# ICEAA 2021 Association Awards

ICEAA thanks everyone who nominated one or more of their colleagues for a 2021 Association Award. Though we were not able to present the awards at our usual presentation ceremony this year, these outstanding members' accomplishments will be celebrated here and on our YouTube channel. As you enjoy the following summaries of their achievements below, think about your fellow members who exemplify the best of the best in the cost world and consider nominating them for a 2022 Association Award!

## Junior Analyst of the Year:
## Morgan Heimbrock

In this past year, Morgan Heimbrock has proven herself to be a rising star in the cost field. Morgan has worked on a team to develop innovate solutions for the FAA's Investment Planning and Analysis group (IP&A), taking on increasing responsibilities.



*Morgan Heimbrock*

Morgan has acquired an impressive set of skills to develop IP&A's new workflow and communications web application and data analytics platform, the Integrated Decision Management (IDM) tool, on which IP&A provides comments to track status of cost, schedule, benefits, and business case aspects of each program in the investment analysis and decision-making cycle. With over 10,000 comments and approximately 400 comments added per month, IDM can bring up a history of these programs for analysts' detailed review and for data analytics purposes, including dashboard summarizing and forecasting presentations through Tableau. Starting from no exposure to software development, Morgan quickly learned the Agile software development process and the hands-on technical skills essential to IDM's development and delivery, including Python, HTML, CSS, JavaScript/TypeScript, SQL and plpgsql.

At a key juncture in the development of IDM, the team lead needed to take nine weeks of emergency medical leave. Morgan stepped up to take over leadership and direction for the software development effort, a role far beyond her 2 years in the industry. She so impressed the team that she has retained the leadership position on the return of the prior team lead, who has taken on a subject matter expert role. Morgan's ability to rapidly transition from junior analyst to leader has assured the project's success.

The work Morgan has performed with her colleagues will provide a means for IP&A to better track changes to the projects which influence to costs, schedules and cost model methodologies, and will improve IP&A's ability to analyze relationships across programs and improve the ability to develop and audit cost estimates across the agency.

Morgan is also involved in the Cobec software working group. Morgan works with software estimating experts to develop a software estimation handbook to be used both internally and for the FAA. The handbook is also available publicly and she continues to participate in the review and authoring of a more detailed software estimation guide. Morgan continues studying software estimating and function point counting, attending training provided by IFPUG.

Morgan regularly participates in team huddles with other junior analysts, providing assistance and feedback to her peers and helping problem solve as a team. Morgan also demos her work to help educate and inform her colleagues about database development and administration. Her strong presence contributes to the culture of continuing education and growth that Cobec strives to foster. Each week, she works with another team of developers to do technical deep dives and collaborate on coding and data challenges with her colleagues.

Morgan also co-authors presentations for ICEAA to highlight her team's accomplishments and educate the larger cost community about her work. She attends the conference eager to learn and share knowledge with fellow analysts.

Finally, Morgan is a core member of the Corporate Social Responsibility (CSR)

team. This team organizes and hosts volunteer and fundraising activities across the company. Morgan and the CSR team maintain a strong relationship with the community, partnering with Horton's Kids to provide homework help, Christmas gift wrapping events, and annual fundraising. Her contributions to the CSR committee demonstrate that Morgan is dedicated to both her technical growth in her job and her growth as a leader in the company as well as a member to society. Morgan has an undeniably strong future in the field of cost estimating.

-Nominator **Kellie Wutzke, CCEA**

## Technical Achievement of the Year:
## Kevin McKeel, CCEA

Kevin McKeel is a Senior Analyst with Logapps LLC where he has spent the last ten years developing software cost estimates for federal government clients. Over the past five years, Kevin has devoted a large portion of his time and effort to automate function point counting. Today, all research effort for Cadence, Logapps' automated function point counting tool, falls under his leadership.

*Kevin McKeel*

Kevin got his start in cost estimation at MCR Federal over 20 years ago. From there he moved on to PRICE Systems where he gained an interest in software sizing and software cost estimation through his association with fellow analyst David Seaver. Kevin has an undergraduate degree from James Madison in Finance, an MBA from George Washington University, is a Certified Cost Estimator/Analyst (CCEA®) and a member in good standing of ICEAA.

As head of research for Logapps LLC, Kevin McKeel has pioneered a process for sizing software using natural language processing. In the past year Kevin methodically reviewed other work in the field, many from authors in Europe, Asia, and South America, an improved this work. He further collaborated with multiple thought leaders in the area of software cost estimation in the US. Kevin led the efforts of full-time and part-time analysts and testers who developed and tested multiple methods

for parsing requirements and applying function point counts.

Drawing on his experience with past projects that lacked detailed requirements, Kevin created a model for requirements elaboration that was developed into an algorithm in the summer of 2020. This model leveraged past research on software classification as well as a novel, top-down approach to sizing that he termed, "base and branch". Kevin is currently leading the testing effort to verify that the methodology is repeatable under different conditions and constraints.

Separately, in early 2020, Kevin furthered a methodology that applies function point counting to software maintenance requests (trouble tickets) using natural language processing. As part of the research, he mined hundreds of trouble tickets to extract the typical lexicon associated with common maintenance actions. He further modeled function point weight ranges that effectively differentiate maintenance size from development size.
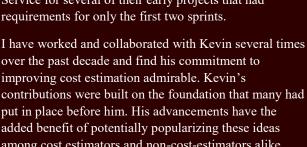
Kevin's work has significantly reduced the time it takes to size software at several federal agencies. His methodology has also resulted in faster software cost estimation training for many cost analysts. In particular, the automation of function point counting has brought renewed interest into the area of software sizing, particularly, function point counting as a better option than source lines of code or agile story points. Requirements elaboration has, in a similar way, successfully responded to a growing problem faced by cost analysts working in agile environments: not enough requirements to size projects still in the planning phase. In particular, elaboration was used extensively at the Internal Revenue Service for several of their early projects that had requirements for only the first two sprints.

I have worked and collaborated with Kevin several times over the past decade and find his commitment to improving cost estimation admirable. Kevin's contributions were built on the foundation that many had put in place before him. His advancements have the added benefit of potentially popularizing these ideas among cost estimators and non-cost-estimators alike. Kevin's work this past year and prior represent a solid effort to return analysis to fact-based methodologies that don't hinder or delay a programs' progress. This is perhaps his greatest contribution to cost estimation in the United States and globally.

-Nominator **Ian Brown**

## Team Achievement of the Year:
## Air Force Research Laboratory (AFRL) Cost Team

The accomplishments the Air Force Research Laboratory (AFRL) cost team has been able to complete over this last year, full of immense challenge to the entire DoD, is a testament to the work and dedication of the cost professionals who are pleased to call AFRL home.



*Ashley Davis*

At only five years of age, the cost team provides AFRL with unparalleled support through data driven analyses, strategic level decision support, and cost estimates for the science and technology (S&T) community. The cost team directly contributed to implementation of USAF S&T strategy and supported the Chief of Staff of the Air Force's Accelerate Change or Lose program – specifically through delivering transformational capabilities and accelerating innovation by providing accurate and timely cost support to keep S&T relevant now and into the future.



*Zachary Newman*



*Jack Snyder*

Some of the team's key accomplishments include informing trade space, such as through a $900M cost benefit analysis evaluating hypersonic technology scalability; advising and informing key S&T capabilities through extensive research and modeling of a $2B hypersonic prototype/test program; building standardized tools for consistent replicability and reliable forecasting such as an intuitive Excel-based phasing tool and a funds and man-hour expenditure tool; growing the future workforce through seminar presentations and on-the-job training for new costers; supporting the enterprise modeling, simulation and analysis community by developing 15 life cycle cost estimates valued at $96B and optimizing cost vs effectiveness; providing estimates for AFRL's three Vanguard programs, key to transformational strategic capability; and many more.

In addition to all the above accomplishments and steadfast estimating support, the team furthered collaborative partnerships with cost and technical colleagues across the Department of Defense. Additionally, the internal peer review process initiated last year continues to be an area of growth, providing a low threat, collaborative environment to garner inputs
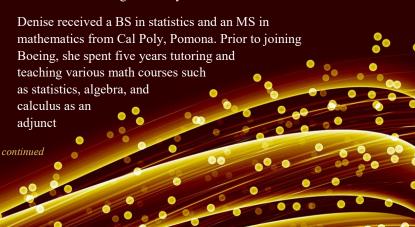
regarding consistency in estimating techniques, correct model application and identification of errors.
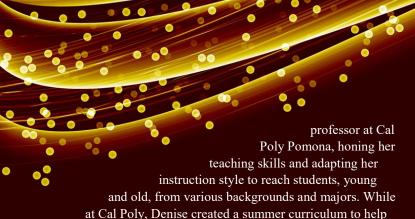
The entire AFRL Cost community has continually sought to enhance the S&T mission through data driven decision making and are proud to collect the ICEAA Team Achievement of the Year Award as recognition to that dedication. Congratulations to all the members of this team:

- Zachary Newman – Chief, Cost and Economics Division
- Helen Barfield, Cost and Economics Division
- Ashley Davis, Cost Lead, Armament Directorate
- Denise DeHass, Cost and Economics Division
- Mark Holbrook, Cost Lead, Aerospace Systems Directorate
- Capt. Matt Markman, Cost and Economics Division
- Kimball Osborne, Cost and Economics Division
- Samuel Powell, Aerospace Systems Directorate
- Brittany Smith, Cost and Economics Division
- Jack Snyder, Cost and Economics Division
- Jonathan Spencer, Cost and Economics Division
- Mike Storer, Cost and Economics Division

                              - Nominator **Zachary Newman**

## Educator of the Year:
## Denise Nelson

Denise Nelson, currently the lead Software Estimator at the Boeing Company, has spent her entire career furthering the education of others in the field of cost estimating, statistics, and mathematics, reaching across multiple domains in both formal and informal settings. She has an impressive track record of developing and presenting curriculum on numerous topics associated with ICEAA. She is considered an expert in affordability analysis, life cycle cost estimating, and especially in software estimating. She regularly and enthusiastically shares her knowledge with anyone who will listen.

Denise received a BS in statistics and an MS in mathematics from Cal Poly, Pomona. Prior to joining Boeing, she spent five years tutoring and teaching various math courses such as statistics, algebra, and calculus as an adjunct

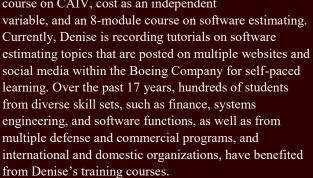professor at Cal Poly Pomona, honing her teaching skills and adapting her instruction style to reach students, young and old, from various backgrounds and majors. While at Cal Poly, Denise created a summer curriculum to help prepare incoming freshmen for college level math, accelerating their math and problem solving skills, and enabling their success in college. These invaluable experiences are one of the reasons why Denise is such an engaging teacher and mentor to others.

At Boeing, Denise further developed her teaching talents by presenting training courses on various topics related to affordability analysis, such as life cycle cost estimating, parametric estimating, cost risk analysis, and software estimating. Designated as a Technical Lead Engineer in affordability analysis and software estimating, she developed training curriculum for a 5-day course on CAIV, cost as an independent variable, and an 8-module course on software estimating. Currently, Denise is recording tutorials on software estimating topics that are posted on multiple websites and social media within the Boeing Company for self-paced learning. Over the past 17 years, hundreds of students from diverse skill sets, such as finance, systems engineering, and software functions, as well as from multiple defense and commercial programs, and international and domestic organizations, have benefited from Denise's training courses.

As the Boeing Enterprise expert on software estimating, in particular on the SEER-SEM tool, Denise has developed and maintains software interface modules and offers daily support to countless estimators, engineers and senior managers on technical issues, licensing of tools, independent cost assessments and software estimating guidance, training, and mentorship. For the past four years, she has held annual webinars for hundreds of SEER-SEM users which highlight updates to the tools, methods, and processes. In 2020, she established a SEER users' group, expanding the focus to all SEER tools in house (H, SEM, MFG, IT, Catia/3D) and pulling together the larger SEER user community for knowledge sharing.

Denise continues to share the knowledge that she has gained from her multiple roles at Boeing, transitioning to and from finance, engineering, and IT systems in the defense, commercial and research divisions of the

company. By experiencing such diverse organizations, Denise further builds upon her own knowledge to enhance her teaching skills.

With a natural aptitude for learning, Denise is always willing to share her knowledge to early career & experienced engineers, financial analysts & estimators, and technical personnel. She naturally engages fellow professionals and provides valuable learning experiences for them, such as providing hands-on exercises to further reinforce learning. The success of her knowledge transfer is clearly recognized by the quality of estimates from those she has trained, who can then take on more demanding and complex projects.



*Denise Nelson*

In Denise's current role as Lead Software Estimator, she is introducing and documenting new methods to estimate software and to grow the skills & capability within the company. This documentation provides guidance to estimating organizations in the company resulting in quality deliveries with minimum concerns from the customer and/or successfully identifying, and adjusting, inflated and unsubstantiated estimates during supplier negotiations.

As a member of ICEAA since 2004, Denise has co-authored and presented at several annual workshops on topics such as experimentation cost modeling and random forest estimating methods. She has presented numerous training classes including but not limited to advanced statistics and learning curve theory, to prepare students for the certification exams. In recent years, she has been a valuable and vocal contributor to ICEAA's Software Cost Estimating Body of Knowledge (SCEBoK), creating courses, and reviewing and editing content. For the past few years, Denise has volunteered to review abstracts for the annual workshop, providing the much-needed software perspective to the team.

Recognized as a subject matter expert in life cycle cost for satellites, Denise was invited to contribute to the sustainment section in the Space Mission Engineering: The New SMAD circa 2010. Although limited by Boeing proprietary issues, she still influenced the content on various topics such as the work breakdown structure.

Denise deserves to be recognized for her tireless efforts throughout the years to inform and educate others on subjects of interest to ICEAA: cost modeling, software estimating and affordability analysis. She has received

accolades for simplifying the estimating processes and providing her easy-to-follow step-by-step documentation, intuitive self-paced learning videos, and her training style. She is in high demand at Boeing, especially to train and grow the capabilities within the company. She is also sought after for ICEAA activities such as the SCEBoK development effort, CEBoK® training, committee work like reviewing abstracts, and volunteering and participating in the Southern California Chapter.

-Nominator **Karen Mourikas**

## Management Achievement of the Year:
# Laura Hawthorn

Laura Hawthorn has excelled well beyond expectations in her role as the Estimating Branch Chief of the Air Force Life Cycle Management Center (AFLCMC). In this role, Laura is responsible for the Center's cost estimating competency. This means that Laura ensures that over 450 AFLCMC programs are properly developing program office estimates (POE) in support of the Center's budget requests.

*Laura Hawthorn*

As the Center's cost estimating competency lead, Laura builds relationships with financial managers, program managers, cost analysts and chief financial officers. Due to Laura's persistence during 2020, she ushered the Center to 98% POE compliance! This means that 98% of the Center's programs across seven geographic sites had an approved POE or POE waiver. This compliance percentage is the highest in the history of AFLCMC, is the first time the metric has finished in the "green" range, and is directly attributable to Laura's foresight and leadership. And all of this was done while teleworking for 9 months due to the pandemic. A truly remarkable feat!

Laura also takes an active role in reviewing the Center's POEs. In 2020, Laura reviewed estimates totaling over $2 TRILLION of total life cycle costs! As part of the review team that reviews the Center's POEs, Laura continually brings valuable insights to the conversation to help to ensure that high-quality estimates are representative of the Center's weapon system programs.

As a subject matter expert in many competency areas, Laura brings a unique expertise to the table and always improves the final estimate product.

In addition to her role as the cost estimating competency focal point, Laura also leads a branch of 13 cost analysts. These analysts range in experience from brand new trainees to some of the most seasoned cost analysts in the Air Force. With each of her analysts, Laura provides incredible mentorship and guidance to ensure that they have what they need to be successful. Laura is never shy to take on challenges that will help the cost analysts in her branch. She demonstrates many leadership traits that include negotiating, coaching and motivating and knows how to find just the right buttons to push to maximize the efficiency and effectiveness of her workforce.

Laura took on the challenge during this very trying pandemic year by setting in motion a virtual work environment for her branch that has been very effective. She ramped up communication and took full advantage of the technology that was available to move the mission forward. During the pandemic, Laura on-boarded 4 new cost analysts. Coming into a new organization is hard enough – doing so during a pandemic adds multiple layers of complexity. Laura did everything that she could possibly do to make the new analysts feel at home, despite not being able to meet with them face-to-face.

Laura Hawthorn is one of the most professional and competent senior leaders in the Air Force cost enterprise. I fully endorse her as the Management Achievement of the Year honoree.

-Nominator **Jim McMahon, PCEA**

## Association Service Award:
# Christina N. Snyder, CCEA

Since the merging of organizations that formed ICEAA, Christina Snyder has shown uncommon and sustained volunteer service to the association. Her innovative ideas and commitment to ICEAA have gone beyond making the workshop better each year and have benefitted all of us as members. Christina has been an active part of every workshop since 2012, rising through the

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ranks from track chair, track chair lead, deputy workshop chair, and workshop chair. She began her work with the ICEAA board directly in her role on the outreach committee, in 2019 was elected by the ICEAA membership to serve as the international board secretary, and elected to the 2021-2023 board as executive vice president. She has become a familiar name and face within the association, enthusiastically involved at all levels of ICEAA, volunteering her own time to enhance the profession and engage the membership.

After receiving her CCEA® certification in 2012, Christina co-developed and piloted a successful CEBoK® study and CCEA® preparation program to encourage more analysts at MCR to get certified. However, her advocacy for ICEAA has gone well beyond pushing just for analysts at MCR to be certified: her focus has always been on the furtherance of the ICEAA membership engagement and public interest in cost analysis. Christina has volunteered for every annual workshop since 2013 to teach training sessions and has been progressively more instrumental in each workshop's success, serving as deputy chair, co-chair, or workshop chair since 2016. Her contributions to the workshop have been effective and valuable, as evidenced by positive feedback, steadily increasing attendance, and record-breaking profits.

Her introduction to the ICEAA International board was when she was appointed as Chair of the outreach committee, where she worked with the executive director to reach outside of the normal ICEAA constituency for new members and new CCEAs. As board Secretary, Christina recognized the need for the ICEAA board to institute a conflict of interest policy that would ensure all board members are free from competing priorities and committed to the best for ICEAA. In 2018, she wrote a column for ICEAA World magazine where she asked "what are you doing to attract the best and brightest to the field; how can we make ICEAA an even stronger example of broken stereotypes; and what can we do to help create the mentors that 13 year old girls are missing?"

In June of 2020, Christina drafted verbiage that was approved by the executive committee explicitly stating ICEAA's commitment to diversity, understanding, and inclusion. The sentiment highlighting that "diversity

within in our membership is ICEAA's greatest strength, which fosters a sharing of ideas, innovation, creativity, and empathy." This statement remains on the ICEAA website to affirm our commitment to those ideals into the future. Christina took action on her idea to directly contact colleges with an offer for graduating students to attend the 2021 Online Workshop at a discounted price, inviting graduates to the Online Workshop with the hopes to provide ICEAA member companies a first glimpse at new prospective talent and introducing ICEAA to graduates, college administrators, and professors, who many otherwise never have heard of us. True to her commitment to further diversity in the association, she specifically reached out to many Historically Black Colleges and Universities (HBCUs) across America that have been underutilized in the cost community's recruiting efforts.



*Christina Snyder*

While conducting her own research to furthering of the profession, Christina consistently looks for areas where ICEAA could increase their depth of training topics. In 2020, she developed and presented guidance for estimators on how to create a compelling narrative to accompany analysis. "Storytelling for Cost Estimators" showed how cost estimators could leverage familiar storytelling techniques to empower our customers with genuine understanding of our estimates by effectively pairing good estimating with good communication. This year she surveyed the cost community to bring attention to the value of strong cost team leadership and leader attributes, presenting that original paper and findings at the 2021 Online Workshop.

Christina has brought so much to every role she has taken on and is genuinely dedicated to the betterment of everything ICEAA. When she volunteers to teach a training course, she commits to providing a thorough understanding of the content; she serves on committees and uses those roles to bring on new members and bring out the best in the team; she conducts and collects her own research to write papers and give presentations towards topics and findings that aren't about promoting her own work, but enabling others to improve themselves. She personifies what it means to be an active, engaged, and committed ICEAA member making Christina Snyder an exemplary ambassador for ICEAA and the entire cost community.

-Nominators **Bob Hunt** and **Jeff Moore, CCEA**

## Frank Freiman
## Lifetime Achievement Award:
## Christian B. Smart, CCEA

Dr. Christian Smart is the Galorath Inc. Chief Scientist. Previously he worked for the Missile Defense Agency (MDA), where he was the Cost Director with over 100 employees. Before Galorath and MDA, Dr. Smart worked for SAIC, MCR, and Northrop Grumman.



*Dr. Christian B. Smart*

For over 20 years, Dr. Smart has made– and continues to make at an accelerated pace– outstanding and ground-breaking contributions to the discipline of cost estimating and analysis. Dr. Smart just published a landmark McGraw Hill book, *Solving for Project Risk Management: Understanding the Critical Role of Uncertainty in Project Management*. While Dr. Smart has primarily worked in NASA and DoD circles, his new book tackles risk and uncertainty in all sectors of project management. Dr. Smart's body of work is voluminous, with over 30 technical papers to his credit, most of them on highly complex subjects and offering world-class advancements in the field of cost analysis.

Dr. Smart's professional career has focused on parametric cost analysis and cost risk analysis of space flight and weapon system programs and related areas such as regression analysis, cost and schedule risk analysis, probabilistic risk analysis, and the project management policies that support best in class cost and schedule analysis. He led the development of cost estimating relationships for multiple versions of the NASA-Air Force Cost Model (NAFCOM) and led the development and implementation of a cost risk analysis capability for NAFCOM. Dr. Smart was the lead statistician for the Galorath SEER-Space Cost Model, and led the development of a probabilistic risk analysis for the space shuttle. Dr. Smart developed a joint confidence level analysis for the Ares I launch vehicle and served on the Review of United States Human Space Flight Plans Committee (aka the Augustine Commission). For his NASA work, he was awarded an Exceptional Public Service Medal by NASA in 2010. Leaving NASA work aside for a period, he was recruited by MDA where he led the development of a cost estimating handbook for the agency while simultaneously managing scores of ongoing cost analyses being done by his staff. While at MDA, Dr. Smart also reviewed and contributed to joint government agency handbooks for cost risk analysis and parametrics. He has performed cost analyses for the Defense Advanced Research Projects Agency (DARPA) and the Pentagon Research and Engineering Organization.

Dr. Smart has written extensively about cost modeling, parametric cost estimating, and cost risk analysis. He has written scores of technical papers and has won more than his fair share of ICEAA (and previously SCEA and ISPA) best paper awards at the annual workshop. He has taught numerous training classes for the association. Dr. Smart has served in a variety of roles on his local ICEAA board as well as terms as Regional Director and Vice President for Professional Development.

Dr. Smart has been a thought leader and heavy influencer on novel improvements in cost analysis and is a leading world-renowned expert on cost risk analysis where he has expounded new statistical approaches and techniques to improve results including the invention of parametric joint confidence levels using a three-parameter lognormal distribution, insightful improvements to project portfolio management, better methods to specify correlation in cost risk analysis, how to incorporate irregular events into risk management, better ways to take into account the right tail of cost distributions, approaches to calibrating cost and schedule risk analysis to historical cost and schedule growth, new ways to allocate non-recurring and recurring cost, how to estimate component/assembly costs with subsystem level CERs and many other areas of research. Never satisfied to rest on his laurels, Dr. Smart has recently become involved with machine learning/artificial intelligence and is working on cutting edge use of these new techniques in our discipline.

Dr. Smart supports NASA, DOD and commercial aerospace customers on projects ranging from payloads, spacecraft, missiles including hypersonics and human space flight programs that range in cost from tens of millions to billions of dollars. As Chief Scientist, at Galorath, Dr. Smart is a thought leader in the organization and oversees, directs, and inspires other Galorath employees, encouraging their professionalism, technical excellence, standards, and ethics.

-Nominator **Joseph Hamaker, CCEA-P**