Association Awards

ICEAA thanks everyone who nominated one or more of their colleagues for a 2016 Association Award. The stories shared gave us unique glimpses into what makes our members the best of the best in the cost professions. As you read the summaries of their achievements below, give thought to the dedicated and inspiring members you interact with regularly and consider submitting a nomination for 2017. Information and deadlines will be posted on the ICEAA website once available.

Junior Analyst of the Year: **Derreck Ross**

Derreck Ross, Lead Analyst for Technomics, Inc., was awarded the Junior Analyst of the Year Award, which highlights the accomplishments of an individual with 5 or less years of experience.

Derreck completed a BS in Applied Computational Math Sciences / Economics from University of Washington and a MS in Applied Mathematics from the University of Washington. After graduation, Derreck worked at Kepler Research for nine months, and has been employed at Technomics since April 2014.

Junior Analyst of the Year Award Winner Derreck Ross (R) with Technomics CEO Rick Collins (L)

For this award, Derreck was recognized for providing outstanding cost analysis and tool development support to various Navy clients. For Virginia Class Submarine (PMS 450), he developed a centralized database of earned value data, and created the Performance Metrics Model and Study. This model streamlined earned value and program analysis, providing consistent, replicable and defendable results even when used by new analysts.

He also championed the Joint Service Contracts Database, used by Naval Center for Cost Analysis, Marine Corps PEO Land Systems, and Air Force Cost Analysis Agency. Derreck created an automated and open access VBA tool that prepopulated contracts and improved data entry productivity. He improved the front-end tool interface and documented VBA code and data transfer processes. Derreck assumed day-to-day responsibility for this high visibility "production" program, not only successfully executing nearly half a million dollars in contract value, but infusing the effort with his characteristic innovation and enthusiasm. His work was recognized with a Technomics Technical Excellence Award.

Derreck also improved the client products on Independent Government Cost Estimate (IGCE) and DoD Healthcare Management System Modernization (DHMSM) Life Cycle Cost Estimate efforts. He served as administrator to Technomics Training Institute (TTI) which prepares analysts to take ICEAA exams, while completing the course of study himself. In this effort, he develops the class schedule, identifies and assigns instructors for each module, manages invitations, supports homework completion and review, and records student participation. By performing this function, he is contributing to the future of the cost analysis profession by supporting the career development of certified cost analysts.

Derreck's unique combination of cost analysis and computer software development skills have led him to develop innovative tools and solutions for clients, streamlining and automating tasks and

significantly reducing their time to complete. He communicates effectively with clients and coworkers, moving easily between cost analysis and programming and creating improvements in both functional areas. Derreck has made contributions to the field well beyond his years of experience.
-Sandra Enser, Nominator

Educators of the Year:
Dan Nussbaum & Greg Mislick

Dr. **Daniel A. Nussbaum** and Lt. Col. **Gregory K. Mislick**, USMC (Ret) received the 2016 ICEAA Educator of the Year Award at the 2016 Annual ICEAA Conference. Nussbaum and Mislick are co-Program Managers for the Masters of Cost Estimating and Analysis (MCEA) program at the Naval Postgraduate School in Monterey, CA.

In 2010, this team responded to a call from NAVSEA to fill a cost analysis education and training gap that had bedeviled the military services for many years. With the sponsorship of both the Navy and the Air Force, they started at ground zero, and built up a non-resident curriculum at the Naval Postgraduate School, with some early support by the Air Force Institute of Technology, leading to a master's degree in cost estimation and analysis. The result of their efforts is a two-year program encompassing sixteen courses, including three Acquisition and Financial Management courses and two Systems Engineering courses, with the remaining courses being centered on Operations Research and Cost Estimation topics, as well as a Capstone Project. This program has been HUGE for the cost estimating community, and has, so far, awarded master's degrees and certificates in cost estimation and analysis to 94 members of our community, many of whom are here today, forming the basis of a cadre of real technical experts in the cost estimating business. Shortly after the program was created, the MCEA team won the prestigious "Cost Analysis and Management Sciences Community Award," from the Assistant Secretary of the Navy for Financial Management and Comptroller to "the organization within DoD doing the most to support the cost community..."

Educator Analyst of the Year Award Winners Dan Nussbaum (L) and Greg Mislick (R)

Dan and Greg not only developed the MCEA curriculum, but also teach several of the courses in both resident and non-resident (distance learning/VTC) modes. They both also teach a cost estimating course that is open to the entire campus. The open cost estimating course is routinely one of the highest attended courses on campus, with over 250 students taking it annually from such varied curriculums as Financial Management, Defense Systems Analysis, Space Systems Operations, Information Systems and Technology, and Systems Engineering. Dan and Greg are recognized as unique and highly sought-after resources on the NPS campus for all cost estimation matters. In addition, they both serve as guest lecturers for various curriculums on campus, introducing the subject of cost estimation.

In addition, they have co-authored an outstanding textbook entitled "Cost Estimation: Methods and Tools," published in 2015, filling another important gap in the cost community. This ground breaking textbook is designed as a primer for those new to the cost field, and is also an excellent resource for more experienced cost estimators. Topics include cost estimating terminology; the DoD and non-DoD acquisition processes; data sources and data normalization; statistics for cost estimators; regression analysis (single variable, multi-variable and non-linear); learning curves; production breaks; step-down functions; analogy estimating; wrap rates; cost factors; software cost estimating; cost benefit analyses; and risk and uncertainty, including Monte Carlo simulation. The textbook is well

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written, and fills a previously uncovered niche. This textbook represents a very significant contribution to the field of cost estimating and analysis.

Greg Mislick has been the Chair for Cost Analysis in the Operations Research Department since 2006, and Dan Nussbaum is the Program Manager for the Energy curriculum at NPS, routinely advising a number of energy cost thesis topics for the DoD.

-Tim Anderson, nominator

Technical Achievement of the Year:

Adam James

Mr. James has nearly three years of experience in cost analysis, estimation, research, and statistical methods in support of the development and production of Department of Defense Acquisition Programs, focusing on ground vehicle and submarine systems for the United States Army and Navy.

Adam joined Technomics in 2013, where he has had immediate and profound impacts on all of his projects including the Army Wheeled and Tracked Vehicle (WTV) Program, the Navy's *Ohio* Replacement (OR) and *Virginia* Class Submarine (VCS) Programs, and the Royal Canadian Joint Support Ship (JSS) Program. In addition to

Technical Achievement of the Year Award Winner Adam James (R) with Technomics CEO Rick Collins (L)

providing meaningful program analysis, he was the lead author and statistician for the NCCA CER Development Handbook, an interactive training guide for cost analysts to step them through the process of developing a cost estimating relationship (CER).

The CER Development Handbook is a NCCA publication to facilitate CER development by developing standard approaches to analyze data, identify cost drivers, generate and validate CERs, characterize uncertainty, and document CERs. Mr. James quickly became the leading statistical scholar on this project. His desire to remain true as a statistical purist led him to spend extensive effort to document the correct way to use complex statistical methods for cost. For each statistical method introduced in the guide, Adam walks through a description of the method, the model form, an application of the methodology, and an example of its use. He then goes on to describe approaches to validate the CER. All the language in the CER guide is both dense and relatable for all cost engineers, not a small feat considering the complexity of the statistical analysis described in the guide. The CER Development Handbook covers advanced techniques not found in routine literature. Mr. James very eloquently and thoughtfully conveys the most complex methodologies to create a valuable reference guide for all cost analysts, on a par with the best textbooks.

Adam's thoughtful and effective analytical techniques, aligned with his ability to rapidly develop very useful tools to increase efficiency of analysis, have enabled innovative breakthroughs in analysis while providing efficiencies and thus cost savings to the clients of the cost community. He is truly an impressive representative of our cost community.

-Anna Irvine, Nominator

Management Achievement of the Year:

Vrenti Ghergari

Vrenti Ghergari is manager of the Procedures team, Costing Services directorate, Department of National Defence (DND) in Ottawa, Canada. He is a Certified

Management Achievement of the Year Award Winner Vrenti Ghergari

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Professional Accountant (CPA), Certified Cost Estimator/Analyst (CCEA), and a founding member and Secretary of the ICEAA Canada Chapter.

Vrenti's exceptional management skills and drive to bring the Cost Estimating Body of Knowledge (CEBoK) and ICEAA to the Canadian costing community speak to his qualifications for this award.

In 2012, the Canadian F-35 Next Generation Fighter Capability (NGFC) required a major reorganization of its Life Cycle Cost (LCC) structure. The accounting firm KPMG was hired to develop this structure, and Vrenti became the government cost lead for the project. He became a strong LCC advocate, championing its improved costing insight and training others on its implementation. For his effort, Vrenti was awarded the Deputy Minister's Certificate of Appreciation for "exceptional contribution to the preparation and approval of the 2012 Annual Update to Parliament."

As a junior cost analyst, despite the pressures and workload associated with the NGFC project, Vrenti made my professional growth and participation in the LCC estimate a priority. He involved me from the beginning with increasing responsibilities, and this trust drove my desire to improve my skills and produce quality work. He encouraged me to make suggestions, and fostered a team environment where others were comfortable coming to him with new ideas. He was also quick to credit his staff with team successes. For example, Vrenti nominated me for the Assistant Deputy Minister's Certificate of Recognition for the advancement of cost modelling.

Vrenti was promoted to section head within the directorate's newly created Procedures team in 2014. As section head, Vrenti sought out available training to professionalize both his staff and Canada's public service costing community. After investigation, he requested the procurement of ICEAA's CEBoK curriculum, and participated in the first Canadian CEBoK pilot training program. Vrenti, myself and one other analyst successfully obtained our CCEA certifications through this pilot program in January of 2015.

While advancing the ICEAA professional training program, Vrenti also made sure to deliver costing tools that would improve processes within the DND Costing Services directorate. His team developed a Cost Model template and User Guide (2014), Cost Plan and Cost Report templates (2015), Cost Risk Framework (2015), Costing Toolbox (2015) and a Generic Cost Breakdown Structure (CBS) Framework (2016).

Vrenti has also worked to professionalize the costing community across the Government of Canada. Together with the Parliamentary Budget Office and the Treasury Board Secretariat of Canada, who were also interested in ICEAA and CEBoK, Vrenti helped to stand up Canada's ICEAA chapter in 2015. Vrenti encouraged his staff and other cost analysts within DND and other departments to complete CEBoK training through mentoring sessions, where he brought in subject matter experts to discuss how costing principles taught within CEBoK could be applied across Canadian entities. These mentoring sessions helped an additional 12 analysts successfully obtain their PCEA and CCEA certifications in November 2015.

Vrenti's exceptional management skills, demonstrated professional achievements, and his tremendous contributions to the professional development of the Canadian government's costing community have earned him the ICEAA 2017 award for Management Achievement of the Year.
-Shannon Adams, Nominator

Team Achievement of the Year:

PRICE Systems Cost Research Team

In May 2015, PRICE Systems teamed with Lehigh University's Enterprise Systems Center for a summer project to build a cost

Team Achievement of the Year Award Winners from left to right: Quentin Redman (nominator), Anthony DeMarco, Gurney Thompson, Grady Noll and Joe Bauer

continued

estimating model for additive manufacturing, also known as 3D printing. PRICE researchers and a team of Lehigh seniors and graduate students set out to investigate cost drivers, collect cost and technical data, derive CERs, and develop an approach for including 3D printed parts within a larger parametric estimate. After working with our industry partners ProtoCAM, Imperial 3D, and Picatinny Arsenal, we created a cost model that is set to debut publicly in summer 2016.

The research began with a literature review, creation of an initial model structure, and experimentation in the Lehigh University Additive Manufacturing Laboratory (LUAML). The team designed experiments to identify the major cost drivers such as weight, dimensions, part shape/intricacy, material type, printer, etc. Based on this research, a structure was developed for a cost estimating model.

During the first phase of research, we developed a relationship with ProtoCAM, an additive manufacturing prototyping company specializing in the stereolithography manufacturing process. We were able to discuss our approach with their additive manufacturing experts and collect historical data, resulting in 467 data points across 4 printer models being collected. The data was successfully analyzed and a build time estimation equation was developed that was consistently more accurate than both ProtoCAM's in-house methods and the estimates provided by software accompanied with the printer.

The team presented the model to the Army additive manufacturing experts at Picatinny Arsenal. We toured their state-of-the-art facility for Metal 3D printing and 11 data points were collected on the Direct Metal Laser Sintering (DMLS) process. Based on discussions and data collection, we validated our model structure and extended the use of the model to cover various types of metals.

In phase 2 of the project, we collected an additional 224 data points (691 total), enabling us to further refine the build time estimation model. A relationship was developed with Imperial 3D, who are experienced in both plastic and metal additive manufacturing. Imperial 3D experts provided further model validation, enabled the study of post-processing activities and helped to develop a more complete model that addresses the entire production process of additively manufactured parts.

The success of the project can be attributed to the teamwork between the varied groups involved, spanning academia, government and industry partners focused on both cost estimation and 3D printing. Additionally, the relationship led to the hire of multiple Lehigh students to the PRICE Cost Research team, who are currently involved in our next collaborative Lehigh University research project on composite manufacturing, currently underway.

-Quentin Redman, nominator

Frank Freiman
Lifetime Achievement Award
Shu-Ping Hu

Frank Freiman Lifetime Achievement Award Winner Shu-Ping Hu (L) with nominator Alfred Smith (R)

Dr. Shu-Ping Hu, the Chief Statistician at Tecolote, provides expert guidance and support on all aspects of cost and schedule statistical analysis. She is one of our industry's top researchers in our profession. She has shared her knowledge by contributing over 30 insightful professional papers, presentations and journal articles published by organizations like ICEAA, SCEA, ISPA, SSCAG, AIAA, MORS and DoDCAS. Along the way, she has been recognized with eight track and conference-level best paper

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awards. Dr. Hu has presented papers to the ICEAA (formerly SCEA) annual workshop for 15 consecutive years.

Dr. Hu's achievements in advancing the theories that support cost estimating methods include: implementing Laurie-Goldberg correlated random variables, developing the MUPE method, introducing the PING factor, and this year, introducing PRESS for non-linear CERs to the cost analysis community. Her precise and concise descriptions for every aspect of cost analysis is captured in many publications (and the ACEIT Help text), reaching thousands of analysts seeking facts without any marketing spin.

The focus of Shu-Ping's work has been the development and refinement of data-driven statistical understanding of cost and schedule data with an emphasis on regression methodologies. Her papers have brought clarity to critically important, commonly misused/misunderstood concepts such as: R^2, Cost Improvement Curve (learning) analysis, and the use of dummy variables. Specific examples of innovation include: "Prediction Intervals for Nonlinear Equations" and "Generalized Degrees of Freedom" which were analytical breakthroughs.

Dr. Hu's research into the mathematical basis for analytical estimating methods routinely results in new, exciting, and quickly adopted terms and methods. Three examples are the "PING Factor" (alternative to the Goldberg factor to correct log-linear CER bias), "MUPE" (powerful and unique adaptation of traditional IRLS) and "Generalized Degrees of Freedom" (improves precision of prediction interval estimation). She developed ACEIT RI$K and introduced unique features like "log t" distribution, flexible point estimate interpretation and the Laurie-Goldberg method to correlate random variables.

Dr. Hu is the principal creator of CO$TAT's statistical analysis algorithms and reports. She designed CO$TAT to be rigorously accurate and completely focused on the statistical analysis methods used within our community to analyze cost/schedule data and their drivers. She has made critical contributions to the advancement of Joint Cost Schedule (JCL) mathematics for NASA, simulation free risk analysis for the Air Force, and improvements to lot-based learning curve algorithms.

Dr. Hu's remarkable career has been a passionate journey of personal and professional investment. Her relentless dedication to precision and mathematical purity have made her a champion of ICEAA's mission. She is more than a distinguished expert. Academically, her powerful papers and influence have helped shape our industry. In practice, she has delivered critical support to many important projects, and she has provided guidance to analysts throughout our community. Dr. Shu Ping has made a difference that will last. We now know Hu's on First!

-Alf Smith, nominator

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