



**Dr. Chris G. Bartone, P.E.** is an Associate Professor at Ohio University with over 24 years of profession experience in communications, navigation, and surveillance systems. He received his Ph.D.EE from Ohio University in 1998, a MSEE from the Naval Postgraduate School in 1987, and BSEE from Penn State in 1983. He previously worked for the Naval Air Warfare Center, performing RDT&E on CNS systems. Chris received the RTCA William E. Jackson Award in 1998 for his outstanding contribution to aviation in the area of DGPS. At Ohio University, Dr. Bartone has developed and teaches a number of GPS, radar, and wave propagation classes, including:

- EE605 Advanced Satellite Navigation
- EE613 High Accuracy Satellite Navigations
- EE601 Electromagnetic Wave Propagation for Electronic Navigation Systems
- EE541 Antennas
- EE602 Radar Systems.

His research concentrates on all aspects of navigation. . He is a member of the ION, the IEEE, the AIAA, SAE, and Association Old Crows. He is very active with the ION; chaired several programs; Chair, ION Outreach Committee; and Editor, ION Virtual Navigation Museum. Chris is a licensed profession engineer in the state of Ohio.



**Thomas A. Stansell** is a pioneer of satellite navigation with over 47 years of experience, beginning in 1960 at the Johns Hopkins University Applied Physics Laboratory where he helped develop the Transit Navigation Satellite System, particularly the world's first surface ship satellite navigation receiver and the world's first portable Doppler geodetic survey instrument. At Magnavox, as a staff VP, he led developments including firsts in: microprocessor-based satellite navigation and survey receivers, multi-channel GPS/GLONASS receivers, codeless tracking of L2, and "all-digital" GPS receivers As a VP of Leica Geosystems, he continued GPS technology development, including patents for GPS multipath mitigation. He has played a key role and contributed crucial ideas to the design of all modernized GPS signals: L5, L2C, M-code, and L1C, including a lead role for L2C and L1C, receiving the GPS JPO 2002 GPS Navstar Award. Tom is an ION Fellow and has received the ION Kepler and IEEE PLANS Kershner Awards. Today, Tom is an influential GPS consultant advising the GPS Wing on modernization issues and participating in international compatibility and interoperability working groups.



**Dr. Hans-Jürgen Euler** has over 22 years of experience with GPS and its applications including precise surveying in post-processing and real-time. In the late 80's, while still a Ph.D student at Technical University of Darmstadt, Germany, he pioneered the fast integer ambiguity resolution technique by reducing the required algorithm initialization times from hours to minutes. These fundamental methods are still the key factor for fast and robust phase integer ambiguity resolution.. In 1990 he worked at The Ohio State University on inertial with kinematic GPS followed by developments for real-time applications at Terrasat, Germany. During 14 years at Leica Geosystems he developed the GPS algorithms for real-time and post-processing software. In 2002 he became a Leica GNSS Research Fellow. For more than 10 years he worked in the RTCM Subcommittee 104 on interoperable standards, where he serves as Chair of the RTCM SC104 working groups for network RTK and Galileo. Today Hans-Jürgen works for his own company inPosition gmbh in Switzerland. He consults and concentrates on development for positioning applications with a particular focus on GNSS including Network RTK.



**Dr Tony Pratt** has over 40 year of experience. He graduated with a B.Sc. and Ph.D. in Electrical Engineering from Birmingham University, UK in 1967. He has held teaching positions at Loughborough University, UK, Yale University; IIT, New Delhi, University of Copenhagen, and University of Nottingham; teaching in the areas of signal processing, electronics, probability theory, and satellite navigation system design. He has worked for or consulted to industry for Navstar Ltd, Peek, Parthus, QinetiQ Ltd, UK, Cambridge Positioning Systems, now part of the CSR plc group. Dr. Pratt is a Consultant to the UK Government in the development of the Galileo Satellite System and has played key roles in the signal design and international negotiations. He runs two companies, OrbStar Consultants and OrbStar Ltd providing various services to the GNSS sector. Dr Pratt has published numerous papers on signal processing, sonar, and satellite navigation. He holds over 17 patents.



**Dr. Christophe Macabiau** graduated as an electronics engineer in 1992 from the ENAC (Ecole Nationale de l'Aviation Civile) in Toulouse, France. Since 1994, he has been working on the application of satellite navigation techniques to civil aviation. He received his Ph.D. in 1997 and has been in charge of the signal processing lab of the ENAC since 2000. His research now also applies to vehicular, pedestrian and space applications, and includes advanced GNSS signal processing techniques for acquisition, tracking, interference and multipath mitigation, GNSS integrity, as well as integrated GNSS-inertial systems and indoor GNSS techniques.



**Dr. Olivier Julien** is an assistant professor with the Signal Processing and Telecommunications laboratory of ENAC, Toulouse, France. He received his PhD from the Department of Geomatics Engineering at the University of Calgary, Canada. He is involved in many R&D projects including GNSS receiver design, multipath and interference mitigation techniques, and GNSS interoperability. He is the recipient of the 2006 Bradford W. Parkinson award.



**Dr. Kevin Dutton** received his BS in Aeronautical Engineering from Rensselaer Polytechnic Institute in 1988 and his MS degree in Astronautics from the George Washington University in 1993. In 1989 he began work at NASA Langley Research Center on advanced spacecraft trajectory optimization. In 1993 he worked in the area of GPS to obtain his PhD in EE from Ohio University in 2003, studying various aspects of the GPS and Inertial Navigation Systems, including attitude determination, relative navigation, and tightly coupled GPS/INS Kalman filter design. In 2004, Dr. Dutton accepted a position with Honeywell in Clearwater, Florida as the lead designer of the Sea-Based JPALS GPS/INS relative navigation Kalman filter.



**Dr. Andrey Soloviev** is a Senior Research Engineer at the Ohio University Avionics Engineering Center. He has received B.S. and M.S. in Applied Mathematics and Physics from Moscow University of Physics and Technology and a Ph.D. in Electrical Engineering from Ohio University. His current research focuses on multi-sensor integration including deep GPS/inertial integration for consistent carrier phase tracking of very weak GPS signals and LAsER RaDAR (LADAR)/inertial integration for GNSS denied applications. Andrey received the RTCA William E. Jackson Award in 2002 for the development of frequency-domain INS algorithms and the ION Early Achievement Award in 2006 for outstanding contributions to deeply integrated Inertial/GNSS and advanced GNSS signal processing.



**Stephen F. Becka** is an Engineering Fellow for Honeywell International Inc. Steve has over 25 years experience in design, manufacture and evaluation of inertial sensors used in the fields of tactical and aircraft navigation, gravimetry, energy exploration, and automotive stability control. Since 1995, he has led design teams developing MEMS force-balance accelerometers, MEMS vibrating beam accelerometers and MEMS coriolis rate sensors. Steve has a BSME from Rensselaer Polytechnic Institute. As a member of the IEEE Gyro and Accelerometer Panel, he has been a significant contributor to numerous inertial component standards and has authored several papers on MEMS inertial sensors.

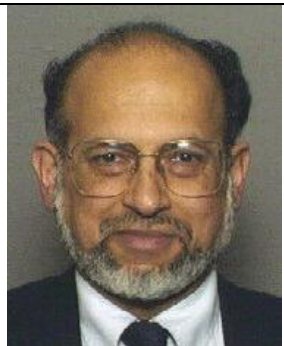


**Mohinder S. Grewal, Ph.D., P.E.**, is a Professor of Electrical Engineering at California State University, Fullerton (CSUF) and has over 35 years experience in systems identification, guidance, navigation, and control. He was an architect of the GEO Uplink Subsystem (GUS) for WAAS, including the GUS clock steering algorithm. He co-authored "Kalman Filtering Theory & Practice Using MATLAB," *Second Edition*, Wiley & Sons, 2001. Dr. Grewal also co-authored "Global Positioning Systems, Inertial Navigation, & Integration," *Second Edition*, Wiley & Sons, 2007. Grewal has published over 50 papers in IEEE and ION refereed journals and proceedings, including the ION "Redbook," (Volume VI), and over 250 technical reports. He has been invited to author and co-author several papers on Kalman filtering and its applications for IEEE Control Systems Magazine's planned special issues on Kalman filtering, (2009 and 2010) to coincide

with the 50th anniversary of the development of the Kalman filter. He is a registered engineer in the State of California. The CSUF Minority Engineering Student Association (MESA) awarded him the "Distinguished Professor of the Year" in 2001. Dr. Grewal is a Senior Member of IEEE, Fellow of the Institute for the Advancement of Engineering, and member of the Institute of Navigation.



**Dr. Ben Peterson** co-chaired the FAA's Loran Integrity and Accuracy Performance Panels (LORIPP and LORAPP) and as such is one of the principal architects of Enhanced Loran (eLoran) in the US. He developed the Loran Data Channel for transmitting time of day and differential Loran corrections. Prior to his retirement from the US Coast Guard (USCG) in 2000, he was a Captain and Engineering Department Head at the USCG Academy. He is an USCG Academy graduate and earned a Ph.D. in Electrical Engineering from Yale University. He is a former president of the US ION, an ION Fellow, and an associate editor of ION Navigation Journal.



**Dr. Rama Rao** is a Principal Engineer at the MITRE Corporation where he works in areas related to antenna technology for GNSS, EHF military satellite communications systems and terrestrial communications. He received his Ph. D degree from Harvard University where he also served as an Assistant Professor of Applied Physics. Prior to joining MITRE he held technical staff positions at M. I. T. Lincoln Laboratory and at the Sperry Research Center and was also a Research Associate at M.I.T. and an Adjunct Professor at Northeastern University in Boston. Dr. Rao holds nine U.S. patents and also has a tenth patent that is pending. His last two patents are related to GPS antennas.



**Prof. Richard B. Langley** has been teaching and conducting research at the University of New Brunswick since 1981. He has a B.Sc. in applied physics from the University of Waterloo and a Ph.D. in experimental space science from York University, Toronto. He is a co-author of the best-selling “Guide to GPS Positioning” published by Canadian GPS Associates and has been a columnist and contributing editor of *GPS World* magazine since its inception. His research team is currently working on a number of GNSS-related projects including the study of atmospheric effects on GNSS, space-based augmentation systems, other error mitigation techniques, and the development of applications for space-borne GNSS. Prof. Langley is an ION fellow and a co-recipient of the ION Burka Award.



**Dr Peter Dare** joined the Department of Geodesy and Geomatics Engineering at the University of New Brunswick (UNB) in August 2000 and is the current chair of the department. Before joining UNB he worked in the School of Surveying, University of East London, England. He gained a BSc in Land Surveying Sciences from North East London Polytechnic in 1980, a MASc in Civil Engineering from the University of Toronto in 1983 and a PhD from the School of Surveying, University of East London in 1995. He has significant expertise in Geodesy, GPS, Operational Research, and Geomatics. Peter is a member of the ION, Canadian Institute of Geomatics, American Geophysical Union, Canadian Geophysical Union, and is a Fellow of the Royal Institution of Chartered Surveyors. Peter is active on committees of the Royal Institution of Chartered Surveyors, International Federation of Surveyors, International Earth Rotation Service, and the International Association of Geodesy.



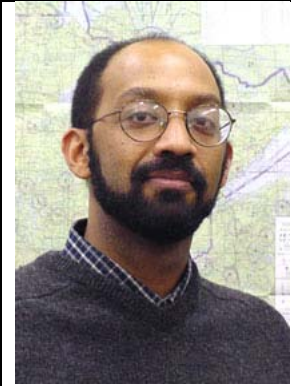
**Dr. David Bevly** received his B.S. from Texas A&M University in 1995, M.S. from Massachusetts Institute of Technology in 1997, and Ph.D. from Stanford University in 2001 in mechanical engineering. He joined the faculty of the Department of Mechanical Engineering at Auburn University in 2001 as an assistant professor. Dr. Bevly's research focuses on vehicle dynamics as well as modeling, control, and navigation of ground vehicle systems. Specifically, Dr. Bevly has developed methods for identifying critical vehicle parameters using GPS and inertial sensors as well as algorithms for control of off-road vehicles including participation in the past DARPA Grand Challenges.



**Dr. Stewart Cobb** earned his S.B, M.S. and Ph.D. degrees in Aeronautics and Astronautics from MIT and Stanford University. His doctoral research showed how pseudolites could augment conventional RTK positioning to reach the navigation performance levels necessary to land airliners on autopilot. He has lead the design, fabrication, and testing of both C/A code and P/Wideband code based pseudolites at Stanford University and IntegriNautics (now Novariant). He is currently Chief Engineer at Novariant Corporation, where he designs GPS receivers, pseudolites, and off-frequency augmentation systems for precise control of air and ground vehicles.



**Andrew Greenberg** is the project manager for the Portland State Aerospace Society, which is an open source and open hardware educational aerospace project. He received his MS in Electrical Engineering, BS in Physics and BS in Electrical Engineering from Portland State University and Reed College. He has been an embedded systems consultant and the lead product development manager for a medical device company for over 10 years. He is one of the founding members of the open source GPS community and coordinates the open source software for the GPL-GPS project, which provides an open source software infrastructure for customizing the software on commercial, off-the-shelf GPS receivers.



**Dr. Gebre-Egziabher** is an assistant professor of Aerospace Engineering and Mechanics at the University of Minnesota, in Minneapolis, Minnesota. His research is in the areas navigation, guidance and control with a particular emphasis on application of estimation theory to avionics sensor fusion and system integration issues. Dr. Gebre-Egziabher received a Bachelor of Science degree in Aerospace Engineering from the University of Arizona, a Master of Science degree in Mechanical Engineering from George Washington University and a Ph.D. in Aeronautics and Astronautics from Stanford University.