to Gustavo Carstens for his exceptional service to the Society. While at Western Geophysical, Carstens started to expand his activities with SEG and in the region. He was a founding member of the Asociacion Argentina de Geologos y Geofisicos Petroleros (AAGGP) when it became an affiliated society of SEG in 1994, and he served on its board of directors for 18 years. From the AAGGP, he expanded his focus to the whole of Latin America where he participated in the formation of the Union Latinoamericana de Geofisicos, which promoted interaction and intercommunication between its member societies. Carstens became a critically active member of SEG’s International Affairs Committee (later named the Global Affairs Committee). He was among the SEG leaders to truly expand SEG’s footprint beyond North America to the remainder of the world as well as to diversify the Society’s membership, including the establishment of Global Membership. He has participated in many SEG committees — including Health, Safety, Security, and Environment, Global Affairs, and Membership (chair, 2010–2011) — as well as the SEG Council (chair, 2018–2021). Carstens has been a member of the SEG Board of Directors in two separate roles — as a Director at Large and as Chair of the Council.

BY SVEN TREITEL

Gustavo Carstens and I first met during the 1980s at an SEG convention. At that first occasion, I was impressed with his interest in attracting students to our chosen profession, even while he had only himself recently graduated in 1979 with a degree in geophysics from the University of La Plata in Argentina. At that time, SEG was only weakly represented by geophysicists from Latin America, and while their numbers could be even larger than they are today, Gustavo must be credited to be one of our main movers and shakers to attract a considerable number of Latin American geophysicists to become themselves active members in our Society. Having myself grown up in Argentina, I had been acutely aware of the fact that if it had not been for some of our Mexican colleagues, our Latin American ranks would have been even thinner.

After graduation, Gustavo was first employed by Horizon Exploration Ltd. and later by Western Geophysical, both in Buenos Aires. Except for these two stints working for others, Gustavo has had an amazingly successful career as an independent consultant, one which has taken him all over Latin America and the Middle East. Early on, Gustavo took an active interest in professional affairs. He first helped found the Asociacion Argentina de Geologos y Geofisicos Petroleros in his own backyard and then quickly realized the importance of fomenting the promotion of contacts between other similar Latin American professional societies in Mexico, Brazil, Colombia, Cuba, and Venezuela. Gustavo helped found the Union of Latin American Geophysicists (ULG), was very active in it, and served as its last president until the ULG’s dissolution in 2001. Throughout, he did truly outstanding work, for which he deserves much credit.

About the time that Gustavo was busy with local societies, he also commenced an equally distinguished and long record of service to SEG. He joined the Global Affairs Committee in 1995, and later the Membership Committee in 1996. In 2015, he was elected to the SEG Board of Directors for a three-year term as a director at large, and in 2018 he became chair of the SEG Council for another three years. Still more recently, Gustavo was one of the founding members of SEG’s Latin American Regional Advisory Committee, which has become one of the key SEG groups charged with the responsibility of extending the services our Society can provide to members and students throughout Latin America. This will be done by an even closer collaboration with local societies on the continent and by creating an environment in which students from this region can learn and better interact with SEG members. The hope is of course that these students will eventually join SEG. In all these activities Gustavo is bound to play a key role.

Gustavo’s record of distinguished service to SEG is exceptional. His passion for working with students all over Latin America is legendary. Starting in 2009, he has managed Challenge Bowls in Argentina, Mexico, and Brazil. His act is truly a hard one to follow.

In conclusion, I can surely do no better than to quote the last lines from Gustavo’s nomination for SEG Life Membership written by George Buzan: “Gustavo doesn’t just talk the talk when it comes to the Society and its activities; he walks the walk as well. He doesn’t walk alone; he invites those around him to share the journey of growing the Society and making it relevant on the global stage.”
SPECIAL COMMENDATION

SEG established Special Commendation for the purpose of recognizing and honoring deserving persons for meritorious services to the public, the scientific community, or to our profession. This award may be for recognized community leadership, professional leadership, or for contributions outside the mainstream of geophysics which, in the unanimous opinion of the Honors and Awards Committee and the Board of Directors, warrant special recognition.

2022  Samir Abdelmoaty
      Ed K. Biegert
      GeoFORCE Texas

2021  Isaac J. Crumbly
      Yang Liu

2020  Marianne Rauch

2019  Blair Benson Schneider

2018  Maria Angela Capello

2017  Julie E. Shemeta

2016  Dennis Corrigan

2015  Not Awarded

2014  SEG Advanced Modeling Corporation (SEAM)
      Rune Hagelund
      Stewart A. Levin
      Jill C. Lewis
      R. Randy Ray
      Bill Pearson

2013  Not Awarded

2012  Cezar Iacob

2008  Richard A. (Dick) Baile

2007  Katharine Lee Avary
      Martha Lou Broussard
      Michael M. Deal
      Randi S. Martinsen
      Charles R. “Chuck” Noll
      Roger M. Slatt
      Mary Beth Hattaberg
      James V. White

2006  L. C. (Lee) Lawyer
      Rhonda Boone
      Mike Golding
      Thomas K. Fulton
      D. Gene Womack

2005  Alf Klaveness

2003  Jamie Eduardo Jaramillo E.

2002  M. Al-Chalabi
      Center for Wave Phenomena, Department of Geophysics, Colorado School of Mines

2001  Horst Rüter

2000  W. Scott Baldridge
      George R. Jiracek
      Lu Bang-gan
      Stephen J. Hill

1999  Carlos A. Dias
      J. Derek Fairhead
      Mike Graul

1998  Alistair R. Brown
      Bob A. Hardage
      E. O. (Woody) Nestvold

1997  M. E. (Shorty) Trostle
      Milo M. Backus
      Robert J. Graebner

1996  Wagner Freire
      Robert Sheriff

1995  Albert W. Bally

1994  Özer Altan

1992  George C. McGhee
      Robert Shrock

1991  Lawrence W. Funkhouser

1990  Fritz Gassman

1983  Stanley B. Jones

1981  R. A. Frosch

1980  J. Edward Snyder

3D SEG/EAGE Modeling Project
(Fred Aminzadeh, Kay Dauten hahn Wyatt, Norman R. Burkhard, Pierre Duclos, Timothy J. Kunz, Alain Bamberger, Laurence Nicoletis, Jean Brack, Fabio L. Rocca)
Samir Abdelmoaty

Samir Abdelmoaty has a wide range of experience and contributions to the oil and gas industry and universities in Egypt. He started his geophysics career at Gulf of Suez Petroleum Company (GUPCO), Amoco, BP, Technical Petroleum Services, PGS, and recently United Oil and Gas. He also teaches at Ain Shams, Alexandria, and Mansoura universities. Samir is especially well known in Egypt for his work with the Al Amal graduate-to-industry bridging program. He has been active within SEG and with other professional activities in the Middle East. He has been widely praised for his work in mentoring students and supporting colleagues across the region. He has received both SEG Life (2002) and Honorary (2009) Membership awards. Abdelmoaty has made many contributions to Egyptian geophysics, but he receives Special Commendation for the Al Amal program with its 12 rounds of graduate inductions and instruction.

Samir, a national of Egypt and citizen of the geoscience world, has a distinguished record of service to the geosciences community that spans five decades professionally and academically on the local, regional, and global levels.

Samir has been intensely involved with SEG for many years. He served on the Board of Directors as a director at large and on the Council as a district representative. Samir was selected to present the 2009 SEG Africa and Middle East Honorary Lecture, and he has visited many universities in the region. His vision has always been international, and as a member and chair of the Global Affairs Committee, he was instrumental in developing SEG into a global organization.

In 2007, Samir and his colleagues initiated Al Amal (which translates to “hope”) for outstanding geoscience graduates from all Egyptian universities. The program is organized by The Egyptian Geophysical Society (EGS) and was supported by SEG. It is designed as an advanced program to provide technical sessions by experts from the industry with a focus on soft skills and health, safety, security and environment processes. In addition to field trips and visits to exploration and production companies and technology providers, the program is extended to include mining, underground water, geoscience engineering, archaeology, data science, machine learning, and their applications in the geoscience field. The program is run by volunteers from the industry and senior Al Amal graduates (“Amalians”) under the Al Amal slogan: “Gain and Give.”

During a very challenging time due to the COVID-19 pandemic, Al Amal 12 and 13 rounds were conducted virtually, with online sessions, distance learning, and a virtual data room to run the asset evaluation project.

Al Amal 13, which started in December 2021, invited 561 top graduates to attend online, and all sessions were streamed in real time to allow other graduates and students to benefit from the highly successful and praised program. The final phase of Al Amal 13 included 45 participants, 27 female and 18 male graduates. This round is cosponsored by program partners the National Research Institute of Astronomy and Geophysics, Shell, BP, Capricorn, APEX, Kuwait Energy, Petrojet, United Oil and Gas, Schlumberger, and Wintershall Dea.

During the 2022 SEG Red Sea Workshop in Hurghada, Egypt, Samir was very pleased to see three Amalians with three well-received papers among the workshop presenters.

Other programs run by EGS and led by Samir, include the Annual Student Forum held at a different university every year, Al Amal Troops, where instructors and senior Amalians visit universities, and Al Amal Undergraduate Summer Training program in August.

Samir continuously supports participants in the different professional society programs: SEG EVOLVE, SEG Field Camps, the American Association of Petroleum Geologists AAPG Imperial Barrel Award program, and others.

One of the most distinguished attributes of Samir is his signature smile that reflects his genuine, intrinsic, and sincere passion toward his profession, SEG, and beers. He is a real “star of hope” to so many and a living legend.

It is my honor and privilege to write this citation to commemorate my friend, my mentor, geo-pal, and the star of hope Mr. Samir and his team for a well-deserved SEG Special Commendation Award based on his exceptionally commendable service to the geophysical community in Egypt, Middle East, Africa, and Al Amal program: “Teach the young how to fish and you will feed them for a lifetime.”

BY OSMAN M. HASSAN
Ed Biegert is internationally recognized as a foremost expert in the application of gravity and magnetic methods in the exploration for hydrocarbons and for sharing his expertise widely for the benefit of the community.

After obtaining a PhD in physics from Rice University and after a brief stint with a NASA contractor, Ed joined Shell Research in 1978, where for 40 years as an individual scientist and a research manager, he conducted basic research, developed and applied new technologies, conducted field surveys, performed field experiments, and participated in international exploration activities. As a scientist working in industry rather than in academia, he did not have the opportunity to publish all of his research work. Even so, his work found its way into the research mainstream.

Ed is well recognized for his expertise, ability, and versatility in employing different methods. The following small sample of some of the projects he worked on will give some indication of his expertise and versatility:

- Integrating gravity gradient data in the cycle of iterative prestack depth migration;
- Quantitative bathymetric analyses of selected deepwater siliciclastic margins to obtain basin configurations for deepwater fan systems with potential impact on deepwater exploration;
- Evaluating marine gravity gradiometry for hydrocarbon detection;
- Diverse applications of 4D gravity monitoring;
- Early developing of seismic amplitude variation with offset technology as a direct hydrocarbon indicator;
- Developing detection tools for oil seeps using optical and remote sensing tools;
- Resolving basement architecture in the Guahira offshore basin of Colombia;
- Resolving depth to Curie temperatures across the central Red Sea from magnetic data using the defractal method. Depth of the Curie isotherm provides an important constraint on maturation within sedimentary basins;
- Using interferometric synthetic aperture radar for monitoring subsidence of fields, with respect to production.

Ed has had an illustrious and dedicated career in applied geophysics, especially pertaining to oil and gas exploration and production. He has been one of the most prominent advocates for potential-field and electromagnetic geophysics in the oil and gas industry.

Throughout his career he has dedicated much time and effort to the education and mentoring of younger geophysicists, and he has consistently, over several decades, devoted a significant amount of time and effort to the service of SEG. Ed is a managing editor on the SEG Books Editorial Board and a reviewer for Geophysics and Interpretation. He has organized several workshops for the Gravity and Magnetics Committee.

Ed has made contributions throughout his career in his special, quiet but effective, way. He is a world-class geophysicist who transcends industry and academia as well as subdisciplines of exploration geophysics and has ably represented SEG in the world geoscience community. He richly deserves the SEG Special Commendation award.
GeoFORCE Texas, founded in 2005, is the flagship diversity outreach program of the University of Texas at Austin Jackson School of Geosciences. This four-year high school program earned the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring in 2015 for its innovative approach to broadening participation for diverse students in science, technology, engineering, and math (STEM) — the highest such honor from the U.S. government.

GeoFORCE introduces underserved and underrepresented students in STEM to field learning experiences each summer, visiting geologically significant sites across the country. Elements of mentorship, education, and exploration are woven throughout summer academies to help cultivate interest and support student development. Beginning in 9th grade, students travel to the Texas Gulf Coast to study fluvial processes and coastal changes. Rising sophomores venture to the American Southwest, visiting the Grand Canyon and Zion National Park, where they study sedimentary processes and geologic time. The third summer of GeoFORCE Texas introduces students to tectonics and volcanology in the Pacific Northwest with memorable visits to the iconic Mount St. Helens and Crater Lake. Entering senior year of high school, students learn the important skills of science communication and collaboration through group research projects on the campus of the University of Texas at Austin. As a result, student participants from underserved areas throughout Texas find a path to college and rewarding careers as geoscientists, engineers, and other STEM-related professions.

Each academy is led by a full-time GeoFORCE coordinator who recruits students into the program and plans all logistical aspects of the experience. The academic content and rigor increase each year while building upon previous ones. An educational team facilitates field learning for students in the GeoFORCE Texas program. This effort is led by academy instructors, a group consisting of faculty and research scientists who employ an intense scientific curriculum using inclusive pedagogical approaches. School teachers serve in the role of educational coaches and support active, hands-on learning activities. Professional geoscientists and industry partners serve as mentors for program participants, providing examples of tangible career outcomes and societally relevant applications.

New capacity programming added in 2020 provides holistic academic growth and engagement for current and former participants of the GeoFORCE Texas program. Initiatives such as GeoFORCE Challenges, Symposium, Math and Science Institute, Senior Recognition and Awards Event, Transition to College, Transition to Career, and others support a student participant from their freshman year in high school through early career. Virtual cohorts were also added in 2020 and will remain an integral component of the program, providing access and inclusion for students of all abilities and academic levels.

GeoFORCE Texas is recognized as one of the most successful programs of its kind in the country. After 17 years, the program has more than 1,500 alumni. Of the GeoFORCE Texas alumni who graduated high school in spring of 2021, 51% chose to major in STEM as college freshmen and 17% are majoring in geoscience — roughly 120 times the national rate of undergraduate students who choose geosciences as a major, according to 2019 data from the American Geosciences Institute.

With the financial support from organizations like SEG, industry sponsors, donors, and the Jackson School of Geosciences, GeoFORCE Texas contributes to society by identifying and developing the next generation of diverse leadership in areas of discovery, research, and management of energy, minerals, water, the environment, and natural hazards. GeoFORCE and Jackson School of Geosciences alumnus Izaak Ruiz, now an exploration geologist with Repsol, testifies, "I would not be where I am today without GeoFORCE."
The Distinguished Achievement Award shall be awarded from time to time to a company, institution, or other organization for a specific technical contribution or contributions that have, in the unanimous opinion of the Honors and Awards Committee and the Board of Directors, substantially advanced the science of exploration geophysics.

DISTINGUISHED ACHIEVEMENT AWARD

2022  Zonge International
2021  No Award
2020  Smart Exploration
2019  Rock Solid Images
2018  Bureau of Economic Geology
2017  University of British Columbia - Geophysical Inversion Facility
2016  OpendTect
2015  Applied and Environmental Geophysics Group (AUG)
2014  Colorado School of Mines Reservoir Characterization Project
2013  Geophysics Technology, EXPEC Advanced Research Center-Saudi Aramco
2012  Edinburgh Anisotropy Project: British Geological Survey, Edinburgh University, CNPC Geophysical Key Laboratory (China University of Petroleum)
2010  Brazilian Geophysical Society (SBGf) Amoco Research Center
2009  Gocad Research Group and the Gocad Consortium
2008  Shell Exploration & Production Company SMART JV WesternGeco
2007  CSEM: Statoil Research Centre, Norwegian Geotechnical Institute, Scripps Institution of

Oceanography, University of Southampton, and ExxonMobil Upstream Research Company
2006  Compagnie Générale de Géophysique (CGG)
2006  Geological Survey of Canada
2005  Robert Ballard's Institute for Exploration
2004  Curtin Reservoir Geophysics Consortium
2003  CREWES Project, University of Calgary
2002  Kansas Geological Survey
2001  Laboratory of Seismsics and Acoustics at Delft University
2000  Geophysics Laboratory of the University of Toronto
1999  Exxon Production Research Company
1998  Western Geophysical
1997  Allied Geophysical Laboratories, University of Houston
1995  Stanford University Department of Geophysics
1994  DigiCOURSE, Inc.
1991  Colorado School of Mines Department of Geophysics
1989  Geophysical Service, Inc.
1988  Massachusetts Institute of Technology
1986  Geophysical Service, Inc.
Texas Instruments, Inc.
Zonge International is the recipient of the 2022 Distinguished Achievement Award, given from time to time to a company, institution, or other organization for a specific technical contribution or contributions that have substantially advanced the science of exploration geophysics. Zonge’s contributions have substantially advanced the science of exploration geophysics, particularly electrical and electromagnetic (EM) geophysics across near-surface, mining, geothermal, and oil and gas markets. Zonge was originally founded as the Zonge Engineering and Research Organization (ZERO) in 1972 by Kenneth L. Zonge (recipient of SEG’s 1995 Cecil Green Enterprise Award), who developed the complex resistivity method and demonstrated its use for mineral exploration. The company became the first to build a microprocessor-based EM receiver system in the 1970s. The company performs hundreds of projects each year involving seismic, magnetics, gravity, and other geophysical methods, in addition to the broad variety of EM methods it helped establish. Its innovations in EM acquisition and processing systems over the years extend to every aspect of EM geophysics practiced today. Zonge’s entrepreneurial spirit lives on today as much as it did when founded 50 years ago.

Over the 50 years of its existence, Zonge International, and its previous incarnation as Zonge Engineering and Research Organization, has been recognized as a leading innovator among smaller geophysical instrumentation and service companies. Primarily known as a manufacturer of ground electrical and electromagnetic (EM) geophysical exploration equipment, Zonge also provides data acquisition services of not only EM data, but seismic, magnetics, gravity, and other geophysical data types. Over the course of five decades, the different versions of the company have had a huge impact on mineral exploration as electrical and EM methods serve as some of the most often employed exploration techniques. That said, Zonge’s unique combination of instrumentation manufacturing and sales and data acquisition services has also impacted the near-surface, groundwater, geothermal, and oil and gas markets. The impact is manifested by a vertically integrated structure that the company has maintained over the years, starting with research and development as its base, then proceeding upward into instrument design, manufacture, instrument sales, and field services, and finally at the top, interpretation services. Personally, as a long-time collaborator with Zonge, I postulate that their research strategy forms the base of the company as they are always evolving their products, looking into new technologies and areas to grow, and trying new concepts in the field to improve resolution and/or open up new markets for EM and electrical geophysics.

Zonge Engineering and Research Organization, or ZERO, was founded in 1972 by Ken Zonge who had completed his PhD studies at the University of Arizona researching induced polarization (IP), a variant of the DC resistivity method that is especially useful for mineral exploration. Hence the company’s longtime headquarters was founded in Tuscon, Arizona. Struggling to identify effective field instrumentation that provided the data quality necessary for exploration, the company’s initial focus was to manufacture equipment for making IP measurements and deploying the instrumentation for the mining industry. The measurement portfolio soon diversified to include time-domain electromagnetic (TEM), magnetotelluric, and controlled-source audio magnetotelluric measurements. The research and development that Zonge applied to meet the needs of the mineral exploration industry as well as at the time new IP and EM applications in oil exploration led to the first microprocessor-based, multimethod acquisition system known as the GDP-12 in the late 1970s, later followed by the GDP-16 and GDP-32. Ken’s commitment to the development of early digital field instrumentation resulted in Ken receiving SEG’s Cecil Green Enterprise Award in 1995.

Starting in the 1990s, the acquisition services diversified further into groundwater exploration and management, followed later by applications in near-surface environmental geophysics with the incorporation of large-scale multiplexing within the GDP system for multielectrode DC/IP acquisition as applied to hazardous waste detection and remediation. Zonge continued to diversify its product line with the advent of the NanoTEM near-surface TEM imaging system and, later, the Dynamic NanoTEM that was mounted on an easily deployable nonmetallic cart for unexploded ordnance detection and classification. Each of these ventures into new service areas was proceeded by appropriate research
and development efforts that led to the required advances in their instrumentation offering.

In 2004, the employees of Zonge began the process of purchasing the company from the Zonge family, and this process was completed with Ken’s retirement in 2011. After completion of the buyout, the company name was officially changed to Zonge International (ZI). Currently ZI remains an entirely employee-owned company consisting of a small group of geophysicists with more than 100 years of collective experience, an engineering team with more than 60 years of collective experience in the development of geophysical instruments specifically designed for EM exploration, and offices in Tucson, Arizona; Reno, Nevada; and Soldotna, Alaska. ZI continues to offer instrument sales and data acquisition services worldwide, with most data acquisition surveys performed in North America (field crews in the United States and Mexico), although the company also supports occasional large international projects, and the majority of instrument and software sales in Asia and Africa.

In summary, Zonge has enriched exploration geophysics worldwide with a range of innovative instrumentation that allows the acquisition of exceptional quality EM data with higher sensitivity to subsurface targets and structures of interest, as well as providing multiphysics data acquisition services to the mining, oil and gas, groundwater, and near-surface engineering and environmental industries. The two key elements in Zonge’s success are (1) the ability to have a foot in both the instrumentation manufacturing and data acquisition services sectors of the geophysics industry, and (2) a strong research and development component that focuses on developing new instruments with increased signal-to-noise ratio capabilities that are easier to use than past generations, as well as associated software for the processing and imaging of the data. It is particularly fitting that SEG this year honors Zonge International with its Distinguished Achievement Award, and I would like to congratulate the company on its achievements.
The Cecil Green Enterprise Award was established to recognize the importance of individual enterprise to the economic vitality of our industry. This award shall be conferred from time to time on persons who, in the unanimous opinion of the Honors and Awards Committee and the Board of Directors, have demonstrated courage, ingenuity, and achievement while risking their own resources and future in developing a product, service, organization, or activity that is recognized as a distinct and worthy contribution to the industry.

CECIL GREEN ENTERPRISE AWARD

2022 No Award
2021 No Award
2020 Gary Tubridy, Avalon Sciences Limited
2018 Daniel Herold, Robin Herold, and Peter W. Flanagan, Parallel Geoscience Corporation
2017 Ian N. MacLeod, Geosoft
2016 Yves Lamontagne (Lamontagne Geophysics Ltd.)
2015 Geoffrey Dorn (TerraSpark Geosciences, LLC)
2014 Matt Lamont and Troy Thompson (DownUnder GeoSolutions)
2013 Don Robinson (Oklahoma Seismic and Resolve Geosciences)
2012 Kurt M. Strack, Tilman Hanstein, Charles Stoyer and Horst Rüter (KMS Technologies)
2011 Chen-Bin Su, Wes Bauske and Zhiming Li (Parallel Data Systems, Inc.)
2009 Kwok C. Chan and Tom LaFehr (LTC)
2008 Billy F. Mitcham Sr. (Mitcham Industries)
2006 Lowry T. Chua, Steve Cosway, Charles David Leggatt, and A. Peter Annan (Sensors & Software, Inc.)
2005 David Phillip, Alastair Hay, and Alan Faichney (Concept Systems Limited)

2004 John W.C. Sherwood, Reginald N. Neale, and Fred J. Hilterman (Geophysical Development Corporation)
2003 Paul van Riel (Jason Geosystems)
2002 James (Pat) Cunneen (Aerodata Holdings Limited)
2001 Aubra E. Tilley (Input/Output)
2000 Thomas A. Smith (Seismic Micro-Technology Inc. SMT)
1998 David B. Robson (Veritas Seismic Processing Ltd.)
1997 L. Decker Dawson (Dawson Geophysical)
1996 Brian H. Russell and Daniel Patrick Hampson (Hampson and Russell Software Services Ltd.)
1995 Kenneth L. Zonge (Zonge Engineering and Research)
1993 James Duncan McNeill (Geonics)
1992 Charles R. Pelton (Pelton Company)
1991 Rutt Bridges (MicroMAX)
1989 Roy O. Lindseth (Teknica Resource Development)
Craig J. Beasley was the driving force behind the founding of Geoscientists Without Borders®. In recognition of this contribution, the Craig J. Beasley Award for Social Contribution is given from time to time to a person or organization that, in the unanimous opinion of the Honors and Awards Committee and the Board of Directors, has made a meritorious achievement that supports the application of geophysics to a humanitarian, public service, or other socially significant cause.

2022 University of Bucharest
2021 Tanvi ARORA
2020 James A. Clark
2018 Paul D. Bauman
University of Bucharest

Ionelia Panea, Victor Mocanu, Cezar Iacob, Razvan Orza, Mihai Furnica, and Denisa Jianu are faculty and students at the University of Bucharest, Romania, who worked on a Geoscientists without Borders project titled “Geophysical Investigations in the Polluted Mining Area of Zlatna, Romania.” The project, with US$100,000 of funding from SEG, generated more than $10,000,000 in unexpected benefit to the local community around Zlatna. Once the student group submitted polluted water samples to a nationally certified lab and the pollution numbers became official, the local politicians had to remedy the problem by law. While the local politicians may have suspected that the area was polluted, nobody bothered to do anything about it until the University of Bucharest students showed up, measured the pollution, and the numbers became official. Taking action can bring unexpected benefits.

I was thrilled to learn that the University of Bucharest is the winner of the 2022 Craig J. Beasley Award for Social Contribution, and I am honored to introduce the group that participated in the project. Craig J. Beasley was the driving force behind the founding of Geoscientists without Borders (GWB). I also served on the initial founding board, so I have a special insight into the hard work that goes on behind these activities. In recognition of his contribution, the Craig J. Beasley Award for Social Contribution is given from time to time to a person or organization that has made a meritorious achievement that supports the application of geophysics to a humanitarian, public service, or other socially significant cause. The award was given to the University of Bucharest for its work on the GWB project “Geophysical Investigations in the Polluted Mining Area of Zlatna, Romania.” Ionelia Panea was the project lead, and Cezar Iacob, Razvan Orza, Mihai Furnica, Denisa Jianu, and Victor Mocanu were the university individuals who as faculty or students carried out the work.

The University of Bucharest has a well-decorated SEG student chapter with Victor Mocanu as faculty advisor. In 2021, the SEG Bucharest student chapter won SEG’s Best Student Chapter award. In 2017, 2018, 2019, and 2020 the SEG Bucharest Student Chapter was awarded the rank of SEG Summit Student Chapter to recognize the contributions by the members to the section and the community. In 2017, the SEG Bucharest Chapter was ranked in the top three SEG student chapters in the world (see https://wiki.seg.org/wiki/University_of_BucharestSEG_Student_Chapter).

In July and August 2010, the group of students and faculty at the University of Bucharest organized three field acquisition campaigns for the Ampoi Valley project. Each campaign included training sessions organized prior to field work. The training sessions aimed to introduce the participant students to the basic theoretical aspects of the geophysical methods employed: resistivity surveys, reflection seismic methods, ground penetrating radar (GPR), and geo-magnetic surveys. The sessions also contained safety training, discussions of the social problems that may be encountered in dealing with the local communities or with colleagues or organizers, automobile traffic rules and possible health injuries in handling the geophysical equipment, the weather, contact with animals and plants, and potential diseases. The last half-day of training was reserved for outdoor equipment testing in the courtyard of the faculty.

The Romanian seismic acquisition company Prospectiuni supported the project, providing most of the cars necessary for the field camps, thus eliminating the car-rental charges and considerably reducing costs.

The main purpose of the Ampoi Valley pollution investigation project, was to delineate the near-surface geologic structure and identify the relationship of the aquifer with the river and the effect on agriculture in the area. The group used shallow reflection seismic, resistivity, GPR, and magnetometry. In addition, they drilled several 2–3 m deep holes to gather lithologic information to properly calibrate the geophysical results.

Multiple field trips were organized for geochemical sampling of water, soils, plants, and tailing ponds. The samples were sent to University of Bucharest and Prospectiuni laboratories. One of the project’s intended goals was to make soil pollution distribution maps with heavy metals. One hundred twenty samples were collected from soils used for agriculture and from lands used for grazing animals. The samples were prepared at the University of Bucharest laboratories and sent to Prospectiuni, which offered to perform all the geochemical analysis for heavy metals for free. Prospectiuni owns a laboratory certified by the Romanian Government to realize geochemical analyses. After analyzing the samples, Prospectiuni provided a folder with its results, accompanied by legal documents attesting that the analyses are official and can be used in legal actions.
The geochemical analyses revealed large concentrations of heavy metals along the Ampoi Valley in the “Alert Interval” range, where the concentration values represent a possible danger for human life and where authorities are required by the law to intervene and remediate the problem. The investigations showed that all water sources used by the local communities were contaminated. The values of heavy metal concentrations in water and soils were above the intervention level. The law states that in such situations, the authorities must take action to solve the problem. Following the efforts of the students and faculty in quantifying the mining pollution in the Ampoi Valley in Romania, the European Union was required to build a water pipeline to provide clean water to the valley, the value of which is more than $10 million.

I have known some of the people involved in the project for more than four decades, since my days as a student at the University of Bucharest. As the SEG student chapter activities and the current award demonstrate, the group of faculty and students at the University of Bucharest have created a geophysical community and enthusiastic environment for scientific and social development, for continuous improvement of the Romanian earth science community, and a steady dedication to serve the society. I predict more good things will happen with this group. Keep up the good work!
This award, designated the SEG Medal Award at its inception in 1961, was renamed in 1977 to recognize Reginald Fessenden for his role as the originator of the concept of reflection and refraction surveying in 1917. The Reginald Fessenden Award is awarded to a person who has made a specific technical contribution to exploration geophysics, such as an invention or a theoretical or conceptual advancement, which, in the unanimous opinion of the Honors and Awards Committee and the Board of Directors, merits special recognition.

REGINALD FESSENDEN AWARD

2022 Yike Liu
Kamini Singha
2021 Chengbo Li
Boris Gurevich
Estella A. Atekwana
2020 Felix J. Herrmann
Charles C. Mosher
Faqi Liu
Laura J. Pyrak-Nolte
Evert Slob
2019 Luis Alonso Gallardo
Max A. Meju
2018 John Parker Burg
Necati Gülinay
2017 Andrew Curtis
2016 Steven Constable
William Nicholas Goodway
Gilles Lambaré
Sheng Xu
2015 Heloise Bloxsom Lynn
2014 Claes Nicolai Borresen
Rune Tenghamn
Svein Vaage
Yi Luo
2013 Dan Kosloff
2012 Xianhuai Zhu
Jie Zhang
2011 Norman Daniel Whitmore, Jr.
2010 Samuel Gray
Arthur Benjamin Weglein
2009 Keeva Vozoff
2008 Paul M. Krail
Dwight V. Sukup
2007 Paul C. Sava
2006 Dan Hampson
2005 Matthew L. Greenberg
John P. Castagna
2004 Biondo Biondi
2003 Kurt-Martin Strack
2002 George Cameron Smith
Maurice Gidlow
2000 Robert E. Howard
1999 James E. Rickenbacker
John J. Sallas
1998 Elmer Eisner
Ben F. Giles
E. R. (Harry) Harrison
Donald L. Howlett
Roy C. Johnston
Robert J. Loofbourrow
Jim Vanderford
1997 Jean P. Morlet
1996 Luis L. Canales
1995 Derecke Palmer
1994 Donald W. Rockwell
1993 Leon Thomsen
1990 Vaino Ronka
1989 Reinhard K. Bortfeld
1987 Byron L. Gariepy
John H. Kooence
1986 T. R. Madden
1985 Ralph A. Harris
1984 Richard N. Jolly
Franklyn K. Levin
1983 Harold A. Sears
1982 E. V. McCollum
1981 Haines C. Hibbard
1980 R. H. Stolt
1979 Peter Hubral
1978 J. W. Miller
1977 Norman H. Ricker
1976 Leroy C. Paslay
1975 Victor Vacquier
1974 Sam P. Worden
1973 Jon F. Claerbout
1972 W. D. Mounce
1971 R. A. Broding
G. C. Summers
C. B. Vogel
1969 Enders A. Robinson
Sven Treitel
1967 John M. Crawford
William E. N. Doty
Milford R. Lee
1965 W. Harry Mayne
1961 Beno Gutenberg
Raoul Vajk
Yike Liu has contributed significantly to the theory, development, and application of seismic imaging using multiples. He introduced the new concept of decomposing multiple reflections into controlled-order multiples and a systematic way of understanding and mitigating imaging artifacts due to multiples. Over the past two decades, he has made breakthroughs in several research areas. His work has been recognized by the oil and gas industry as critical to its business, and he has been invited by a significant number of oil and service companies to help transfer technology for imaging with multiples. He has also been invited by a large number of top exploration geophysics institutes to explain these concepts and their application. Finally, we recognize Liu’s outstanding qualities of being both a dedicated scientist and consistently being kind to both students and professionals. SEG is proud to bestow the Reginald Fessenden Award to Yike Liu for his contributions to applied geophysics.

BY YINGCAI ZHENG, SERGEY FOMEL, YI LUO, AND GERARD SCHUSTER

It is our great pleasure to introduce Yike Liu of the Institute of Geology and Geophysics, Chinese Academy of Sciences as the 2022 SEG Reginald Fessenden Award winner. The award is given in recognition of his landmark contributions in the development and application of seismic imaging using multiples. Yike is currently a professor of geophysics at the Chinese Academy of Sciences. He graduated from the Department of Physics at Peking University with a bachelor’s degree in 1982 and earned his PhD in 1998 from the Chinese Academy of Sciences. Together with his colleagues and students, he established a successful and vibrant seismic imaging research group in 1999. In the past two decades, the group has focused on seismic imaging, multiple attenuation, and near-surface structural inversion.

Upon invitation, Yike visited Saudi Aramco in 2008. After a few days of discussion with Yi Luo, he was convinced that using multiples would be the next generation of seismic imaging. Yike then started developing a reverse time migration algorithm using multiples, and he provided a numerical example in his well-cited Geophysics paper published in 2011. He recognized that multiples could be extremely useful in imaging subsalt regions. This initial success inspired him to vigorously pursue multiple imaging. Even though he observed that multiples could provide useful information beyond that of using primary reflections, crosstalk artifacts generated by multiples are still very challenging to identify and remove. To address this problem, Yike invented an approach to decompose multiples into different orders, called controlled-order multiples (CMs). By selecting proper pairs of CMs for imaging, most of the crosstalk artifacts can be removed. The remaining negligible crosstalk can be further eliminated using least-squares migration. For a pair of selected CMs, there is a source multiple and a receiver multiple field. This approach produced outstanding results. However, it added more computational cost than that of primary imaging because many RTMs are needed to migrate the paired CMs. Yike then came up with a novel phase-encoded simultaneous source idea to speed up the CM migration. He extracted and blended the source multiples from the CM pairs and formed a source supergather. He did the same for the receiver multiple fields to obtain a receiver supergather. He then performed the imaging using these two supergathers. This phase-encoded approach can significantly attenuate crosstalk artifacts and considerably reduce computational costs. Yike also developed CM full-waveform inversion (FWI), in which CMs can reduce cycle-skipping and speed up the convergence to the global minimum.

Yike’s work using CMs for FWI was recognized for its importance when he received the Best Poster Paper at the 90th SEG Annual Meeting for his presentation on the subject in the previous year. In addition, two of his papers associated with CMs published in Geophysics are highlighted in Geophysics Bright Spots.

With the rapid development of computational power, it is expected that the series of methods based on CMs proposed by Yike could be more affordable and widely used in the processing of marine seismic data. It might be possible to reduce expensive acquisition activities because the multiples can enhance the subsurface illumination and increase the signal-to-noise ratio of migration images.

Yike has also contributed significantly to the SEG community. He was associate editor of Geophysics from 2007 to 2012. He serves as an advisor of the SEG student chapter of the Chinese Academy of Sciences. Yike generously shares his results and methods with all members of the SEG community and has the highest scientific integrity. His work has been recognized by the oil and gas industry as critical to its business, and he has been invited to give talks at many oil and service companies on imaging with multiples. Yike has also been invited to give explanatory talks at a large number of exploration geophysics meetings and workshops. SEG recognizes Yike’s innovation by bestowing him the 2022 SEG Reginald Fessenden Award for his contributions to applied geophysics.
Kamini Singha

Kamini Singha is recognized for her extensive and significant contributions of applied geophysics to hydrogeophysics, including critical zone hydrology, anomalous solute transport, and water resources management. In particular, she has documented the occurrence and prevalence of solute mass transfer in heterogeneous porous media by applying electrical methods to measure both temporal and spatial changes of fluid. This methodology has also allowed for improved understanding of fluid flow and solute exchange in groundwater-surface water systems. Singha’s work has pushed the application of geophysics in hydrogeology, including the application of exploration geophysics to image tree water use, changes in subsurface biogeochemistry, and contaminant transport.

BY MANIKA PRASAD

It is an honor to write this citation for Kamini Singha, the 2022 recipient of the SEG Reginald Fessenden award. Kamini is a University Distinguished Professor, jointly appointed in the Geology and Geological Engineering and the Geophysics Departments at Colorado School of Mines. She also serves as the Associate Dean of Earth and Society Programs. In addition to these duties, Kamini maintains an exemplary and rigorous research program. Of all her achievements and accomplishments, I highlight her technical contributions to exploration geophysics, specifically to hydrogeophysics and beyond, that make Kamini an ideal recipient of the Reginald Fessenden Award.

1. **Solute transport in porous media**: Kamini and her colleagues and students were the first to document the occurrence and prevalence of solute mass transfer using geophysics in aquifers (Singha et al., 2007; Day-Lewis and Singha, 2008; Swanson et al., 2012, 2015; Day-Lewis et al., 2017; Briggs et al., 2018) and in other environmental systems, including solute transport between streams and the connecting aquifer. This work has immense implications for exploration geophysics. Firstly, we can now constrain and model how solute exchange between zones of higher and lower solute concentrations occurs in heterogeneous media. Secondly, Kamini’s approach to mapping biogeochemically active hyporheic zones in stream systems using electrical geophysics demonstrates that temporal and spatial changes in bulk electrical conductivity are driven by hard-to-constrain processes controlling changes in fluid connectivity.

2. **Geophysical footprint**: Kamini’s work has changed our interpretations of spatially and temporally varying measurement physics to constrain hydrogeologic processes. Her research established ways to minimize complications arising from inverting geophysical data to quantitatively estimate hydrologic parameters problems through (1) the use of numerical analogs to quantify the “footprint,” allowing for improved estimation of hydrologic processes, (2) stochastic methods for data integration, and (3) new inverse methodologies appropriate for estimating hydrologic parameters of interest directly.

3. **Expanding the world of exploration geophysics**: Kamini’s work expands the world of exploration geophysics beyond hydrocarbon resources. With her work on using geophysics to image tree water use, map changes in subsurface flow paths in ice-constrained systems undergoing climate change, and estimate moments of tracer transport undergoing reaction, she demonstrates how innovative extensions of geophysics leads us toward finding new dimensions in exploration geophysics.

Kamini is an internationally known scientist. She has been invited to present at national and international venues. She has represented or still represents the discipline of geophysics on a number of committees focused on hydrology, including the board of directors for the Consortium for the Advancement of Hydrologic Sciences (funded by the National Science Foundation, NSF), a panel on fractured rock characterization for the National Research Council, a panel on groundwater fluxes for the National Academy of Sciences, an NSF-funded committee exploring infrastructure needs for “Grand Challenges within Earth Surface Processes,” and a series of panels selecting fellows and lifetime career awards to scientists within hydrology and environmental geophysics.

Equally importantly, I have found Kamini’s interactions and mentorship of young professionals and students in our field to be extremely valuable. She takes a hands-on approach to guide, mentor, and support newcomers to the discipline. She conducts a yearly workshop to make STEM accessible for K-12 school children and encourages various faculty to develop hands-on exercises to explain scientific terms with simple experiments. Her passion for geophysics is obvious in her interactions with school children, and it is infectious.

In summary, Kamini’s technical contributions and her outreach activities have advanced exploration geophysics significantly. They have also served as critical bridges between hydrogeophysics, hydrological engineering, and exploration geophysics. Kamini has made contributions to the exploration geophysics society through her decades of field geophysical surveys and theoretical work on fluid and solute transport in heterogeneous porous media. In light of her vast body of work, I am very pleased to write a citation for Kamini’s recognition by SEG via the Reginald Fessenden Award. With her charm, knowledge, and expertise, Kamini serves as a role model for early-career as well as seasoned and crusty geophysicists.
A fund has been established by Virgil Kauffman, former president of Aero Service Corporation, to encourage improvement in the science of geophysical exploration. The Kauffman Gold Medal is awarded to a person who, in the unanimous opinion of the Honors and Awards Committee and the Board of Directors, has made an outstanding contribution to the advancement of the science of geophysical exploration as manifested during the previous five years. The contribution may be of a technical or a professional nature.
Recipients of the Virgil Kauffman Gold Medal

2022  Xianhuai Zhu
2021  Joe Dellinger
2020  Carlos Torres-Verdín
2019  Mauricio D. Sacchi
2018  Mrinal Kanti Sen
2017  Manika Prasad
2016  R. Gerhard Pratt
Laurent Sirgue
2015  H. Justus Rozemond
2014  Peter M. Duncan
2013  Serge A. Shapiro
2012  Yu Zhang
2010  Gerard Thomas Schuster
Kees Wapenaar
2008  John T. Ergen
Carl J. Regone
2007  Terje Eidesmo
Svein Ellingsrud
Leonard James Srnka
2006  Dirk Jacob (Eric)
Verschuur
2005  Robert J. Greaves
Terry Fulp
2004  N. Ross Hill
2003  Gregory A. Partyka
2002  Michael Batzle
Zhijing (Zee) Wang
2001  Patrick Connolly
1998  Michael S. Bahorich
1997  George A. McMechan
1996  Ilya Tsvankin
1995  Fred J. Barr Jr.
Joe I. Sanders
1994  Davis W. Ratcliff
Oz Yilmaz
1990  Richard A. (Rusty) Alford
1989  Ira David Hale
1988  Stuart Crampin
1986  John W. C. Sherwood
1985  William J. Ostrander
1984  Fred J. Hilterman
1983  Sidney Kaufman
Jack E. Oliver
1982  J. T. Cherry
Kenneth H. Waters
1981  S. Norman Domenico
1980  A. R. Barringer
1979  Carl H. Savit
1978  William J. Zwart
1977  M. B. Widess
1976  Peter R. Vail
1975  Stephen Chelminski
1974  David W. Strangway
1973  Samuel J. Allen
1972  Nigel A. Anstey
1971  Joseph Zemanek
1970  Roy O. Lindseth
1969  Robert E. Sheriff
1968  Howard A. Slack
1967  Lucien J. B. LaCoste
1966  Cecil H. Green
Xianhuai Zhu

Xianhuai Zhu has significantly advanced the concepts, developments, and application of solutions to seismic imaging below complex near-surface environments. He previously received the SEG Life Membership (2018) and Reginald Fessenden (2012) awards. He is awarded the Virgil Kauffman Gold Medal for his pioneering research and applications of joint tomography using both turning-ray and reflections, which provide a viable tool for the industry to construct near-surface velocity models that are essential for accurate onshore depth imaging in complex geologic settings. Zhu founded Forland Geophysical, which has developed and applied a technique for integrated tomography for velocity model building under complex near-surface conditions such as foothills areas and gas-obscured zones. This work has been applied to multiple projects with great success on several continents and in challenging geologic environments, including onshore basins in China, the United States overthrust, the Andes of South America, Southeast Asia, and the Middle East. SEG is proud to award the Virgil Kauffman Gold Medal to Zhu for his significant advancement in applied geophysics.

by Allen Bertagne, Samuel Gray, and Alfred Liaw

Xianhuai Zhu is being honored with SEG’s Virgil Kauffman Gold Medal Award for his decades-long technical accomplishments in processing and imaging of seismic data from challenging land environments. These advances have resulted in recent seismic images from foothills and other areas that are far superior to the best images that were possible even a decade ago. In 2012, he received the SEG Reginald Fessenden Award for fundamental contributions to near-surface seismic imaging, in particular his development of turning-ray tomography. He has also volunteered much of his time over the past decades to serving SEG. For those activities he was recognized in 2018 with SEG’s Life Membership Award.

Xianhuai’s work on land seismic data began in the 1990s and over time evolved into a systematic approach that combines advanced processing techniques with realities of land data acquisition. The challenges faced in terrestrial settings include sparse surface sampling, rugged topography, and poor sensor coupling caused by ground conditions. To this day, these factors limit our ability to estimate velocity and image land seismic data successfully. Another of Xianhuai’s contributions has been to describe some of the associated imaging and velocity uncertainties.

In a 1992 paper in The Leading Edge, Xianhuai and coauthors introduced the concept of tomostatics (turning-ray tomography plus static corrections). A follow-up in GEOPHYSICS in 1998 showed striking early examples of applying the method to synthetic and field data, and as a result the method was quickly adopted by the industry. By 2001, he shared his vision for the “road ahead” for land imaging in an SEG presentation, consisting of a combination of near-surface velocity estimation (refraction tomography) and deeper velocity estimation (reflection tomography) in a joint inversion. Sparse surface sampling of land seismic data delayed a full realization of this vision until more recent developments such as 5D seismic interpolation. In many cases, 5D interpolation (or simply acquiring denser data) has allowed a downward shifting of the refraction tomography maximum depth and an upward shift of the reflection tomography minimum depth, resulting in an overlap region with sufficient statistics to permit a joint inversion. This joint tomography approach has been used to create improved velocity models in areas with rugose topography and complicated near surface in such diverse regions as Tarim Basin, China; shallow low-velocity gas clouds in southeast Asia; high-velocity basaltic outcrops in the Middle East; and areas of low-velocity sand dunes. A good summary of Xianhuai’s approach appears in his coauthored 2018 paper in Interpretation. Continued refinements in both technology (e.g., machine-learning-based first-break picking) and workflow have resulted in a comprehensive approach to imaging seismic data in foothills areas, as described in his 2020 coauthored Interpretation paper.

Three decades ago, Xianhuai chose to tackle a particularly challenging problem — imaging land data. Land-data processors are well aware of unique problems that originate in the near surface: significant elastic-wave scattered noise, low P- and S-wave velocities, extreme anisotropic effects, and more. These problems are often exacerbated by sparse data sampling, which usually results in aliased elastic-wave noise and poor statistics for velocity estimation. Limitations of seismic acquisition, including weak coupling, nonrepeatable source signatures, and sparse surface sampling, have prevented the complete solutions of all these problems. This situation persists even now. As a result, seismic images on land have not been able to match the levels possible in the case of deepwater P-wave imaging. The techniques pioneered by Xianhuai may not initially appear as “glamorous” as, say, full-waveform inversion and least-squares reverse time migration, which are now routine for marine processing, but given the realities of land seismic data, they are equally significant and representative of the most-advanced currently available technology. There can be no doubt that the images resulting from application of these pioneering approaches are a distinct improvement over depth-migrated images from a decade ago and a spectacular improvement over the state of the art (refraction statics, residual statics, time-velocity analysis, time migration) from two decades ago!

In summary, Xianhuai’s dedication to land seismic acquisition, processing, and velocity estimation, in areas with a complex near-surface geology, has greatly advanced seismic imaging technology in challenging areas widely encountered on all continents. Modern land imaging owes much to his efforts, and the sum of those technical efforts make him clearly worthy of one of the SEG’s very highest honors, the Virgil Kauffman Gold Medal.
HONORARY MEMBERSHIP

Honorary Membership is conferred upon persons who, in the unanimous opinion of the Honors and Awards Committee and the Board of Directors, have made a distinguished contribution, which warrants exceptional recognition, to exploration geophysics or a related field or the advancement of the profession of exploration geophysics through service to the Society.

2022 Aria Abubakar
2021 Arthur C. H. Cheng
2020 James W. Rector
2018 Fred Aminzadeh
2017 Yaoguo Li
2016 Joe Dellingwerf
2015 Doug C. Fraser
2014 Craig J. Beasley
2013 Michael S. Zhidanov
2012 Kurt J. Marfurt
2011 Peter M. Duncan
2010 Michael S. Bahorich
2009 Samir Abdelmoaty
2008 William N. (Bill) Barkhouse
2007 A. Peter Annan
1999 Kurt J. Marfurt
1998 Peter M. Duncan
1997 Roel Snieder
1996 Sayed H. Harlbor
1995 Don Steeples
1994 William N. (Bill) Barkhouse
1993 Samuel Teillet
1992 L. M. Tong
1991 Michael Schoenberger
1990 Craig Ferris
1989 Robert J. Drummond
1988 Robert T. Davis
1987 Michael Schoenberger
1986 A. Peter Annan
1985 E. A. Eckhardt
1984 Edward T. King
1983 Roy E. White
1982 William M. R. Bishop
1981 Daniel Fouquet
1980 Michael C. J. O'Connell
1979 J. G. Hagedoorn
1978 H. Frank Morrison
1977 M. Nafi Toksöz
1976 A. Peter Annan
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Aria Abubakar was the SEG North America Honorary Lecturer in 2014 and served as the AAPG-SEG Distinguished Lecturer in 2020. He has written five book chapters, published more than 100 journal articles, 250 conference papers, given more than 300 presentations, and authored 40 patents and patent applications. Much of his work has been in integrated geophysical inversion and, more recently, machine learning. He has been associate editor for GEOPHYSICS and Interpretation and is currently serving as the 2022 IMAGE Technical Program chair, a member of the SEG Advanced Modeling Corporation (SEAM) Board of Directors, and chair of the Research Committee.

During the past 20 years, Aria Abubakar’s crucial and groundbreaking contribution to the advancement of the science of geophysical exploration and his tireless service to the scientific community have benefited both the oil and gas industry and SEG. It is my great pleasure to write the Honorary Membership award citation for Aria.

Standing at the forefront of technology innovation, Aria’s insightful research spans many important areas of applied geophysics. After receiving his PhD from Delft University of Technology, he rapidly achieved a recognized lead status and established himself as a pioneer in the areas of 2.5D modeling and inversion algorithms for crosswell electromagnetics (EM), controlled source electromagnetics, and magnetotellurics. He and his team received a 2010 Hart Meritorious Award for Engineering Excellence for Schlumberger’s DeepLook EM technology. The award recognized his distinguished creative achievements in his EM research and his invaluable initiative and lasting contributions to the progress of this technology, now a main processing workhorse for subsurface information retrieval.

Aria then dedicated effort to pushing forward the potential of seismic full-waveform inversion (FWI). Thanks to his strong interdisciplinary technical background, he invented various unconventional techniques to improve the accuracy and efficiency of FWI, such as automated regularization and contrast source inversion algorithm. Both inventions are not only regarded as real breakthroughs in geophysical inverse problems, but also widely cited and hailed in the world of medical imaging. After that, Aria and his team brought these technologies to the next level by integrating seismic, EM, gravity, and dynamic information such as production data and demonstrated its great potential in 4D reservoir monitoring applications. Because of the immense and influential impacts of these works, he served as the 2014 SEG North America Honorary Lecturer, giving the lecture titled “Joint inversion of multiphysics data for petrophysical and engineering properties.”

Since late 2017, Aria has been pushing the utilization of machine learning and artificial intelligence for geologic and geophysical problems. He and his collaborators have shown successful applications of these technologies, such as seismic fault and salt body detection; seismic stratigraphy interpretation; log QC, correlation, and interpretation; static model building (via seismic inversion and/or property inversion); etc. Due to his drive on the topic, he has been chairing the data analytics subcommittee in the SEG Research Committee. He was selected as a 2020 SEG-AAPG Distinguish Lecturer, offering a lecture titled “Potential and challenges of applying artificial intelligence and machine learning methods for geoscience.”

Aria plays a critical role in many SEG activities and continuously contributes to the Society in various aspects and fields. He has been serving as an associate editor for GEOPHYSICS in the areas of electrical and electromagnetics and seismic inversion since 2011. In 2019, he proposed and successfully organized a special section in GEOPHYSICS on machine learning and data analytics for geoscience applications. Aria is the current chair of the SEG Research Committee. In addition, he has been on the SEAM Board of Directors since 2018 and is the board liaison for SEAM Artificial Intelligence project. This year, he has been working as the Technical Program chair for the IMAGE 2022 conference in Houston and the 2022 Energy in Data conference (a joint event between SEG, AAPG, and SPE) in Austin.

Today, Aria’s tremendous scientific achievements and his relentless dedication to SEG are recognized with Honorary Membership. His pioneering accomplishments, dedication to innovative research, and exemplary leadership will continue to have huge impact on geophysical exploration, digital transformation, and other scientific and technology domains.
It is an honor and a pleasure to write this award citation for Professor Sergey Fomel for the SEG Honorary Membership Award. Sergey earned his PhD at Stanford University and was mentored by Jon Claerbout, working with the Stanford Exploration Project. Before this, he attended Novosibirsk State University where he graduated with honors, after which he worked at the Institute of Geophysics at Novosibirsk in Russia. After graduating from Stanford, he was a postdoctoral fellow at the Lawrence Berkeley National Laboratory. He is now the Wallace E. Pratt Professor of Geophysics at the University of Texas at Austin and is the director of the Texas Consortium for Computational Seismology (TCCS). At UT Austin, he is affiliated with the Bureau of Economic Geology, the Department of Geological Sciences, and the Oden Institute for Computational Engineering and Sciences.

Sergey served as the SEG vice president for publications from 2017 to 2019. He has been an associate editor for Geophysics and IEEE Transactions on Geoscience and Remote Sensing. He presently has hundreds of published journal articles and SEG Annual Meeting expanded abstracts. His most cited articles are on plane-wave destruction, shaping regularization, local seismic attributes, and the seislet transform. Additionally, Sergey collaborated with Jon Claerbout on Jon's book Geophysical Image Estimation by Example.

In 2001, Sergey was awarded the SEG Clarence Karcher Award and, in 2011, the European Association of Geoscientists and Engineers (EAGE) Conrad Schlumberger Award. In 2020, he presented the SEG Distinguished Lecture “Automating seismic data analysis and interpretation.” He won the Best Paper in Interpretation Award in 2017 (with coauthor Rui Zhang), the Best Poster Paper Presented at the Annual Meeting Award in 2006 and 2010 (with coauthors Lexing Ying and Xiaolei Song), and the Honorable Mention Award (Geophysics) in 2003 with coauthor Paul Sava for their paper “Angle-domain common-image gathers by wavefield continuation methods.” He won the Lorand Eötvös Award from EAGE with Evgeny Landa and Tijmen-Jan Moser in 2007 for their Geophysical Prospecting paper “Path-integral seismic imaging.”

Sergey is a champion of reproduceable research. As one aspect of this, he started the development of the Madagascar open-source software project for geophysical data analysis that attracted many developers from around the world and now has more than 1,000 data analysis programs and 300 reproducible papers. He also developed and maintains SEGTex, which is used by about half of the authors of Geophysics papers and expanded abstracts.

Sergey is one of the most brilliant and hardworking geophysicists I have known. We shared an office at Stanford, and I was always impressed with his productivity and the range of his work. At Stanford, he tried to read one new technical book every month, while most of us students worked hard just to keep up with our studies. Originally, Sergey was a little shy about speaking. After a couple of years at Stanford, he was much more comfortable with English. Still, when he started teaching at Berkeley, he asked an actor friend of his to teach him a stage voice. At the end of the semester, his student's only complaint was that he spoke too loudly.

Sergey has made substantial contributions to geophysics. He has mentored many students at the University of Texas, where he established his consortium, TCCS. He has supervised 27 students and is a popular mentor for his students. TCCS has produced works including elastic full-waveform inversion, velocity analysis, seismic imaging, anisotropy, least-squares migration, diffraction imaging, seismic data processing, and simultaneous sourcing. A recent focus of the TCCS's work is the geophysical applications of machine learning, of which there have been several important advances developed by Sergey's group.

In short, Sergey's contributions to SEG and to geophysics make this recognition well deserved.
To honor the memory of Maurice Ewing and his enormous contributions to geophysics, this award was established for presentation for the first time in 1978 as the highest honor given by SEG. The Maurice Ewing Medal shall be awarded from time to time to a person who, by a unanimous vote of both the Honors and Awards Committee and of the Board of Directors, is deserving of special recognition through having made major contributions to the advancement of the science and profession of exploration geophysics. The award of the Maurice Ewing Medal shall confer Honorary Membership on its recipients.
Recipients of the Maurice Ewing Medal

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Öz Yilmaz has been an important and sustained contributor to our profession throughout his career. He previously received the SEG Virgil Kauffman Gold Medal (1991) and Honorary Membership (2011). He is awarded the Maurice Ewing Medal for his deep, broad, and sustained contribution to the science and profession of geophysics. Yilmaz has advanced the profession through his work in areas such as seismic data acquisition (including large-offset recording), seismic data analysis, image-based near-surface modeling, seismic imaging, velocity estimation, and multiple attenuation. He has developed seismic data analysis workflows for near-surface modeling and time-with-depth domain subsurface modeling and imaging for difficult land data in areas with irregular topography, complex near surface, and complex subsurface. Yilmaz is also a great contributor to the advancement of the profession of applied geophysics through his writing. His first two books, Seismic Data Processing and Seismic Data Analysis, are professional standards that have affected whole generations of exploration geophysicists throughout the world. Yilmaz has devoted the last 20 years to land seismic data acquisition and processing, and near-surface seismology. As a result of conducting research projects and numerous case studies in these fields, he published his third SEG book entitled “Engineering Seismology” and his fourth SEG book entitled “Land Seismic Case Studies.”

BY FRED HILTERMAN

I have visited countless geophysicists worldwide, and being a curious “elder” in our industry, my eyes tend to roam their offices where they invariably settle on the same object in every office: the two-volume text (2001), Seismic Data Analysis by Öz Yilmaz. In this two-volume classic, Öz has carefully cataloged his worldwide practical experience in seismic data acquisition, processing, inversion, and interpretation and combined it with precise and easy-to-follow theoretical discussions. It is easy to search for a specific topic and quickly understand the theory and application without having to spend time on obscure notation, a tremendous asset that is appreciated by both research and exploration geoscientists. It is no wonder that Öz’s books are the best-sellers in exploration seismology. Based on Seismic Data Processing (1987), Öz developed a very popular video short course. Well, maybe not so short, as the course contained 15 cassettes.

For close to 50 years, Öz has been working in the seismic industry covering all research aspects from seismic acquisition, processing, and interpretation to exploration management. At the turn of the century, Öz expanded his interests beyond exploration seismology to include engineering and earthquake seismology. In 2001, he formed Anatolian Geophysical (Istanbul), which concentrates on engineering seismology projects. With his background in petrophysics, seismic reflection, refraction and surface waves, Öz integrates seismic and borehole data to characterize the soil column for projects relating to earthquake engineering or construction. In 2002, he assumed the role of chief technology officer at GeoTomo where he developed a workflow-based processing system, GeoThrust. Within the next two decades, Öz perfected the seismic workflow of image-based effective-medium modeling of the near surface (the i-stats) to earn a patent in 2015. Applying this technology on numerous field projects led Öz to a new method (the i-cube) to reduce velocity uncertainty in rough terrains. This new concept earned a patent in 2021.

The processing of marine data normally follows a well-defined codified workflow, requiring explicit knowledge from the processor. The processing of rough terrain seismic data, however, demands implicit knowledge, which includes personal wisdom, experience, insight, and intuition. The patented workflow of i-stats and i-cube are the results of Öz’s dedication of over 15 years to image data from previously classified “no record” areas. Thanks to Öz’s dedication, these 15 years were shared with us in his third massive book, Engineering Seismology, which was captured in his SEG 2015 Distinguished Instructor Short Course. His fourth book, Land seismic case studies: Near-surface modeling and subsurface imaging was published by SEG in 2021.

Öz not only shared his technology with us, he actively worked with SEG and the European Association of Geoscientists and Engineers (EAGE) as a member of executive committees, as a distinguished lecturer and instructor, as an associate editor, and as an organizer of international conferences. Oh yes, also as an adjunct professor.

As an enthusiastic history buff, Öz has expanded his engineering activities to include ground-penetrating radar (GPR) surveys for archaeological investigation of ancient buildings. One can visualize Öz “pontificating” his GPR findings with tidbits of ancient history to dramatize the discovery. Often, I am embarrassed when Öz mentions a historical fact about different societies. His knowledge of major governances from today back to Polybius (3rd century BC) is so thorough that when Turkey campaigned for a new constitution, Öz presented a draft document to Turkey’s President of the Parliament. I read his draft and was overwhelmed by his understanding of a coherent governance.

Öz’s past accomplishments have been recognized worldwide with SEG’s Virgil Kauffman Gold Medal and Honorary Membership; Geophysical Society of Houston Honorary Membership; EAGE’s Conrad Schlumberger Award; University of Missouri’s Honorary Professional Degree; Elected Member of the European Academy of Sciences; and Elected Member of the National Academy of Engineering.

SEG recognizes a Renaissance man, Öz Yilmaz, with its highest award, the Maurice Ewing Medal.
ACHIEVEMENT AWARDS

Presentation of these awards takes place during the Editor’s Reception

BEST STUDENT PAPER PRESENTED AT IMAGE 2021

“Machine learning inversion of geophysical data by a conditional variational autoencoder”
W. Anderson McAliley, Colorado School of Mines

AWARD OF MERIT

“Estimation of DAS microseismic source mechanisms using unsupervised deep learning”
Matthew Eaid, University of Calgary

BEST STUDENT POSTER PAPER PRESENTED AT IMAGE 2021

“Unsupervised boundary analysis of potential field data: A machine learning method”
Carmine Cutaneo, University of Naples Federico II

AWARD OF MERIT

“Using converted waves to image the lithosphere and asthenosphere beneath Alaska”
Isabella Gama, Brown University

BEST PAPER PRESENTED AT IMAGE 2021

“Impact of joint PP/PS inversion on shear-impedance estimation for exploration and production”
Ali Tura, James Simmons, Matt Copley, Sima Daneshvar, Andrea Damasceno, Joseph Stitt

HONORABLE MENTION

“Identifying salt flanks using low-frequency ambient OBN surface-wave seismology”
Aaron J. Girard, Jeffrey Shragge, Bjorn Olofsson
Best Poster Paper Presented at IMAGE 2021
“A 108 km2 compressive sensing processing trial”
Dustin Blymyer, Klaas Koster, Graeme Warren

Honorable Mention
“Towards practical Bayesian inversion of geobodies using geologic priors”
Ashutosh Tewari, Brent Wheelock, Antonio Paiva, Arash Fathi, Myun-Seok Cheon

Best Paper in The Leading Edge in 2021
“Characterization of a carbonate geothermal reservoir using rock-physics-guided deep neural networks”
Fabien Allo, Jean-Philippe Coulon, Jean-Luc FORMENTO, Romain Reboul, Laure CAPAR, Mathieu Darnet, Benoit Issautier, Stéphane Marc, Alexandre Stopin

Honorable Mention
“Mineral prospectivity mapping using a VNet convolutional neural network”
Michael McMillan, Eldad Haber, Bas Peters, Jennifer Fohring

Honorable Mention
“CO2 messes with rock physics”
Manika Prasad, Stanislav Glubokovskikh, Thomas Daley, Similoluwa Oduwole, William Harbert

Honorable Mention
“Computing elastic properties of organic-rich source rocks using digital images”
Mita Sengupta, Shannon L. Eichmann

Honorable Mention
“Python Earth Engine API as a new open-source ecosphere for characterizing offshore hydrocarbon seeps and spills”
Whitney Trainor-Guitton, Leo Turon, Dominique Dubucq
Best Paper in Interpretation in 2021
“Timing of hydrocarbon entrapment in the eastern foothills of the Eastern Cordillera of Colombia”
Nelson Sánchez, Jael Pacheco, Mario A. Guzmán-Vega, Andrés Mora, Brian Horton

Best Paper in Geophysics in 2021
“Reflection angle/azimuth-dependent least-squares reverse time migration”
Eric Duveneck, Michael Kiehn, Anu Chandran, Thomas Kühl

Honorable Mention
“Mechanical properties of grain contacts in unconsolidated sands”
Colin M. Sayers

Honorable Mention
“Scattering-based focusing for imaging in highly complex media from band-limited, multicomponent data”
David Vargas, Ivan Vasconcelos, Yanadet Sripanich, Matteo Ravasi

Honorable Mention
“Near-field strain in distributed acoustic sensing-based microseismic observation”
Bin Luo, Ge Jin, Frantisek Stanek

Honorable Mention
“Near-surface full-waveform inversion in a transmission surface-consistent scheme”
Daniele Colombo, Ernesto Sandoval-Curiel, Diego Rovetta, Apostolos Kontakis
Nominations for 2023 Awards

One of SEG’s great traditions is the special recognition of individuals and organizations for their contributions to geophysics and to the Society. The Honors and Awards Committee annually solicits nominations for deserving recipients to be honored.

In order to guarantee that all deserving individuals and organizations receive consideration for appropriate recognition, all nominations must be received by 1 January to allow the Honors and Awards Committee enough time for appropriate investigation, deliberation, and recommendations to the SEG Board of Directors.

Nominations should be sent to:

SEG Honors and Awards Committee
Email: honorsandawards@seg.org

Please include a brief outline describing the specific achievement or contribution that merits formal recognition by the SEG. Supporting information and letters of recommendation are very useful to the committee. Additional guidelines can be found on the SEG website.

Thank you in advance for your nominations!

Nancy House
Chair, 2022–2023 Honors and Awards Committee