



Interface

NEWSLETTER

SOCIETY FOR TECHNOLOGY IN ANESTHESIA • NOVEMBER 2018

2018 BOARD OF DIRECTORS

President
Kai Kuck, PhD
kai.kuck@hsc.utah.edu

President-Elect
Brian S. Rothman, MD
brian.rothman@vumc.org

Treasurer
Allan Simpao, MD
allan.simpao@gmail.com

Secretary
Norma Sandrock, MD
nsandroc@bidme.harvard.edu

Immediate Past President
Mark Poler, MD
mark@poler.net

At Large Director
Patrick McCormick, MD, MEng
patrick.mccormick@alum.mit.edu

At Large Director
Jeff E. Mandel, MD, MS
jemandel@verizon.net

At Large International Director
Thomas Hemmerling, MD, MSc, DEAA
thomas.hemmerling@mcgill.ca

At Large Industry Director
Steven J. Barker, MD, PhD
sjbarker@anesth.arizona.edu

A&A Section Editor
Maxime Cannesson, MD, PhD
maxime@cannesson@hotmail.com

Executive Director
Jane Svinicki, CAE
jane@stahq.org

Account Executive
Marie Odden
marie@stahq.org

Account Coordinator
Rachel Witte
rachel@stahq.org

STA OFFICE
6737 West Washington Street
Suite 4210
Milwaukee, WI 53214
Phone: 414-389-8600
Fax: 414-276-7704
Website: www.stahq.org



President's Message

KAI KUCK, PHD, UNIVERSITY OF UTAH

The fall issue of the *STA Interface Newsletter* is a great opportunity to update you on STA's news and events.

I am writing this on my return trip from the American Society of Anesthesiologists (ASA) Annual Meeting in San Francisco, CA. STA's Ty Smith dinner was held during ASA's Annual Meeting in a beautiful setting right under the Bay Bridge. STA was honored to have won Joe Kiani, Founder, Chairman and CEO of Masimo, as speaker. He inspired us all with his story of starting out as a recent engineering graduate with an idea, to building a global company committed to innovation and patient safety. Look elsewhere in this issue of the *Interface* for more details on this remarkable evening.

Dr. Mark Poler organized and moderated an excellent STA Panel at the ASA Annual Meeting on the collaboration of academia and industry to translate research into impactful innovations, managing conflict of interest, navigating issues of invention disclosures and intellectual property protection, and entrepreneurship in anesthesia.

Our next STA panel will be held at the International Anesthesia Research Society (IARS) Annual Meeting in May 2019 in Montreal. Titled, *Beyond the Hype: Emerging Technologies and their Potential to Improve Anesthesia Education, Research, and Care Delivery*, a formidable line-up of STA experts will unpack the significance and potentials of new technologies for anesthesia, including blockchain, machine learning, virtual and augmented reality, mobile and wearable technologies, and internet of things.

This is also the time of the year to remind all of us to take a few minutes and review the candidates for STA leadership positions. STA is, and has been since its beginning, all about active involvement, interaction, and participation of its members. Our Society's leaders serve for limited terms. Getting involved in leading the Society and selecting our next leaders is an important form of participation. This year, we are selecting Board Members for the positions of President-Elect, At-Large/International, At-Large, and At-Large/Industry and we have outstanding candidates for each of these positions. So, please remember to cast your vote before December 1st!

President's Message
continues on next page

In This Issue

President's Message.....	1-2	2019 Board of Directors Election Information.....	5-7
Report from the Executive Director.....	3	2018 STA Board of Directors.....	8
STA Office Holiday Hours.....	3	2019 Annual Meeting Brochure.....	9-13
STA 2018 Ty Smith Dinner Recap.....	4		

President's Message *continued from previous page*

Speaking of STA's members, I would like to take the opportunity to share with you two important developments. Under the leadership of Dr. Jeff Feldman, Dr. David Feinstein, and myself, we have created a new Corporate Membership category. Many of STA's Corporate Members have been with STA for decades and their input and participation is critical for our Society's success. The new membership category, "Sustaining Corporate Member," was created to establish a formal way for Corporate Members to engage with STA in a long-term relationship, not restricted to just the once-a-year meeting, but on an on-going basis throughout the year, and for a period of three years. It is a new level of commitment for these companies and we are happy to report that this was received very positively and that we already have a number of companies who signed up as Sustaining Corporate Members.

We also had a number of requests for memberships from individuals who have been active in anesthesia technology and innovation for many years, but who do not under the current Bylaws qualify for STA membership because they lack advanced degrees (MD, PhD, MS). These individuals include Certified Anesthesia Technicians and also some with long careers in anesthesia technology. The STA Board is working on a proposal for Bylaw language that opens a path to memberships for these individuals. The goal is to have this ready for a vote during our Annual Business Meeting in January.

The STA Annual Meeting will be held January 9-12, 2019, at the Four Seasons Resort Scottsdale at Troon North in Arizona. Program Co-Chairs, Dr. Charlene Blake and Dr. Matthew Levin, have prepared an outstanding program, all centered around that meeting's theme of "Mind and Machine." Registration is open, the program details are available in this issue and on the STA website, and submission for abstracts is open until the deadline of December 1, 2018. We are looking forward to welcoming a guest speaker from SCATA (the United Kingdom's Society for Computing and Technology in Anaesthesia), continuing a relationship that we have enjoyed for several years now. Earlier this year, I had the privilege to join SCATA's Annual Meeting in Cardiff, Wales, as a guest speaker, which was a great experience.

Thanks for the honor of serving as your President and see you in Scottsdale in January!

Kind regards,



Kai Kuck, PhD

President, Society for Technology in Anesthesia

Save the Date

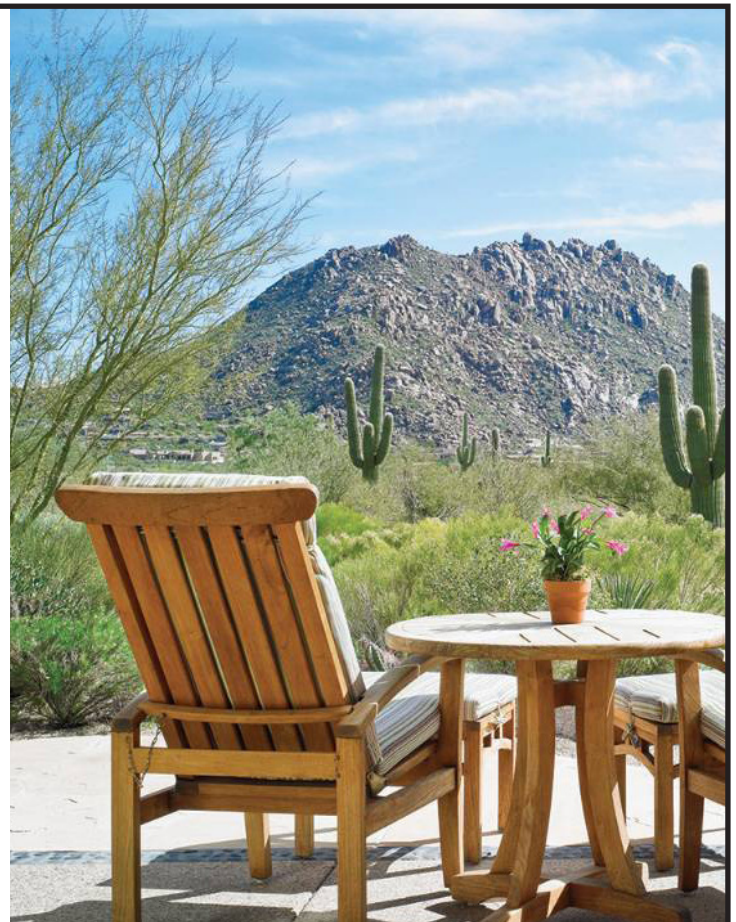
2019 Annual Meeting

January 9-12, 2019

*Four Seasons Resort Scottsdale
at Troon North
Scottsdale, Arizona*

Registration Open!

Brochure on pages 9-13





Report from the Executive Director

JANE SVINICKI, CAE

How Do the STA Meeting Locations Get Selected?

This year's meeting site in Miami, Florida was a wonderful, warm place to be in January! With a great attendance of 215, it was one of the larger and more successful of meetings that STA has held.

What about this Annual Meeting made it successful? Beautiful weather, swaying palm trees, sunshine and waves lapping a golden sand beach definitely help! Especially to those of us who had spent the winter fighting snow and freezing temperatures. But it takes many factors coming together in just the right way to make a meeting successful for any organization.

Your staff takes time to find the best combination of location, accessibility, cost, physical layout, alternating geographic locations (to move meetings around the country), networking venues and local attractions. These locations are proposed to the STA Board of Directors to make a selection for our members.

But the primary factor is education. Attendees need to learn and meet in a meaningful way. Here are some of the factors that we look for in a STA meeting location.

The location should be accessible, reachable with one flight from most major cities. That one flight should be reasonably priced. The hotel should be a reasonable distance from the airport, without feeling like you are at the airport. Beautiful, remote locations requiring three flights to arrive at, or having to travel 1.5 hours from airport, will deter attendees.

It is all about the education. Attendees need a return on investment to attend a meeting. A content-filled educational program, with the opportunity to meet and learn from your colleagues, will attract a large attendance. Amenities such as golf, spa, pools, restaurants and bars are an added bonus, but they do not replace solid education.

The education and networking must be held in appropriately sized meeting space. If the meeting does not fit in the space provided by the hotel, the organization cannot meet there. Adequately sized meeting rooms, enough hotel rooms, and well-sized social venues for networking are critical.

Adhere to the budget. The meeting must meet the budget parameters for income and expense. Staff works hard to keep the meeting on budget, but we need to know the difference between 'must have' and 'would be nice to have.' If the meeting is attracting a large attendance, revenue is available to spend more on food and beverage and social events. We also pay attention to the attendee's budgets; excessively expensive hotel rooms or travel locations will be difficult for attendees to justify.

Site visits are hard work. In order to evaluate a hotel, we work for hours reviewing the transportation options, schedule, meeting space, outside venues, pricing, and vendors.

Hotels are measuring the value of your business. As with every business, hotel sales staff are charged with selling a product to produce a profit. They are looking for the right combination of hotel rooms rate paid, meeting space used and food and beverage spent on the part of the client in order for both parties to have a successful meeting. We can negotiate many things, but there will be a point where there is no further negotiation because minimum revenue must be met.

We want your meeting to be a tremendous success every year. We are professionals and work hard for STA. We are grateful for your input and look forward to continuing to give you (almost) everything you want in the STA Annual Meeting location!

Jane A. Svinicki, CAE
Executive Director

STA Office Holiday Hours

The STA Office will be closed on the following dates:

November 22-23, 2018

December 24-25, 2018

December 31-January 1, 2018



STA 2018 Ty Smith Dinner Recap

JAMES SZOCIK, MD
STA Communications Committee Chair

The STA 2018 Ty Smith Dinner was held at EPIC Steak (not to be confused with [the other EPIC](#)) in San Francisco, CA, on Sunday, October 14th. Invited speaker, [Mr. Joe Kiani](#), Founder,

Chairman and CEO of Masimo was introduced by STA Past President, Dr. Steve Barker. Mr. Kiani spoke warmly of Ty Smith's kindness in his prelude.

The dinner marked Mr. Kiani's 30th ASA attendance and he voiced his appreciation of the support of anesthesiologists throughout his career. He shifted to how much the world has changed since 1989 when we were supposed to be at ["the end of history"](#) at the beginning of his career.

Joe Kiani was born in Shiraz, Iran in 1964 and emigrated to Alabama in 1974 at 9 years old. He knew 3 phrases in English: "Yes", "No", and "I don't know". At 15, he was a high school grad applying to electrical engineering. By age 22, had earned both his bachelor's (B.S.E.E) and master's (M.S.E.E) degrees in electrical engineering from San Diego State University.

In the 1980s, he was working on a project to build a \$100 pulse oximeter, but he had cold hands and noticed the extreme motion sensitivity. Others also noted the issue, and had concluded that it was insolvable, i.e. the pulse ox algorithm used always resulted in a ratio of one (noise/noise) which gave a readout as a O2 sat of 85%.

At 23 years old, he was offered a position to be division president in a company but found out the company was soon to be sold (without an actual working product). He felt this wasn't the right thing to do so he struck a deal to leave that company and work on solving the motion artifact problem. Joe persisted and followed up with [Professor Harris](#), applied adaptive filtering, and solved the previously unsolvable problem and filed the first patents in 1991. In 1992, he met with a number of pulse oximetry companies to include the adaptive filtering signal extraction technology in their products. [Name redacted] was interested in maintaining it's oximetry patent for the full years rather than using the newer technology. By 1994, Joe was not able to make a deal to get his newer technology out, so raised \$100 million in venture capital and created a product. However, Group Purchasing Organizations controlled access to hospitals and still prevented his product from reaching the market. National attention came to the issue and a [New York Times expose](#) was written. In the resulting legal battles against [redacted, redacted and redacted], Masimo was awarded multiple millions for antitrust and patent infringement.



From left to right: Past President, Dr. Steven Barker, Mr. Joe Kiani and current President, Dr. Kai Kuck.

Towards the end of his talk, Joe related Masimo's guiding principles: 1. Remain faithful to your promises and responsibilities. 2. Thrive on fascination and accomplishment and not on greed and power. 3. Strive to make each year better than the year before, both personally and for the team. 4. Make each day as fun as possible. 5. Do what is best for patient care. Following through on these principles, in 2013 Joe and Masimo created the Patient Safety Movement Foundation.

In contrasting 1989 to current day, Joe stated that technological innovation can still be done, but needs to save both lives and money, not just lives. Concluding, Joe told a story of Winston Churchill delivering a commencement speech. He stood up, said "Never give up!", and sat back down.

Note: If you were there, you not only had an excellent meal, but are privy to the redacted items.

STA 2018 Ty Smith Dinner

FIRST COURSE

EPIC Caesar Salad
Levain Croutons & Parmesan Cheese

SECOND COURSE

Grilled Filet of Beef
Julia Child Potatoes, Savoy Spinach
Mushrooms & Sauce Bordelaise

OR

Pan Roasted Halibut
Cauliflower, New Potatoes
& Lemon Picatta Sauce

DESSERT

Warm Chocolate Cherry Cake
Candied Cocoa Nibs & Sweet Cream

OR

Apple Galette
Vanilla Ice Cream & Caramel Sauce

2019 BOARD OF DIRECTORS ELECTION

Deadline to Cast Your Vote: December 1, 2018

2019 Board of Directors Voting Information

The 2019 candidate statements for the STA Board of Directors are provided to assist you with voting. Voting is conducted online, please visit the STA website at www.stahq.org or **CLICK HERE** to proceed to the voting website.

President-Elect (Vote for One of Three)



Thomas Hemmerling, MD, MSc, DEAA

Dr. Hemmerling is an Associate Professor in anesthesia and the Director of ITAG laboratory at McGill University.

Dr. Hemmerling has been a STA member since 2005, Chair of the STA Research Committee since 2012 and Director-International for the last 5 years. His main achievements were securing continuing research support and the establishment of a Junior Research Grant.

As President-Elect, his main focus will be reinforcement of industry relation, including opening of new avenues of industry sponsoring to secure long-term financial stability for STA, branching out internationally with various collaborations, lead to increase membership by attracting more international members and increase junior research support.

As in the past, being based in Canada – close to the border – but with a European background, he will try to continue to bridge and establish connections between the STA and other countries.



Jeff Mandel, MD

Dr. Jeff Mandel had been a STA member since 1998. During this time he clearly demonstrated leadership in Anesthesia Technology and the STA cause. He has held the At Large Director position on the STA Board of Directors since 2013. During his membership he has made and secured special contributions to the organization. He secured funding for the STA Research

Grant, currently from and named for Neurowave. This annually supports researchers in their quest for engineering solutions to anesthesia

problems. He secured \$40,000 funding to support STA Annual Engineering Challenge in which he provides a problem and seeks engineering solutions which are presented in competition at the STA Annual Meeting.

Academically, Dr. Mandel published 18 original reports and 10 review articles in the field of Anesthesia Technology. Dr. Mandel's degrees include BA from Rice University, MD from Texas HSC San Antonio, and MS in Engineering from UCSD. He currently serves as Anesthesiologist and Assistant Professor at the University of Pennsylvania. He was mentored by STA Presidents Drs. Ty Smith, Alan Grogono (Grog), and James Philip.



Baskar Padakandla, MD, FFARCSI

Dr. Padakandla is an Anesthesiologist at USAF. He is an active member of TSA, ASA and TMA. He is the District Director of the TSA and on numerous committees dealing with communication, IT, legislative and publicity for the specialty of anesthesia.

He is highly regarded by his colleagues and has a strong passion for advocacy.

2019 Board of Directors Election
continues on next page

2019 Board of Directors Election *continued from previous page*

At Large Director (Vote for One of Four)



Sorin Brull, MD

Dr. Brull is Professor of Anesthesiology and Perioperative Medicine and Consultant at the Mayo Clinic in Florida. Following his anesthesiology training at Yale University School of Medicine in New Haven, CT, he completed fellowships in Obstetric Anesthesia followed by Thoracic/Vascular Anesthesia.

In 2012, he completed the National Patient Safety Foundation (NPSF) - Anesthesia Patient Safety Foundation (APSF) Patient Safety Leadership Fellowship.

Dr. Brull serves as a scientific reviewer for numerous medical journals and was Editor of the Patient Safety Section for *Anesthesia & Analgesia* journal for 9 years (2007-2016). His research interests include neuromuscular junction physiology; muscle relaxants and neuromuscular function monitoring; physiology and pharmacology of spinal anesthesia; and patient safety. He was Consultant to US Food and Drug Administration (FDA), and has received over \$2.4M in research funding from both industry and federal sources. He is a Senior Examiner for the American Board of Anesthesiology (ABA), and an elected member of the Association of University Anesthesiologists (AUA) and the Academy of Anesthesiology.

Dr. Brull is the founder of a medical device company, and a member of three international scientific advisory boards. He has delivered hundreds of lectures both nationally and internationally, and has authored over 380 scientific papers, including peer-reviewed manuscripts, editorials, letters, books, chapters, educational videos and abstracts.



Christopher Connor, MD, PhD

By profession, Dr. Connor was first a biomedical engineer and a researcher at MIT, and subsequently an Anesthesiologist at Brigham and Women's Hospital. He is particularly known for his work on the recognition and prediction of the difficult airway based on machine learning from patient photographs,

as part of a larger body of work pertaining to patient safety under anesthesia with smarter monitoring algorithms and PKPD modeling. His professional interests are strongly aligned with the mission of the STA.

He is seeking appointment to the BOD of STA because we are entering an era in which machine learning and artificial intelligence are going to become increasingly important in the development of our specialty, and this is an area in which he has expertise to offer. The STA has a laudable history of success in innovation, patient safety and industry partnerships. Perhaps STA was even too successful, spinning off Simulation from the Society. The coming advances in machine learning and AI will be revolutionary, and open

up new and exciting opportunities for engineering and research in our specialty. Dr. Connor seeks to be directly involved with this change, and is capable of helping STA benefit from it.



Jorge Galvez, MD, MBI

Dr. Jorge Galvez, a Pediatric Anesthesiologist and Clinical Informatician at Children's Hospital of Philadelphia (CHOP), has been an enthusiastic STA supporter since 2011. He served as the STA Annual Meeting Co-Chair in 2016, and he led two of the winning STA Engineering Challenge teams. Dr. Galvez

is an Associate Editor and Social Media Editor for the journal *Anesthesiology* and a peer reviewer for many anesthesiology and informatics journals.

Dr. Galvez has dedicated his career to improving pediatric care through digital innovation and data analytics. He has worked extensively with STA, the Society for Pediatric Anesthesia (SPA), and the IHTDSO to enhance information systems for pediatric hospitals. He has compiled an extensive list of technology-related accomplishments, including using visual analytics to guide transfusion practices for children undergoing surgery, implementing pediatric clinical decision support systems, using 3D anatomic medical modeling for pediatric airways and transplants, creating virtual reality applications to support Child Life Therapy, developing an internationally utilized pediatric perioperative crisis app, and exploring novel applications of machine learning algorithms to perioperative data.

Jorge Galvez' history of service to STA, passion for inviting and mentoring new STA members, and diverse array of accomplishments in perioperative informatics and technology make him an ideal candidate. He has a track record of innovative, outside-the-box thinking that will benefit STA as it adapts to the ever-changing health care technology landscape. Thank you for considering Dr. Galvez for the position of At Large Director.



Jonathan Wanderer, MD, MPhil

Dr. Wanderer is an Associate Professor for Biomedical Informatics and Anesthesiology at Vanderbilt University where he is the Associate Fellowship Director for the Clinical Informatics Fellowship Program co-course director for the Foundations of Clinical Informatics in the Masters of Applied Clinical Informatics

Program. He leads the Vanderbilt Anesthesiology and Perioperative Informatics Research (VAPIR) Division, as well as Vanderbilt's Preoperative Evaluation Center. On a national level, Dr. Wanderer has served on multiple committees charged with collecting and

2019 Board of Directors Election
continues on next page

2019 Board of Directors Election *continued from previous page*

At Large Director (Vote for One of Four) continued

utilization perioperative data to improve delivery of healthcare services. For the Anesthesia Quality Institute, Dr. Wanderer has served as Vice Chair of the Data Use Committee, Vice Chair for the Registry Operations Committee, as well as serving on the Ad Hoc Data Definitions Task Force, Perioperative Quality Improvement Committee and Core Measure Development Committee. Following his passion for improving the functionality of Vanderbilt's EMR, Dr. Wanderer has pursued extensive involvement with its Epic

implementation. He has certifications, proficiencies or badges in 10 different Epic tracks, serves on Epic's Anesthesiology Specialty Steering Board, is Associate Medical Director for Perioperative Informatics and leads Vanderbilt's Physician Builder program.

He is a board certified in Clinical Informatics and has been a member of STA for 7 years and served as Annual Meeting Program Chair in 2017.

At Large International Director (Vote to Approve)



Matthias Gorges, PhD

Dr. Gorges received his MSc in biomedical engineering from the Hamburg University of Applied Sciences, Germany (2005) and his PhD in bioengineering from the University of Utah, Salt Lake City, USA (2010).

He was a Post-Doctoral Fellow in the Electrical and Computer Engineering in Medicine group, at BC Children's Hospital and the University of British Columbia (UBC) in Vancouver, Canada. He became an Assistant Professor (Partner) in the Department of Anesthesiology, Pharmacology & Therapeutics at UBC in 2016.

Dr Gorges is a biomedical engineer with extensive clinical research experience. He conducts research with an inter-disciplinary team focusing on the development and application of new technologies in anesthesia and intensive care. He is a Scientist at the BC Children's Hospital Research Institute where he co-founded the Digital Health Innovation Lab and co-leads the Clinical & Community Data, Analytics & Informatics group.

Matthias has attended every STA Annual Meeting since 2010, which he enjoys for opportunities to network, discuss new research ideas, and receive feedback from leaders in both engineering and perioperative medicine. He would be honored to serve on the STA Board, where he envisions to strengthen international data sharing/collaboration and increase participation by research trainees from abroad.

At Large Industry Director (Vote for One of Two)



Steven Barker, MD, PhD

Dr. Barker received his B.S. in Physics from Harvey Mudd College in 1967, his PhD in Aeronautical Engineering from the California Institute of Technology in 1972, and his MD from the University of Miami in 1981. He has reached the rank of tenured professor in both engineering (UCLA) and anesthesiology (UC Irvine, University of Arizona). He

chaired the Department of Anesthesiology at UC Irvine from 1990 to 1995, and then at the University of Arizona from 1995 to 2013. He has published over 200 scholarly works, including 15 textbook chapters. Dr. Barker has served as president of the national organization of anesthesiology department chairs (AAPD) and of the STA, senior oral examiner for the American Board of Anesthesiology, and Section Editor for Technology for the journal *Anesthesia and Analgesia*.

During his 18-year tenure as anesthesiology chair at the University of Arizona, Dr. Barker was active in a number of governance roles outside of his department. He was Chair of the Council of Clinical Department Heads from 2000 through 2003, and then chair of the clinical department heads working group. He served seven years as the American Society of Anesthesiologists Director for Academic Anesthesiology, representing all university anesthesiology departments at the ASA. Dr. Barker has been a productive academician, and has also participated actively in governance and administration at local, state, and national levels. He is now Professor Emeritus of Anesthesiology and Aerospace Engineering at the University of Arizona.

Dr. Barker has been involved with Masimo Corporation, a world leader in medical technology, since its beginnings in 1990. He now serves as Masimo's Chief Science Officer and member of the Board of Directors. His Masimo activities allow Dr. Barker to combine his engineering and medical backgrounds to advance patient care

2019 Board of Directors Election
continues on next page

2019 Board of Directors Election *continued from previous page*

At Large Industry Director (Vote for One of Two) continued

and safety through improved technology. Dr. Barker is also actively involved with the Patient Safety Movement Foundation (PSMF), and serves on its Board of Directors.

In November 2015, Dr. Barker received the Lifetime Achievement Award from IAMPOV (Innovations and Applications of Monitoring Perfusion, Oxygenation, and Ventilation), “for championing the development of vitally important monitoring technologies and associated testing.” In January 2016, he received the J.S. Gravenstein Award from the STA, “for his visionary understanding of the role of technology in anesthesia care and lifetime commitment to patient safety.” In April 2016, he received the “Distinguished Alumni Award” from Harvey Mudd College.



Justin Adams

Justin Adams is the Chief Executive Officer of AlertWatch, Inc. He was recruited as a co-founder in 2012 when AlertWatch was incorporated as a University of Michigan start-up. Justin has overseen all facets of the firm, including the commercialization of AlertWatch:OR and AlertWatch:OB; having received three FDA 510(k)-clearances for these real-time patient monitoring solutions. Justin coauthored two design patents involving the innovative AlertWatch display. AlertWatch has recently entered into a sales and marketing partnership with Qualcomm Life.

Justin worked in investment banking, venture capital, and ran several firms as interim CEO, helping oversee R&D efforts and operational turnarounds, before joining AlertWatch.

Justin started his career at General Motors, where he wrote engine diagnostics for GM which helped make the check engine light go on. He received four patents for his work on the signal processing of various sensors and components. Justin continues to code in Objective-C and Swift for fun.

Justin holds a Bachelor of Science in Electrical Engineering, and an MBA from the University of Michigan Ross School of Business.

2018 Board of Directors

President

Kai Kuck, PhD
kai.kuck@hsc.utah.edu

At Large Director

Patrick McCormick, MD, MEng
patrick.mccormick@alum.mit.edu

A&A Section Editor

Maxime Cannesson, MD, PhD
maxime@cannesson@hotmail.com

President-Elect

Brian S. Rothman, MD
brian.rothman@vumc.org

At Large Director

Jeff E. Mandel, MD, MS
jemandel@verizon.net

Executive Director

Jane Svinicki, CAE
jane@stahq.org

Treasurer

Allan Simpao, MD
allan.simpao@gmail.com

At Large International Director

Thomas Hemmerling, MD, MSc, DEAA
thomas.hemmerling@mcgill.ca

Account Executive

Marie Odden
marie@stahq.org

Secretary

Norma Sandrock, MD
nsandroc@bidme.harvard.edu

At Large Industry Director

Steven J. Barker, MD, PhD
sjbarker@anesth.arizona.edu

Account Coordinator

Rachel Witte
rachel@stahq.org

Immediate Past President

Mark Poler, MD
mark@poler.net



2019 Annual Meeting Program

MIND and *Machine*

January 9-12, 2019
*Four Seasons Resort
Scottsdale at Troon North
Scottsdale, Arizona*

Annual Meeting
Program Co-Chairs
Charlene Blake, MD, PhD
Matthew Levin, MD

#STA19Scottsdale



Society for Technology in Anesthesia
6737 W. Washington St., Suite 4210 • Milwaukee, WI 53214
(P) 414-389-8600 • (F) 414-276-7704 • www.stahq.org • stahq@stahq.org

Meeting Accreditation Information

Activity Overview

The Society for Technology in Anesthesia (STA) 2019 Annual Meeting will provide a forum for discussion of emerging innovations and technology in anesthesia with a particular emphasis on how data and data science are being used to drive and support these innovations. Topics covered throughout the program include the latest advances in automated drug delivery, innovations in education through use of technology, machine learning, anesthesia EHRs, the role of entrepreneurs in medical device technology and cybersecurity in healthcare.

Target Audience

This live activity is designated for a national and international audience of physicians, engineers and industry members, as well as other practitioners in the field of anesthesia seeking an update on the current and future state of anesthesia technology.

Educational Objectives

As a result of participation in this CME activity, learners should be able to:

- Describe the current limitations of medical device cybersecurity and summarize the research being done in this area.
- Describe examples of innovations in resident education utilizing virtual reality and simulation.
- Summarize the latest advances in closed loop systems and automated drug delivery.
- Understand the strengths and limitations of next generation anesthesia EHRs.
- Describe the type of algorithms that are commonly used in machine learning in the healthcare space.
- Discuss the role that entrepreneurs can play in advancing medical device technology for clinicians and patients.
- Summarize current research being pursued by anesthesiologists and engineers in both industry and academic settings.

Barriers to change:

- Reduced ability to implement innovative or cutting-edge technologies in an era of increasing EHR consolidation and centralization.

Accreditation Statement

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Amedco and the Society for Technology in Anesthesia (STA). Amedco is accredited by the ACCME to provide continuing medical education for physicians.

Credit Designation Statement

Amedco designates this live activity for a maximum of **17.25 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Pre-Conference Sessions

Challenges and Opportunities in Developing Anesthesia Products (for Industry ONLY)

Wednesday, January 9, 2019 • 0800 - 1200

The Challenges and Opportunities Course started over ten years ago as an introduction to the practice of anesthesia for non-clinical STA members. Through the years it has evolved to its current form where STA industry members and anesthesiologists meet to discuss current trends in anesthesia practice and product development.

This half day course is planned for industry by the scientist and researcher members of the STA involved in designing, testing and marketing new developments and products to anesthesiologists. Basic talks will provide participants with

an understanding of the practice of anesthesiology and how to recognize opportunities for new products. The session will include mini descriptions and group discussions on key aspects of the clinical specialty, including anesthesia work-flow: what works and what's needed.

Discussions are driven by participant interests regarding all aspects of anesthesia care and practice. Faculty for the course are board-certified anesthesiologists from multiple geographic locations, practice settings and varieties of anesthesia care. Prior sessions have focused on the anesthesia machine, infusion pumps, AIM systems and Big Data, as well as the basics for those who are just getting acquainted with the specialty.

Work groups of anesthesiologists and participants will address challenges in the design process and how these can be overcome to market a successful product. This will be a highly interactive and stimulating workshop. **OPEN TO INDUSTRY PARTICIPANTS ONLY.**

Schedule of Events

Wednesday, January 9, 2019

0700-0800	Challenges & Opportunities Registration (FOR INDUSTRY ONLY)
0800-1700	Exhibitor Registration & Setup
0800-1200	Challenges & Opportunities in Developing Anesthesia Products (FOR INDUSTRY ONLY) David Feinstein, MD, Norma Sandrock, MD, John Paulowski, MD, PhD, Jesse Ehrenfeld, MD, MPH, Christopher Quartararo, MD, Jeffrey Feldman, MD

1800-2000 Registration & Welcome Cocktail Reception

Thursday, January 10, 2019

0700-0800	Registration & Breakfast
0800-0815	Welcome Address Kai Kuck, PhD, Charlene Blake, MD, PhD & Matthew Levin, MD

Session 1: Keynote Address

Moderator: Charlene Blake, MD, PhD & Matthew Levin, MD

0815-0930 Medical Device Cybersecurity
Kevin Fu, PhD

0930-1000 Break with Exhibitors & Abstracts

Session 2: Innovations in Technology in Medical Education (The Machine Makes the Mind)

Moderator: Daniel Katz, MD

1000-1030	Screen Based Simulation and Medical Education Anjan Shah, MD
1030-1100	The Utility of the Virtual Environment in Medical Education Cole Sandau
1100-1130	Augmented Reality for Medical Education Eric Bauman, PhD, FSSH, RN
1130-1200	Panel Discussion
1200-1315	Luncheon

Session 3: Emerging Device Technologies (The Mind Makes the Machine)

Moderator: Jorge Galvez, MD, MBI

1315-1345	Developing Closed-Loop Systems and Machine Learning Algorithms for Clinical Use in Perioperative Care Maxime Cannesson, MD, PhD
1345-1415	Redesigning Adult Monitors for Use in Pediatric Anesthesia Peter Szmuk, MD

1415-1445 Closed-Loop Anesthesia Delivery Devices: Invention or Innovation?
Bahram Parvinian, MSc

1445-1515 Panel Discussion

1515-1545 Break with Exhibitors & Abstracts

1545-1615 Posters in a Minute: Moderated Poster Summaries Group A
Moderator: Robert Freundlich, MD, MS

Session 4: Abstract Awards & Presentations

Moderator: Thomas Hemmerling, MD, MSc, DEAA

1615-1640 Excellence in Technology Award Presentation
Thomas Hemmerling, MD, MSc, DEAA

1640-1705 Best Clinical Application Award Presentation
Thomas Hemmerling, MD, MSc, DEAA

1705-1730 Best of Show Award Presentation
Thomas Hemmerling, MD, MSc, DEAA

Friday, January 11, 2019

0700-0800 Registration & Breakfast

Session 5: Next-Gen Anesthesia AIMS/EHR (The Machine Has No Mind)

Moderator: Patrick McCormick, MD, MEng

0800-0830 Situational Awareness Pathways and Data Visualization
Patrick Guffey, MD, MHA

0830-0900 Integration Across Periop—Past, Current and Future
Jonathan Wanderer, MD, MPhil

0900-0930 Anesthesiologist Augmented Intelligence
Patrick McCormick, MD, MEng

0930-1000 Panel Discussion

1000-1030 Break with Exhibitors & Abstracts

Session 6: Deep Learning/Machine Learning (The Machine Has a Mind)

Moderator: Ira Hofer, MD

1030-1100 What is Machine Learning and How it Can Be Leveraged in Anesthesiology?
Christine Lee, BS

1100-1130 Use of Machine Learning to Predict Post-Induction Hypotension
Samir Kendale, MD

1130-1200 Framework for Understanding Types of Artificial Intelligence Applications and Examples within Perioperative Care
Ira Hofer, MD

Schedule of Events *continued*

Friday, January 11, 2019 *continued*

1200-1230 Panel Discussion

1230-1330 STA Business Luncheon & 2019 J.S. Gravenstein Award Presentation
Kai Kuck, PhD & Jan Ehrenwerth, MD

1330-1400 Posters in a Minute: Moderated Poster Summaries Group B
Moderator: Clyde Matava, MBChB, DA, MMed

Session 7: Research Grant Presentations

Moderator: Thomas Hemmerling, MD, MSc, DEAA

1400-1435 2017 Neurowave Research Grant Recipient Presentation
Soodeh Ahani, PhD

1435-1510 2018 Neurowave Research Grant Recipient Presentation
Clyde Matava, MBChB, MMed, MSc

1510-1530 Break with Abstracts

Session 8: Concurrent Sessions

1530-1730 Young Researchers Workshop
Christine Lee, MS, Maxime Cannesson, MD, PhD,
Thomas Joseph, MD, PhD

The objective of this workshop is to bring together a community of young research scientists. In this community, researchers will share their individual research experience, as well as develop collaborative relationships to further promote the advancement of technology in anesthesia.

1530-1730 Technology in Education: Hands-on Session
Daniel Katz, MD
In this hands-on session attendees will get the chance to try out the virtual reality ("Fire in the OR") and tablet based ("Liver Transplant") simulators presented in Session 2. In addition, there will be a development workstation set up, where attendees can play with the tools used to make the simulations.

1730-1930 Cocktail Reception

Saturday, January 12, 2019

0730-0815 Registration (Only Coffee Provided)

Session 9: STA Engineering Challenge

Moderator: Jeffrey Mandel, MD, MS

0815-0945 Engineering Challenge
Jeffrey Mandel, MD, MS

0945-1015 Posters in a Minute: Moderated Poster Summaries Group C
Moderator: John Pearson, MD

1015-1030 Break with Abstracts

Session 10: Entrepreneur Session: Anesthesiologist Idol (Mind vs. Mind)

Moderator: Brian Rothman, MD

1030-1230 Judges: Maxime Cannesson, MD, PhD; Thomas Hemmerling, MD, MSc, DEAA; Joan Spiegel, MD,
Contestants: Jack Neil, MD; Eilon Gabel, MD;
Cyrus Razavi, BM, BCh, FRCA

1230 Meeting Adjourned

Invited Faculty

Soodeh Ahani, PhD
University of British Columbia

Eric Bauman, PhD, FSSH, RN
Capitol Group

Charlene Blake, MD, PhD
2019 Annual Meeting Co-Chair
University of California, San Francisco

Maxime Cannesson, MD, PhD
University of California, Irvine

Jesse Ehrenfeld, MD, MPH
Vanderbilt University Medical Center

David Feinstein, MD
Beth Israel Deaconess Medical Center

Jeffrey Feldman, MD
Children's Hospital of Philadelphia

Robert Freundlich, MD, MS
2019 Abstract Co-Chair
Vanderbilt University Medical Center

Kevin Fu, PhD
Virta Labs
University of Michigan

Eilon Gabel, MD
University of California, Los Angeles

Jorge Galvez, MD, MBI
Children's Hospital of Philadelphia

Patrick Guffey, MD, MHA
University of Colorado

Thomas Hemmerling, MD, MSc, DEAA
McGill University

Ira Hofer, MD
Ronald Reagan UCLA Medical Center

Thomas Joseph, MD, PhD
Hospital of the University of Pennsylvania
Perelman School of Medicine

Daniel Katz, MD
Icahn School of Medicine at Mount Sinai

Samir Kendale, MD
New York University Langone Health

Kai Kuck, PhD
President, STA
University of Utah

Christine Lee, BS
University of California, Irvine

Matthew Levin, MD
2019 Annual Meeting Co-Chair
Icahn School of Medicine at Mount Sinai

Jeffrey Mandel, MD, MS
Hospital of the University of Pennsylvania
Perelman School of Medicine

Clyde Matava, MBChB, MMed, MSc
2019 Abstract Co-Chair
Hospital for Sick Children
University of Toronto

Patrick McCormick, MD, Meng
Memorial Sloan Kettering Cancer Center

Jack Neil, MD
MedStream, Inc

Bahram Parvianian, MSc
Federal Drug Administration
Center for Devices and Radiological Health

John Pawlowski, MD, PhD
Beth Israel Deaconess Medical Center

John Pearson, MD
Beth Israel Deaconess Medical Center

Christopher Quartararo, MD
Winchester Anesthesia Associates

Cyrus Razavi, BM, BCh, FRCA
NIAA Health Services Research Center

Brian Rothman, MD
Vanderbilt University Medical Center

Cole Sandau
Founder Optera Group

Norma Sandrock, MD
Beth Israel Deaconess Medical Center

Anjan Shah, MD
Icahn School of Medicine at Mount Sinai

Joan Spiegel, MD
Beth Israel Deaconess Medical Center

Peter Szmuk, MD
UT Southwestern

Jonathan Wanderer, MD
Vanderbilt University Medical Center

Meeting Registration Information

ONLINE REGISTRATION www.stahq.org

Online registration accepted until Tuesday, January 2, 2019 – Limited Onsite Registration

MAIL OR FAX REGISTRATION FORM

This is how your name will appear on your name badge. *Required fields.

*FIRST NAME: *LAST NAME:

PROFESSION: *HIGHEST DEGREE(S):

*COMPANY/INSTITUTIONAL AFFILIATION:

*ADDRESS:

*CITY: *STATE/PROVINCE: *ZIP: *COUNTRY:

*PHONE: FAX:

*EMAIL ADDRESS:

Special Needs: Hearing Impaired Sight Impaired Other:
 Dietary (Please Specify)

REGISTRATION FEES

Registration fee includes course materials, 2 continental breakfasts, 2 lunches and 2 cocktail receptions.

	Early Bird by 11/15/18	By 12/15/18	After 12/15/18
<input type="checkbox"/> STA Member Registration (membership dues must be paid for 2019)	\$475	\$500	\$575
<input type="checkbox"/> *Non-Member Registration	\$575	\$600	\$675
<input type="checkbox"/> Resident Registration	\$50	\$50	\$50

*Non-member fee includes 1 year of membership to qualifying physicians.

A LA CARTE ITEMS

- Additional Wednesday Reception Event Ticket..... \$50
- Additional Friday Reception Event Ticket..... \$50
- Spouse/Guest Registration..... \$325
- 2019 Membership Dues Renewal..... \$100

SUBTOTAL:

PAYMENT MUST ACCOMPANY REGISTRATION TOTAL DUE:

METHOD OF PAYMENT

The following methods of payment are acceptable for the registration fee:

- Check:** Made payable to STA. **There is a \$25 returned check fee.**
 Check Included
- Credit Card Payments:** Visa MasterCard Discover AMEX

NAME ON CARD:

CARD #: SECURITY CODE: EXP. DATE:

SIGNATURE: _____

Paper Registrations

By Fax or Mail
(SEE CONTACT INFORMATION BELOW)

If you are unable to register online please fax or mail your paper registration form.

Onsite Registration

Online registration accepted until January 2, 2019. After January 3rd limited onsite registration is available.

Registration Cancellation

All cancellations must be in writing and sent via U.S. mail, email or fax. Fee for cancellations postmarked or date stamped before **January 2, 2019** will be completely refunded with an administrative fee of \$25. **NO REFUNDS WILL BE MADE AFTER JANUARY 2, 2019.**

Questions? Contact Us:

Society for Technology in Anesthesia
6737 W Washington St
Ste 4210
Milwaukee, WI 53214
stahq@stahq.org
OFFICE: 414-389-8600
FAX: 414-276-7704

PLEASE NOTE: Registration is not complete until you receive a confirmation email for your pre-registration. If you do not receive this email within 5-7 days of registration, please contact us at 414-389-8600.

It is recommended to bring your confirmation of registration with you to the conference.