



2019 National Engineer's Week Honors & Awards Banquet

February 28, 2019

Presenting Sponsor



Platinum Sponsor



GO BEYOND





Opening Remarks Tim Byrd, Voxpower Voiceovers, LLC Tonight's Emcee

Lake Worth Airforce JROTC Presentation of the Colors Grace Barrett, A.W. Dreyfoos School of the Arts National Anthem

Kelly Smallridge President & CEO, Business Development Board

Presenting Sponsor James Maus Executive Director, Aerojet Rocketdyne

Presentation of Awards

Dinner

Keynote Speaker Dan Dumbacher Executive Director, American Institute of Aeronautics and Astronautics (AIAA)

AIAA Service Awards Randy C. Parsley Chairman, AIAA Palm Beach Section

Presentation of Awards BDB AAE Task Force Co-Chairs

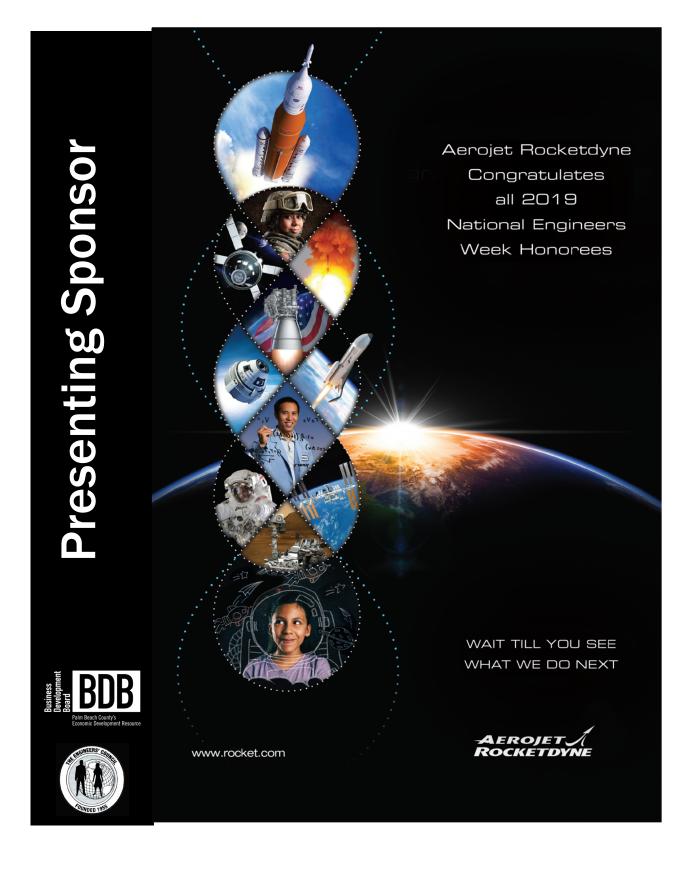
John Fischetti General Manager, Sikorsky Development Flight Center

> Cris Vigil Sr. Vice President, BRPH

Special Award Presentations Paul Gill Engineers' Council Board, Director of Systems Engineering Aerojet Rocketdyne, Los Angeles, CA.

> Adjourn Thank you for joining us tonight!





Keynote Speaker



Dan Dumbacher Executive Director American Institute of Aeronautics and Astronautics (AIAA)

Before joining the AIAA staff in January 2018, Dumbacher was a Professor of Engineering Practice in the School of Aeronautics and

Astronautics at Purdue University, where he taught courses in systems thinking, systems engineering, and space policy. Prior to Purdue, Dumbacher served as the Deputy Associate Administrator, Exploration Systems Development Division, Human Exploration and Operations Mission Directorate NASA at Headquarters. In that capacity, he provided leadership and management as the Program Director for Exploration Systems Development, which included: the Space Launch System, Orion, and Ground Systems Development and Operations development and integration efforts. He led a national team of over 5,000, spanning all NASA centers and industry, and was responsible for a \$3 billion annual budget. During his career, he has received numerous awards and honors including the coveted Silver Snoopy Award and the NASA Distinguished Service Medal. In 2015, Purdue recognized him with the Gustafson Teaching Award. Dumbacher earned his bachelor's degree in mechanical engineering from Purdue University and a master's degree in business administration from the University of Alabama in Huntsville. He has also completed the Senior Managers in Government program at Harvard University. Dumbacher is a native of Indianapolis, Indiana. He and his wife Lee have three grown children.

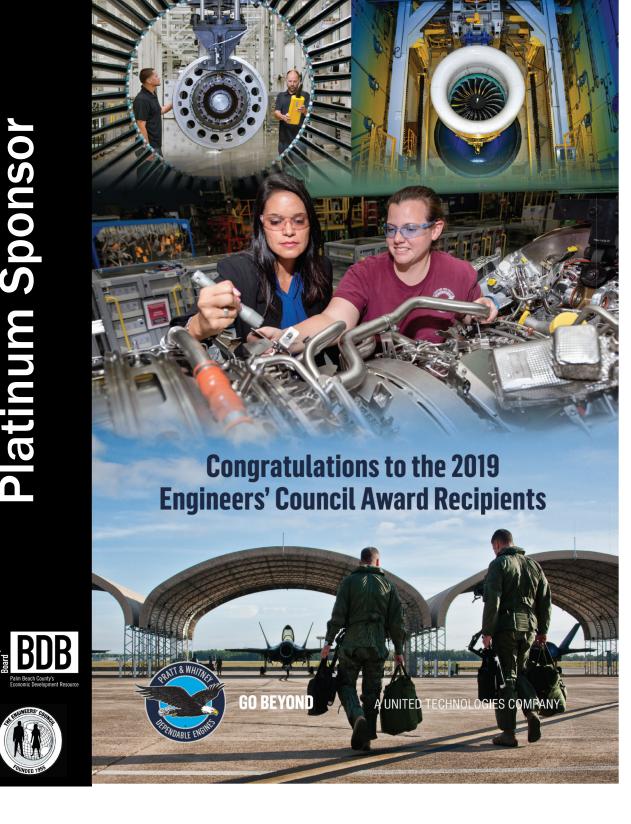






Platinum Sponsol

Business Developm





Coy Jordan Aerojet Rocketdyne

Coy Jordan has responsibilities in Large Nozzle/Flexseal Design has developed a Flexseal Core sizing tool that built upon several different legacy tools. This effort has resulted in a common sizing tool for future Tactical and Strategic Class Nozzles/Flexseals at Aerojet Rocketdyne. It also provides the company with a single tool for future enhancements and improved efficiency going forward.



Peter Keith Aerojet Rocketdyne

Peter Keith is responsible for rocket engine and component test conductance, and execution of major capital projects to meet advance program requirements. He is recognized as a Subject Matter Expert of cryogenic propulsion facility infrastructure health, critical equipment, process systems readiness, complex repairs, and critical upgrade modifications. Proactively evaluates test facility configuration operating processes, maintenance strategies, and safety documentation.

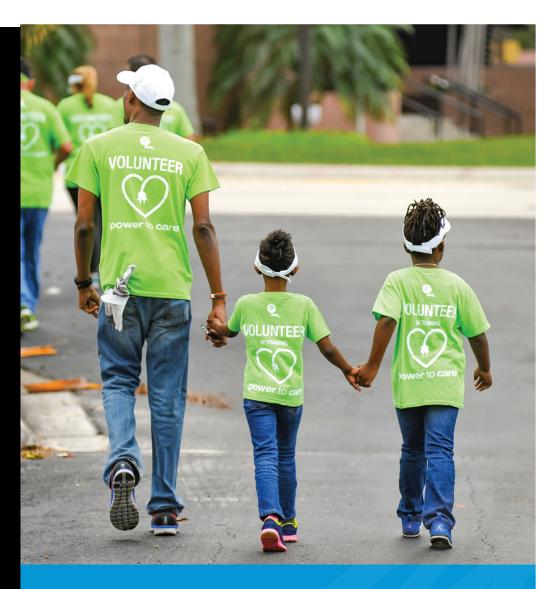




Aaron Murphy Aerojet Rocketdyne

Aaron Murphy has responsibilities in Design of Solid Rocket Motors for Tactical and Air-Breathing propulsion and has utilized an array of Design of Experiments (DOE) to successfully develop manufacturing processes/suppliers for metallic motor cases. The primary advantage to implementation of the DOE method is overall risk reduction relative to the project. Aaron has successfully implemented weld development and flow forming of metallic Solid Rocket Motor cases.

Executive Sponsor



At Florida Power & Light Company we are working together with the communities we serve to make Florida an even better place

to raise a family and do business.







#FPLCares

Outstanding Engineering Achievement wards



Thomas Carlsen Agilis Engineering, Inc.

Tom Carlsen leads multi-disciplined teams of engineers in the successful design of modules and subsystems. Tom has been the Design Lead of crucial static hardware for the development of a next generation military compressor. Tom's contributions on many fronts; delivering practical engineering solutions, prudently challenging philosophies to spur innovation and cost effectiveness, embracing legacy learning for robustness, and efficiently navigating both the customer and more stringent end user specifications. Tom has served many roles including Lead Design Engineer, Structural Analysis Engineer, and Lead Manufacturing Engineer.



Mike Williams Agilis Engineering, Inc.

Mike Williams has been the key technical lead on many industrial gas turbine component design and analysis efforts over the past ten years. His knowledge and expertise in thermo-mechanical fatigue, fracture mechanics, creep, and high cycle fatigue was instrumental in the success of many recent projects. Mike has performed or led design and analysis efforts on a first stage turbine blade, turbine ring segments, and first and second stage turbine vane segments. All of these components were part of a new industrial gas turbine engine development program that had very high customer visibility and aggressive schedule and design targets.





Jania Larsen Agilis Engineering, Inc.

Jania Larsen has developed the detailed design of a military aero test rig. Jania oversaw the overall system design and analysis, coordinated with all the engineering disciplines to establish test rig requirements, participated in integration of the rig system into the test facility, and also guided the individual test section component design teams and the integration between them. Over the past 5 years Jania lead the design of the compressor variable vanes for another large military aero test rig, an innovative engine nozzle system and advanced cooling air system for a core engine test, and a test stand system used to simulate sand ingestion in a range of commercial aero engines. All of these programs were very

successful, and the military compressor rig program was deemed "the best rig we have ever done" by our customer's senior management.

Without the next generation there's no next generation innovation.

When we envision the future, we see a world of never-ending possibility. But that future will never be realized unless we prepare today's students for tomorrow's challenges. That's why its so vitally important for educators, parents, and companies like ours to encourage young people to study science, technology, engineering and math.

Learn more at lockheedmartin.com/community

Lockheed Martin. Your Mission is Ours.











Adam Britt

Agilis Engineering, Inc.

Adam Britt has a solid knowledge base of gas turbine engines, Heat Transfer/Secondary Flow (HTSF) fundamentals and the development/ use of HTSF tools. He has exhibited meritous effort in compressor rig for a high performance aero engines, hot section turbine thermal durability analyses for both industrial and aero gas turbines and in a combustor rig which includes a water quench for combustor exit flow path. Adam worked with an aero CFD engineering to provide HTSF information for a cutting edge conjugate heat transfer (CHT) turbine blade analysis. Adam's outstanding understanding of the internal blade

cooling scheme and the external hot environment allowed him to verify turbine blade CHT metal temperature results.



Gayane Acopian

Gayane Acopian has performed civil engineering lead on major civil engineering projects. She has presented expertise in fluent in stormwater design and modeling of large 100 acre+ parcels, utility infrastructure planning and design, water supply and treatment, hyrdology, irrigation, drainage, and pumping stations. She is an expert in Civil 3D modeling, Modret, ICPR, Storm C calculation and design programs. She has worked on such large projects as the Tellus Bagasse Manufacturing, Boeing 45-334 Facility in Seattle, WA, the Boeing Northwest Master Plan in Renton, WA, the Kong ride and Jimmy Fallon ride at Universal Studios Orlando, various Florida Power

& Light Projects, the Desoto Next Generation Solar Energy Center, the Martin County Next Generation Solar Energy Center, and new schools for the School District of Palm Beach County.





Daniel Quinones

Mr. Quinones as been continuously working at the Lockheed Martin Missiles & Fire Control Facilities for over 15 years performing various engineering functions at a 1.5M square feet building complex. The work effort has included clean roof facilities, SCIFs, HVAC tight temperature tolerant environments, paint booths, ground support structures, data server rooms, gas systems, compressed air systems chilled water plant studies, vacuum systems, process piping, water storage, hydraulic & pneumatic systems, liquid nitrogen, and various cryogenic systems. Some

project work examples include: A laser guided / robotic metallurgic sintering program, a GPS Antenna cooling program, PWTL DI Water reclamation system, alternative energy model storage, 400HZ converter program, and various other uniquely challenging support programs for LMMFC programs.



BDB



educating the NEXT GENERATION workforce

TRADITIONAL DEGREES*

- Computer Science
- Computer Engineering
- Electrical Engineering
- Bioengineering
- Civil Engineering
- Environmental Engineering
- Geomatics Engineering
- Mechanical Engineering
- Ocean Engineering
- Information Technology and Management

*all programs accredited (ABET, SACS)





MODERN TWIST[^]

- Big Data Analytics
- Cyber Security
- Corrosion
- Offshore Engineering
- Transportation Engineering
- Transportation, Logistics, and Supply Chain Management NEW!
- Energy Resilience NEW!
- Data Science NEW!

Specialization in areas of national priority

eng.fau.edu





Linda Herman Belcan Engineering Group

Linda Herman, Requirement Lead for the Adaptive Engine Technology Program (AETP), applies her technical expertise in mentoring and assisting a team of 15 engineers in the interpretation and creation of the technical requirements for AETP. Linda is a technical expert in the creation of the software design documents. As such, Linda established guidelines for the baseline requirements that both Belcan and our AETP customer currently follow. She is also our liaison between the Systems Requirements Team and the Belcan AETP Software Design Team,

thereby increasing efficiency and cohesiveness to the development process. In addition, Linda is a major contributor to the design of control logic, frequently providing guidance and mentoring to less experienced group members.



John Paul Springer Belcan Engineering Group

JP Springer has demonstrated throughout his career an ability to successfully lead technical teams. JP has leveraged his technical skills to build and develop teams of young engineers capable of exceeding customer expectations. This has allowed Belcan to grow its employee base and maintain its technical expertise. This past year, JP has successfully led multiple structures teams simultaneously across various engine modules for the XT900 program including LPC Rotors, Kinematics, and LPT Turbine.

Other notable contributions include redesigning the life limiting location on the F100 1st stage HPT disk and implementing the redesign across the entire F100 fleet which resulted in a doubling of part life.





Mohammed Faisal Belcan Engineering Group

Mo Faisal is an integral member of a Turbomachinery design group. He has participated in and led multiple design projects for various types of engine compressor and is highly valued by the customer for his technical knowledge, efficiency, and attention to detail. Mo has been the lead designer on several key advance development projects during his tenure at Belcan and has consistently delivered quality results by providing multiple design concepts used in today's technology

THE MERT CONTRACT

demonstration programs.



"Congratulations

to the FAU College of Engineering and Computer Science faculty members on receiving the Engineers' Council Awards."

– Stella Batalama, Dean

OSCAR CURET, Ph.D. *STEM Educator Award*

SARAH DU, Ph.D. *STEM Educator Award*

ISAAC ELISHAKOFF, Ph.D. William B. Johnson International Inter-Professional Founders Award

> **ERIK ENGEBERG, Ph.D.** Outstanding Engineering Achievement Merit Award

BORKO FURHT, Ph.D. Distinguished Engineering Educator Award

OGE MARQUES, Ph.D. Engineering Educator of the Year Award

DANIEL MEEROFF, Ph.D. *Distinguished Engineering Educator Award*

DANIEL RAVIV, Ph.D. *Distinguished Engineering Educator Award*

ALEKSANDAR STEVANOVIC, Ph.D. *Outstanding Engineering Achievement Merit Award*

XINGQUAN ZHU, Ph.D. Outstanding Engineering Achievement Merit Award







Brent Whitfield Chen Moore and Associates

Brent Whitfield has performed civil engineering for watershed, airport and municipal master planning studies as well preparing construction plans and specifications and providing construction administration services. With over 14 years of professional experience, Mr. Whitfield has worked for a variety of public sector clients at the City, County and State level. As a life-long resident of Palm Beach County and 13-year resident of the City of Lake Worth, Mr. Whitfield has maintained a commitment to serving the community both professionally and personally serving on the boards of professional societies and civic organizations. In an

academic capacity, Mr. Whitfield's previous experience includes a research assistantship at the University of Florida where he was the primary author on a December 2006 paper in the Journal of Hydrometeorology.



Erik Engeberg Florida Atlantic University

Dr. Erik Engeberg has overseen nearly \$2 million in grants from National Institutes of Health, National Science Foundation, Department of Energy, and the Office of Naval Research. His research on artificial hands for amputees has been featured on the front page of the Sun Sentinel newspaper, among numerous other locations, and will be a component of a new museum exhibit about the function of the brain at the South Florida Science Center and Aquarium in West Palm Beach. Furthermore, his research on bioinspired robotic jellyfish to monitor the health of endangered coral reefs has received prominent international attention. He has been awarded 5 patents in the last 2 years and is the author of

roughly 80 scholarly publications.



Xingquan Zhu Florida Atlantic University

Dr. Zhu has made significant achievement in his research to advance networked health information systems and computing infrastructure for artificial intelligence and deep learning, with numerous national research competitive awards. In June 2018, Dr. Zhu received a National Science Foundation (NSF) project to conduct research on data mining models and algorithms for complex dynamic information networks for health care delivery. In October 2018, Dr. Zhu received another NSF project to create an Artificial Intelligence and Deep Learning Laboratory to stimulate Florida University-wide Collaboration. Dr. Zhu's research mainly focuses on (1) big data, large scale machine learning, and data mining; (2) real-time analytics and

decision support systems; (3) bioinformatics and health information systems. In particular, his research has made significant contribution to the big data research.

Corporate Table Sponso



Northrop Grumman celebrates National Engineers Week.





Our engineers push the envelope of the possible. Their game-changing innovations protect our nation's freedom and advance human discovery. We salute them. Be part of what we do.

THE VALUE OF PERFORMANCE.



©2019 Northrop Grumman Corporation

careers.northropgrumman.com



Aleksandar Stevanovic Florida Atlantic University

Dr. Stevanovic was awarded a very prestigious position of a Fulbright specialist, which was accompanied with a joint project on "Adaptive Traffic Control in Mixed-traffic Networks" with the Indian Institute Technology Madras. He has published 36 journal papers and presented his work at 10 international conferences with proceedings and five international seminars. One of his papers was awarded the title of the Best Scientific Paper Award at the 25th ITS World Congress, Copenhagen, Denmark, 17-21 September 2018. Dr. Stevanovic was also invited to give two keynote speeches at the International Conference on Traffic and Transport Engineering

(ICTTE Belgrade 2018), Belgrade, Serbia, September 27-28, 2018 and the 2018 International Traffic Signal Control Forum, Tianjin Chengjian University, July 3, 2018, Tianjin, China. He participated (mostly as a Principal Investigator) in 20 research projects and presented his work in dozens of conferences and professional meetings. As a young scholar he was nominated, by the College of Engineering and Computer Science, three times in row as a FAU Researcher of the Year in the category of Assistant Professors.

Javier Cue Pratt & Whitney

Javier's contributions have been instrumental towards the advancement of the state-of-the-art in air system and fuel system controls for AETP and commercial programs. Professionally, Javier has been an exceptional technical role model and has started mentoring new hire engineers in our programs. He has an impeccable work ethic and always makes himself available. Javier is a member of the American Society of Mechanical Engineers and has supported one of their committees to formalize icing certification

test procedures. Javier possesses that very valuable combination of qualities of technical excellence and positive leadership attributes that are recognized within and outside the company.





Linda O'Flarity Pratt & Whitney

Linda O'Flarity is the Pratt & Whitney Control & Diagnostic Systems Program Manager for Operational Military Engines which includes the F119 engine for the U.S. Air Force F-22 Stealth Tactical Fighter and the F100 engine family for the F-15 and F-16 fighter aircraft. Linda's programmatic and technical contributions over the past few years have been critical towards sustaining and improving the capabilities of our operational military engines as well as developing and fielding advanced capabilities and technologies in the operational fleet. Linda excels in a broad range of competencies.

She possesses the rare combination of technical excellence and positive leadership attributes that make her a highly effective leader and mentor in our engineering organization.



Board Beneficiants

PALM BEACH STATE

Palm Beach State College launches students into STEM professions and advanced education through real-world programs, stellar faculty and career-shaping internships with industry leaders.

Level Up

PalmBeachState.edu #LevelUpPBSC | f 🗙 📾 🞯

Belcan

Engineering Better Outcomes.

A STRATEGY



PBSC Engineering Technology Lab

Technical Recruiting | Engineering & Design | Systems & Software Manufacturing & Supply Chain | Government Services

+1.800.423.5226

belcan.com



Drew Brady Pratt & Whitney

Drew Brady's contributions have been instrumental towards the advancement of the state-of-the-art in control system algorithms. Specifically, Brady's technical leadership towards the design, development and implementation of the fault and event accommodation has enabled significant improvements in jet engine capability. Brady has provided innovation and technical leadership in developing and submitting a disclosure related to control system software for a method of smoothing the transition between control signals. His highly innovative concepts and

exceptional technical talent have been recognized as driving the continuous improvement of our products. His submission has been recognized and designated as a Pratt & Whitney Trade Secret to protect P&W interests accordingly.



Christopher Brandwood Sikorsky Aircraft; a LM Company

Christopher Brandwood has been an exceptional contributor to the flight testing and development of advanced jet and rotorcraft aircraft. He has steadily established the technically mastery necessary to evaluate, develop, correct and certify powerplant installations in a wide variety of aircraft. His contributions have matured over the past 5-year; specifically to rotorcraft applications and is an established expert. Mr. Brandwood has been recommended for this award based on his significant

contributions to a vital project concerning the tail rotor pitch shaft bearing. He produced numerous analyses for the engineering team to support design improvements, but most importantly to guide immediate field instructions to operators so as to maintain 100% aircraft airworthiness.





Congratulations to all of the **Merit Award Winners**!

Corporate Table Sponso

Alm Beach County's Economic Development Resource



World-class facility design and management services to support your mission.







CREATIVE IDEAS. PRECISELY DELIVERED

BRPH



"The AIAA Palm Beach Section congratulates the 2019 Engineers Week Honors and Awards Banquet Winners for your outstanding achievements and dedication to the engineering profession".

Special congratulations to the 50+ year AIAA Service Award Recipients Ms. Mireille Gerard Mr. Harold Rosenstein

Special congratulations for 2019 Space Foundation Teacher Liaison Ms. Shawna Christensen

A BADE PAIR BEACH COUNTY'S



BRPH Kennedy Space Center 1.25M Gallon LH2 Storage Facility

Team Leader: Diana Cheung Team Members: Brian Curtin, Andrew Miller, Ken Pachette, Rich Pruss, Shad Traylor, David Balawajder, Luis Rosario, John Danielson



This team designed the upgrades for the Liquid Hydrogen (LH2) system at the Kennedy Space Center's Launch Complex 39B to function with the new Space Launch System vehicle. The project involved integrating the largest LH2 storage dewar (1.25M gallons usable) that has ever been fabricated or installed in the world into the existing LH2 storage system (800,000 gallons usable). The new design will include a new LH2 storage dewar, a series of vaporizers, dewar flare stack, vacuum jacketed piping transfer and fill lines tied into the existing cross country line up to the mobile launch, new vent line to the flare stack tanker unloading station, and pressurization systems. The new LH2 storage system is completely separated from the existing storage system in that it has all of its own dedicated utilities (pneumatic purge panels, pneumatic solenoid actuation panels, cryogenic valves, fire suppression, hazardous gas detection, electrical, and communications). This will allow for multiple launch attempts to take place without needing to refill the storage dewars. The design included a cryogenic fluids analysis using Sinda Fluint, a pipe stress analysis using Caesar II for the cryogenic piping to ensure flexibility and nozzle loads met the criteria of ASME B31.3, a pneumatic fluids analysis using AFT arrow, and Creo 3.0 to model the pneumatic panels. involves integrating the largest LH2 storage dewar (1.25M gallons usable) that has ever been fabricated or installed in the world into the existing LH2 storage system (800,000 gallons usable). The new design will include a new LH2 storage dewar, a series of vaporizers, dewar flare stack, vacuum jacketed piping transfer and fill lines tied into the existing cross country line up to the mobile launch, new vent line to the flare stack tanker unloading station, and pressurization systems.









GO BEYOND



Corporate Tables

AIAA Agilis Belcan Florida Atlantic University Northrop Grumman Palm Beach State College Sikorsky Aircraft The Weiss School



Lockheed Martin—Sikorsky Aircraft

Team Leader: Brian Nemeti

CH-53K King Stallion Degraded Visual Environment Testing

Team Members: Gareth Roberts, Jonathan Morel, John Rucci,

Glenn Mastrangelo, Richard Brown, Mel Huskey, Israel Agosto, Michael Bourdeau, Bob Ayotte, Robert Rood, Adam Chesser

Michael Gerardo, Charles Russo, Derrell Roseman,

In the summer of 2018. in the Arizona desert at the Marine Corp Yuma Proving Grounds, the CH-53K King Stallion Flight Test team successfully demonstrated the aircraft's capability to operate in degraded visual environments, conducting approaches to hover in total brownout. This challenging environment

eliminates all visual ground cues to the pilot increasing the danger of an already difficult phase of flight, approach to hover and landing. The flight test engineering team carefully crafted a plan to conduct the demonstration of the aircraft's automatic approach to point capability keeping the pilots and the aircraft safe throughout the entire flight profile from level flight, deceleration and decent, and finally hover. The integrated test team's sacrificial longevity on site at Yuma to flawlessly execute this high risk testing in a safe and effective manner is a testament to their commitment to provide the United States Marine Corps with a truly state-of-the-art machine that will save lives and defend our freedom. The CH-53K fly-by-wire flight control system allowed the pilots to essentially "hand off" the approach to the aircraft prior to entering the dust cloud. The aircraft then consistently flew a textbook approach to a perfectly stable hover over the intended point of landing with almost no pilot workload. When all outside reference was lost due to brownout, the pilots could monitor the conclusion of the approach and the performance of the precise hover using the hover display in the cockpit. Once in the Position-Hold locked hover, the crew could visually clear the area below and conduct a smooth landing, while the aircraft maintained zero drift. This system will allow CH-53K crews to conduct safe, precise landings in the worst visual environments every time. It essentially makes one of the toughest and most dangerous tasks a pilot does simple and safe. It is a true game-changer.





Lockheed Martin Autonomous Underwater Vehicle (AUV) Test Program Team Leader: Doug Williams

Team Members: Martin Juliano, Mike Wilt, Zach Grabe, Erik Hanssen, Jonah Violante, Brian Kinberger





The program successfully conducted offshore tests demonstrating the ability for an Autonomous Underwater Vehicle (AUV) to hold relative position to a moving tow body. The success of the test proves further development of a mobile docking concept. The tests were conducted at ranges from the tow body varying from 15 meters to 3 meters at a speed of 2 knots. Utilizing a 3D sonar as feedback for the AUV, the AUV demonstrated the ability to hold position while following the tow body track. Lockheed Martin developed software logic that would read a 3D sonar feedback and find a target point within the sonar image that could be used as the feedback for the AUV's closed loop controller in real time.

The Lockheed Martin team also developed a new set of guidance logic. This logic receives surge, sway and heave offset commands and creates speed, heading, and depth of vehicle commands using the logic feedback. These three commands provide the AUV the proper direction to obtain the desired separation and maintain it. The concept of using a 3D sensor as a method of autonomously tracking a moving target was successfully demonstrated using the Marlin® AUV tracking a tow body. In addition to tracking, The underlying methodology of these algorithms can be leveraged to other sensors as well, both acoustic and optical, which will provide an alternate methods for an AUV to dock to a moving station.







Smart Structures

Tamiami Trail Bridge Life Cycle Monitoring

Team Leader: Aneesh Goly Team Members: Vamshi Vemula, Bicha

Team Members: Vamshi Vemula, Richard Schmid, Hieu Huynh, Mark Webb, Harsha Bopuri, Ganapati Reddy

> The Tamiami Trail bridge construction at bent 33 is a challenging project which tried to assimilate the three 'P' benefits, People (social), Profit (economic), Planet (environment) for Sustainable Infrastructure. The only way of sustainability ensuring without consuming a huge execution and maintenance budget was through LCM (Life Cycle Monitoring). The LCM seamlessly monitors the health of a structure and keeps generating and transmitting reports on health parameters like strain on rebars, concrete core temperature and corrosion. The implementation of LCM was realized with the use of Embedded Data Collectors which were capable of wireless telemetry. Bluetooth signals were used for transmission to internet gateways which in turn connected them to

their owners and managers from varying locations flexibly. The use of EDC at the core was helpful in sharing some insights to the workers and greater accuracy which was not viable from traditional externally mounted sensors. With EDC we were able to successfully stop the need of setting up and dislodging the sensors before monitoring this saved a good amount of operational time. The accuracy offered also prevented continuing the wrong drive unknowingly leading to waste of material and loss of operation time to it. We were able to save 90 days from the expected schedule. Cutting on time and preventing wastage automatically was able to set the cost bucket low. The gross savings from the project was about \$8,63,278. Even after considering the instrumentation cost we were still left with a net savings of \$6,530,278. The core philosophy to the concept of LCM has been safety, safety to workers, safety to structures and safety to the citizens using it. The elimination of the need to precariously climb and mount the sensing gears have introduced safer working style to the people. Constant monitoring of structures via LCM has made a reliable maintenance program and a sense of security for the citizens. The project exemplified the use of concrete embedded sensors for structural monitoring.





Sikorsky, A Lockheed Martin Company VH-92A Presidential Helicopter Certification

Team Leader: Phil Alldridge

Team Members: Roger Tull, Daniel Bernier, Tom Kristiansen, Taher Zeglam, Ben Getson, Mike Christofferson, Keith McGrory, Lonnie Wellmaker, DonArmando Chao, Tom Kergaravat, Russell Granby

In this program the team flawlessly executed certification flight tests and



reports leading to a FAA certification of the VH-92A aircraft (the next presidential helicopter). This effort was significant for several reasons beyond the fact that the presidential helicopter is para-

mount to the national security of the President and a source of national pride for the country. The time period between completion of flight tests and submittal of the final report was roughly four weeks, nearly 1/3rd of the industry standard of 90 days. The entire certification effort took less than one year between initial certification flights and final certification. Typical certification of a new aircraft through the FAA can take roughly five years or longer.







Project Awards

Aerojet Rocketdyne

Team Leader: Mark Sillence

Low Mach Mode Transition Team

Ryan, Ken Slusser, Stante Salvador

Team Members: Kevin Van Dyke, Patrick Murphy, Carlin White, Tom Fortin, Frank Barnes, Dean Andreadis, Bob Mclaughlin, Richard Andrew, Mark Lusa, Brad Johnson, Randy Upton, Mike





The Low Mach Mode Transition team refurbished the FaCET rig (which had been stored outdoors for five years), integrated a new generation powerhead, and successfully tested a Dual Mode Ramjet at lower Mach conditions than had previously been demonstrated. Team executed a fixed price contract and delivered the engine to NASA LaRC nine months before a test window became available at the facility. This rig is one of the largest ever tested at the 8' High Temperature Tunnel. Testing, and encompassed lower Mach conditions than the rig had been performed to operate at.

Northrop Grumman Aerospace Systems

E-2D Automatic Dependent Surveillance - Broadcast Out (ADS-B Out) Team Leader: Anthony Johns

Team Members: James Finnell, Jeff Poor, Barry Goepfert, Ermi Morillo, David Friedenreich, Kyle Frinkley, Tom Guida, Lidio Gobo, Fred Douglas





The program team modified E-2D software to utilize the ADS-B functionality on the Identification Friend or Foe (IFF) transponder to broadcast required information per an FAA mandate. This capability is a platform-based surveillance service that broadcasts a platform's position, velocity, identification, and other pertinent information. The E-2D Hawkeye plays a critical role in battle management command and control (BMC2), and the ADS-B Out program has helped to ensure compliance with all CNO mandates. The ADS-B Out team was comprised of a small, but tightly knit core team. The team was flexible enough to support two customer-directed modifications to the Statement of Work, and yet still completed Functional Qualification Testing (FQT) in just two weeks—the fastest duration to date on the E-2D program. Additionally, ADS-B Out developmental flight test (DT) was successfully completed minimal actions, and the capability is on track for Major Software release DT in 1Q18 and the overarching certification timeline. As the program moves to completion, it has executed on time and under budget.

BRPH

Dynetics ULA Vulcan Booster Test & Hardware Integration Facility Team Leader: Joshua Mehag

Team Members: Brian Curtin, Andrew Miller, Greg Kirkendall, Mohamad Fazeli, Rich Pruss



The project's team designed a fully enclosed 60'W x 60'L x 100'H Test Stand structure on their property near the United Launch Alliance (ULA) factory in Decatur, AL for Dynetics, Inc. The purpose of the structure is to facilitate structural qualification testing of spaceflight components, the first of which is the booster for ULA's Vulcan rocket. The Test Stand's structural steel superstructure and concrete deep foundations are designed to resist prescribed loads established by Dynetics. The loads are induced on the booster, or test article, and reacted by the structure using hydraulic actuators. Forces in a single direction total up to four million pounds. The Test Stand has five working platform levels, including stairs and a parts lifting device so that work can be performed at all heights of the test article. The project also included a high bay type building for both manufacturing and testing of spaceflight components. The building includes offices, interior storage area, and exterior storage area. The high bay includes a large area for manufacturing and a separate area for testing – both serviced by a shared overhead crane. The test area includes a six-foot-thick mat foundation with embedded floor anchors. Dynetics will use the floor to perform structural gualification tests for the Department of Defense, NASA, and other customers.





Distinguished Future Technology Leader Award



Oreste Giusti Aerojet Rocketdyne

Mr. Giusti took on the challenge to lead and facilitate Combustion Devices development for additive manufactured combustion chamber and nozzles. The development will enable a significant cost reduction on the next generation of RL10 rocket engineers. Mr. Oreste has worked in the Hypersonic program to successfully contribute to the on time closure of the verification matrix for the EUS engine mechanical systems review and presented the results at the customer closeout review. He has also contributed to successful

investigations leading to ERB closure on RL10 development engines and Production clearance of flight concerns.



Courtney Prothero Aerojet Rocketdyne

Ms. Courtney Prothero has worked closely with a Solid Motor Design Mentor and AR experts in product design. She coordinated the execution of trade studies on the igniter architecture, participated in the concept downselect process, and worked closely with analysts in Ballistics, Aero Thermal Fluids, and Structures to finalize and optimize the design. She made design decisions based on input from all stakeholders in the design, including cost and manufacturability concerns. Courtney has effectively used new tools such as aPriori and solidThinking Inspire to balance performance and cost with program requirements, and to shorten design and analysis cycle time.





Ryan Mitchell Agilis Engineering, Inc.

Ryan Mitchell is self-motivated, quality-focused Mechanical Design Engineer. He has developed sound design thinking and process efficiencies related to all aspects of the customer's product line. His fresh leadership skills have embodied the long term goals of the customer's product line, quality and profitability. Ryan positively accepted an increased leadership role and has continued to excel in the eyes of his customers for his willingness to drive continued success to their product line. In this leadership role, Ryan has already established a solid foundation within Agilis' operational management team.

Distinguished Future Technology Leader Award



Michael Robbins

Agilis Engineering, Inc.

Michael Robbins has consistently demonstrated knowledge, skill, and leadership levels that are well in advance of his early career in engineering. He has designed a range of complex components and subsystems; adaptive tooling for a military engine, complex split cases for two different military compressor rigs, compressor bleed manifold and piping systems, in addition to other smaller tasks. He has also served as a Structural Analysis Engineer performing advanced structural analysis (Creep, Creep Management, and LCF) for hot section industrial turbine components. Michael has also developed a design tool to

rapidly size some of the most common, yet complex, piloting features used in gas turbine engines.



Jacob Jones Belcan Engineering Group

Jacob Jones , as an Aerospace systems engineer, has already evolved into a clear leading force within his team. He is regularly relied upon to manage complex, large scale data analytics tasks on his own, and he completes these tasks at a rate well above his management's expectations. His high value to the team derives from his ability to multi-task his own projects while simultaneously providing calm direction and oversight to other developers. Jacob also brings a dedication and a sense of ownership to the job typically found in engineers with much more experience. Future projects that he supports will benefit to an even larger degree as Jacob's technical acumen and systems knowledge increase with his years of experience.





Melissa Burns

Ms. Melissa Burns has exhibited exceptional design and computation abilities of structural elements for AASHTO Girder bridges, Florida-I Beam bridges, major and minor bridge widening, new alignment, and rehabilitation projects. She also has experience in mast arm design, strain pole design, cantilever sign design, span sign design, drilled shaft design, load rating and shop drawing review.

Distinguished Future Technology Leader Award



Noopur Joshi Sikorsky Aircraft, a Lockheed Martin Company

Ms. Noopur Joshi has demonstrated a high level of technical capability, delivery, and quality. Ms. Joshi has taken ownership within CH-53K Flight Test on two major propulsion systems and frequently supports teammates with an additional two other systems. In the process, she became a trusted resource to customers external to flight test that include design engineering, ground test, and the NAVAIR customer. She has helped to eliminate dedicated testing, saving the program schedule and cost. Her recent efforts have been crucial for achieving team's vision for

advanced data visualization. She has a strong rapport with team members leveraging trust and relationships to get work done quickly and with high quality. Noopur was sent on two international trips to visit a supplier and helped to improve their test setup and conduct based on her in-depth knowledge of the system issues being investigated and relationship once integrated into aircraft. She distinguishes herself with the tenacity and accountability with which she completes her work. Noopur is known across the Sikorsky CH-53K program's Flight Test team and management as a top performer and an employee with the utmost dedication to the success of program.



Skyler Mondell Sikorsky Aircraft, a Lockheed Martin Company

Skyler joined Sikorsky's Development Flight Center as a full time employee in 2014 as a Flight Control's / Handling Qualities Flight Test Engineer (FTE). In 2016, Skyler was assigned as the Lead Flight Control's FTE for the CH-53K flight test program, a position which required him to develop and manage a team of incoming engineers. Earlier this year, Skyler supported the CH-53K flight demonstrations at the Berlin airshow. This assignment required him to support the actual flight demonstrations as an FTE onboard the aircraft, act as an ambassador to Sikorsky among the throngs of onlookers during the static display of the aircraft,

and act as spokesman for Flight Test during VIP conferences. Throughout the duration of his time in Germany, Skyler exhibited discipline, professionalism, and competency. Skyler is now supporting Sikorsky's next generation aircraft flight test programs as a Lead FTE and continuing to excel within the flight test group.



Distinguished Engineering Achievement Award



Joaquin Castro Aerojet Rocketdyne

Joaquin Castro has led or supported the DC-X program, Bantam engine development for DARPA XS-1, and the USAF X-51 scramjet missile effort. Joaquin understands the importance that the advancement of all aerospace

propulsion technology has on our society, our nation and the world. His experimental work on the reusable single stage demonstrator DC-X (e.g., lead for RL10A-5 development), hypersonic flight with the X-51 (e.g., program champion for the ground demo scramjet engines), and additive manufacturing to demonstrate low cost approaches for rocket propulsion (e.g., Aerojet Rocketdyne's Bantam series of engines) has shown he has great insight into the most impactful technologies to pursue. He has earned several patents for his breakthroughs in design, test, and implementation of components and concepts for rocket and hypersonic propulsion systems.







Sarah Du Florida Atlantic University

Dr. Sarah Du is recognized by the 2018 Researcher of the Year award from FAU. Within the past 5 years, Dr. Du has been awarded for 3 NSF grants as PI and 3 NIH grants as PI and Co-PI. She published 19 papers with collaborative and leading authorship in top journals in her field, including PNAS, Acta Biomaterialia, and Sensors and Actuators. Scientifically, she is a young leader in the emerging field of cell mechanobiology and biosensing. Her 2017 Acta Biomaterialia paper is a landmark publication. She developed novel microfluidics approaches to study how red blood cells, which are deformed tremendously during blood circulation, respond to repeated loading. Her result that red blood cells stiffen

viscoelastically with repeated loading is a key contribution to the field and has important implications from dialysis to treatment strategies for blood diseases. She identified novel biophysical markers of sickle cell disease using novel engineering and physical approaches. Her 2015 and 2016 PNAS papers reported the significant connections between cell sickling, blood rheology, vascular occlusion, disease severity, which have important applications for diagnosis and treatment. Furthermore, she developed a first-of-its-kind smart sensor to monitor abnormal blood activities in sickle cell disease, which has a potential to revolutionize the management of sickle cell pain.



Oscar Curet Florida Atlantic University

Dr. Curet's research work focuses on the fluid dynamics of biological and bio-inspired systems. In particular, his career objective is to become an academic leader in the area of bio-mimetic systems with focus in marine propulsion and applications in multi-agent robotics, ocean exploration and coastal preservation. In the last five years, Dr. Curet has developed a novel bio-inspired underwater robotics with high maneuverability and a mangrove-inspired structures for coastal protection and energy harvesting. As part of this effort Dr. Curet was recently awarded the National Science Foundation (NSF) Faculty Early Career Development Program (CAREER). This is the most prestigious NSF award in support of junior faculty. Dr. Curet





developed the first free-swimming vessel that uses a single undulating fin to control both forward swimming and directional maneuvers. In addition, Dr. Curet assisted in developing a soft-robotic jellyfish. These vessels are been used to investigate fundamental questions in the dynamics, control, propulsive performance and hydrodynamics of bio-inspired underwater vehicles. Ultimately, the research is expected to result in the use of flexible propulsive surfaces and hydrodynamic interactions for the control of swarm of highly maneuverable vessels. Dr. Curet has developed a system of mangrove-like structure for both coastal protection and energy harvesting from tidal stream. In a series of experiments Dr. Curet investigate the hydrodynamic characteristic of mangrove-like structure for key parameters including root density, flexibility and flow speed. The motivation of this research is that an understanding of how fluid flow interacts with a bio-inspired mangrove-like structure including the mechanism of energy dissipation will enable the development of a new generation of infrastructure for coastal protection and energy harvesting.

Distinguished Engineering Educator Awards



Raphael Kampmann, Ph.D. FAMU-FSU College of Engineering

Dr. Kampmann is meticulous in detail and compassionate in crafting a higher education curriculum and in in developing innovative research. As a faculty advisor, he is inspiring and teaches students how to not only be an engineer but a well-rounded individual. His is the recipient of the 2015 Florida State University Teaching Award, given to him out of the 1500+ faculty FSU employs. He developed a program were German students outside the USA can come explore engineering in the USA and where our students can study

abroad in a German university.



Borko Furht Florida Atlantic University

Dr. Furht has lead the NSF Industry/University Cooperative Research Center for Advanced Knowledge Enablement at Florida Atlantic University. The Center has had 35 industry members including Google, Motorola, LexisNexis, and many other large and small corporations. The Center completed 48 applied industry projects with the totals funding of about \$10 million. In the last five years 85 graduate and undergraduate students were trained in the Center, and more than 100 publications were published. Center completed 10 applied research projects and

published 23 journal and conference papers. Through the NSF I/UCRC, FAU has received funding from the Florida Department of Transportation. In 2018 his research team developed Cloud-based system for melanoma detection using convolutional neural networks. He has received grants from OP Solutions, Boston to develop patents for the new generation of video coding standards. In 2018, Dr. Furht submitted 14 patents and published the book "Digital Image Processing: Practical Approach", B. Furht, E. Akar, and A. Andrews, Springer Publisher; the book will be used as the textbook in the undergraduate class under the same name. Dr. Furht has served as Founder and Editor in Chief of two Springer's journals: Journal of Big Data (2013-present), and Journal of Multimedia Tools and Applications (1994-present). And he has served as an expert witness in four litigation cases in his field of expertise that includes video and image processing and multimedia systems.





Distinguished Engineering Educator Awards



Daniel Raviv Florida Atlantic University

Dr. Raviv has developed programs such as Creativity (Honors College@FAU), Innovative Thinking (GRAD@FAU), and Creativity and Innovation (UG@FAU and at Johns Hopkins University and at University of Maryland. He has written several books and a multitude of published papers on mathematics and creative teaching.



Daniel Meeroff Florida Atlantic University

Dr. Meeroff is Founder and Director of the Laboratories for Engineered Environmental Solutions, He specializes in Environmental Engineering, specifically water and wastewater engineering, solid/hazardous waste management, environmental microbiology, aquatic chemistry, water quality, odor issues, infrastructure assessment, pollution prevention, and adaptation to climate change. He is the co-inventor of the iron-mediated aeration technology. Dr. Meeroff is most widely known for his

groundbreaking research in developing landfill leachate treatment technologies, which was featured in a Discovery Channel episode of "Curiosity". He has been awarded 34 externally funded grants as PI (\$1.3 million), 27 externally funded grants as Co-PI (\$10.9million), 13 internally funded grants (\$2.9 million). Dr. Meeroff was a FAU Distinguished Researcher of the Year Nominee in 2018, Excellence & Innovation in Undergraduate Teaching in 2017, Distinguished Research Mentor of the Year in 2015, and Distinguished Teacher of the Year in 2014. He was also inducted into the Florida Tech Sports Hall of Fame in 2008, and was a NCAA Division II National Soccer Champion in 1991.







Roberto Gonzalez Belcan Engineering Group

Roberto Gonzalez has performed a career of continued devotion and promotion of quality engineering. He started in 2000, as the QMS Team Leader and Audit Team Leader for Pratt & Whitney. For Belcan, he has led engagements with Belcan's clients over

the past 6 years auditing supplier quality management systems. Technical Speaker at the 2008, 2009 and 2010 International Conference on ISO. Additionally, he has trained a great number of new auditors, attracting new energy to the profession. He is a great communicator who is as adept on the shop floor as with quality managers in the conference room. His attention to detail and devotion to his profession is contagious.







FRANK C. GILLETTE, JR.

Retired as Director of Advanced Military Programs at Pratt & Whitney

Education: Bachelor of Science in Mechanical Engineering from the University of Florida - 1962 Over his nearly 60 year illustrious career, Frank has played a key role in the design and development of propulsion systems, enabling the United States to lead the world in space exploration and aeronautics. From rockets to the most advanced

turbine engines to ramjets and scramjets and his work with the National Academy of Sciences, Frank's contributions have advanced the state-of-the-art in propulsion driving cutting-edge technology into U.S. aerospace systems and capabilities. In addition to his technical achievements, Frank has always taken time to teach and help others along the way; whether mentoring young engineers, or teaching at the U.S. Air Force Academy, he strives to share with others his knowledge, experience and passion for propulsion and engineering. Frank has devoted significant time and effort throughout his life to give back to the University of Florida.

During his career, Frank played a key role in the design and development of many propulsion technologies and products, such as the:

• RL10 project, the world's first liquid hydrogen/liquid oxygen-fueled rocket engine.

• RL10B-2 engine that today is used to power the upper stage of the Delta IV launch vehicle **is the highest performing rocket engine in the world**.

• RL-10 engine derivatives that power the United Launch Alliance's Atlas Centaur and Vulcan Centaur upper stages, the upper stage of Northrop Grumman's OmegA rocket and NASA's SLS upper stage.

• J-58 engines that powered the SR-71 "Blackbird" spy plane. Frank designed the J-58 engine's turbine section: a key component that enables the engine to operate at speeds of Mach 3+.

• F119 engine that currently powers the F-22 'Raptor, the most advanced U.S. fighter aircraft. Within P&W circles, **Frank is known as "the father of the F-119 engine."**

• F135 engine that currently powers the F-35 Joint Strike Fighter known as the Lightning II. The STOVL version of the F135 engine developing the concept for the vertical lift fan currently used in the STOVL version of the F-35 aircraft.

Frank is the recipient of the:

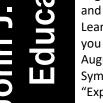




1991 National Engineer of the Year by American Institute of Aeronautics and Astronautics, 1991 Laurel Award by Aviation Week, 1994 Cliff Garrett Turbomachinery Engineering Award by the Society of Automotive Engineers, 1998 Distinguished Alumnus Award by the University of Florida, Fellowship of the American Society of Mechanical Engineers Associate Fellowship of the American Institute of Aeronautics and Astronautics.



Year Award icator of the era Guarr









Oge Marques

Professor Marques is receiving this year's John J. Guarrera Engineering Educator of the Year Award for a lifetime of excellence and outstanding accomplishment in medical image analysis. Some of his recent accomplishments include:

· Recipient of the university-wide Year 2018 Award for Excellence in Undergraduate Teaching in recognition of his significant impact on the quality, breadth, and depth of undergraduate education at Florida Atlantic University.

 Research results in the field of skin lesion segmentation and classification and early melanoma detection, including the journal paper "Rethinking Skin Lesion Segmentation in a

Convolutional Classifier," published in the Journal of Digital Imaging.

 Selected for "Visiting Research Scientist" position at the Lister Hill National Center for Biomedical Communications, National Library of Medicine (NLM), National Institutes of Health (NIH), Bethesda, MD.

• Lectured on the following topics: "Machine Learning and Applications", FH Campus Wien, University of Applied Sciences, Vienna, Austria, December 2018; "Medical image analysis using deep learning", Johns Hopkins University, Baltimore, MD, November 2018; "Introduction to medical image analysis using deep learning", Johns Hopkins University, Baltimore, MD, November 2018; "Medical image analysis and medical information retrieval, with and without deep learning", Lister Hill National Center for Biomedical Communications, National Library of Medicine (NLM), National Institutes of Health (NIH), Bethesda, MD, October 2018; "The Artificial Intelligence revolution in Medicine: technology, risks, applications and implications", Université d'Orléans, Orléans, France, September 2018; "Deep Learning for Computer Vision Using MATLAB", ENSEEIHT Engineering School, University of Toulouse, France, September 2018; "Machine Learning and Applications", Université d'Orléans, Orléans, France, September 2018; "Machine Learning and its applications", Vlatacom Institute, Belgrade, Serbia, August 2018; " Can you trust what you see? The magic of visual perception", University of Belgrade, Serbia, August 2018; "Challenges and Opportunities in Deep Learning", Deep Learning Mini-Symposium, part of the 2018 MathWorks Research Summit, Newton, MA, June 2018; "Explainable AI and the Future of Medicine", 2018 MathWorks Research Summit, Newton, MA, June 2018; "Adventures in Image Processing, Machine Learning and Deep Learning using MATLAB", MathWorks' Development Knowledge Forum (DKF) seminar series, MathWorks headquarters, Natick, MA, June 2018; "Using games to solve challenging multimedia problems," Wichita State University, Wichita, KS, April 2018. "Self-driving cars, robot radiologists, and more: how artificial intelligence is changing the world forever", Lifelong Learning Society (LLS), Florida Atlantic University, March 2018.

Dr. Marques has written 5 books in the last five years, including a Chinese translation of the textbook Practical Image and Video Processing Using MATLAB . The books are "Visual Information Retrieval Using Java and LIRE", "Practical Image and Video Processing Using MATLAB", "Driver Drowsiness Detection Systems and Solutions", "Optical Flow and Trajectory Estimation Methods", and "Innovative Technologies in Everyday Life". Dr. Marques has performed Keynotes, plenary talks, tutorials and invited talks around the world.

William B. Johnson Inter-Professional Founders Aw



Isaac Elishakoff

During the calendar year of 2018, Dr Elishakoff published 19 scientific papers in leading international journals on various fields of engineering mechanics. In summer 2018 he served as the Visiting Professor at the University of "La Sapienza" in Rome, Italy where he gave 3 invited lectures and conducted joint research with his Italian hosts; likewise, he served as Edmund Safra Visiting Distinguished Professor at the Technion—Israel Institute of Technology, where he gave an invited lecture and conducted joint research with Israeli, Italian and Russian scientists. In November 2018 he gave a Plenary Lecture "Recent Developments in Uncertainty

analysis in Engineering" at the First International Conference on Science and Engineering in Baku, Azerbaijan. Also, in 2018 he served as a Member of International Scientific Committee, International Conference on Sound and Vibration, Boston.

During the past 5 years, Dr Elishakoff has published the following books: "Resolution of Twentieth Century Conundrum in Elastic Stability", Singapore, 2014; "Mechanics of Functionally Graded Material Structures", Singapore, 2015; "Probabilistic Methods in the Theory of Structures: Random Strength of Materials, Random Vibration, and Buckling", Singapore, 2018; "Probabilistic Methods in the Theory of Structures: Solution Manual to Accompany Probabilistic Methods in the Theory of Structures: Problems with Complete, Worked Through Solutions", Singapore, 2018. Overall Dr. Elishakoff has written over 30 books. And in 2019 he is planning to 'hit' his 500th scientific article publication. In 2016, during the ASME congress he was awarded the Worcester Reed Warner Medal in literature "For seminal contributions to the permanent literature of engineering research through highly praised books on probabilistic theory of structures, elastic stability, the stochastic finite element method, safety factors and reliability of composite structures; and numerous breakthrough research papers".

In past 5 years he continued to serve as the member of editorial boards of 19 international journals and Associate Editor of 4 journals. Dr. Elishakoff continued to serve as (a) the General Advisory Editor for publications on Vibration, Stability and Reliability for the series Studies in Applied Mechanics and (b) The General advisory editor for series Developments in Civil Engineering of Elsevier Science Publishers, Oxford, England, serving since 1988; (c) on Advisory Editorial Board of Springer book series in Risk Engineering. (d) as the Scientific Editor of series in Mechanical Engineering and Solid Mechanics by ISTE-Wiley Publishers, London, since 2012.













GO BEYOND



Corporate Tables

AIAA Agilis Belcan Florida Atlantic University Northrop Grumman Palm Beach State College Sikorsky Aircraft The Weiss School