ASME

Spring/Summer 2021

Bioengineering Division News

In this Issue:

Summer Biomechanics, Bioengineering, and Biotransport Conference, 2021
Virtual meeting, June 14-18, 2021

REGISTER NOW!

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ASME BIOENGINEERING DIVISION NEWS

SPRING / SUMMER 2021

MESSAGE FROM THE CHAIR

Naomi Chesler
Chair, 2020-2021

Health. Family. Community. Equity. Justice.

What a year it has been!

Despite the many challenges we all faced this year, I am pleased to report the Bioengineering Division is alive and well! We continue to grow and meet the needs of our members for engagement, education, and community.

When the COVID-19 pandemic began in March 2020, our Conference Chair Jonathan Vandegeest and his leadership team had to act quickly to transform the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB^{3}C) into a virtual format. As you will read in the following pages, SB^{3}C 2020 was nevertheless a success (668 accepted abstracts, and 36 synchronous Ph.D. Student Paper Competition talks). The same team is now preparing for an exciting SB^{3}C 2021, again in a virtual format. With keynote lectures, podium presentations, and poster sessions, we will have the opportunity to learn about new findings, methods, and discoveries and connect with colleagues. I hope everyone will attend the Student Paper Competition presentations, ASME Bioengineering Division Award presentations, and networking activities organized by the Student Leadership Committee, Diversity, Equity and Inclusion Committee, and Industry Council. The full program for Virtual SB^{3}C 2021, to be held June 14-18, 2021, is now available here: http://www.sb3c.org/program/.

During the virtual SB^{3}C, the ASME Bioengineering Division technical committees Biotransport, Design, Dynamics and Rehabilitation, Fluids, Solids, and Tissue and Cellular Mechanics as well as administrative committees Education, Industry and Student Affairs will also meet (see next page for schedule) and plan future activities. The hard work of this conference organizing team – which has served for two years instead of the usual one — and all the committee chairs deserve much thanks and many accolades.

Of course, the ASME Bioengineering Division sponsors activities outside of SB^{3}C. One of our most important activities is sponsoring the ASME Journal of Biomechanical Engineering (JBME) and ASME Journal of Medical Devices (JMD). This year, we are pleased to announce that C. Ross Ethier has joined the JBME family as co-Editor-in-Chief with Victor Barocas. Our enormous thanks go to Beth Winkelstein for her many years of service as JBME Editor-in-Chief. She has moved onward and upward to serve as the Chair of the Board of Editors for all ASME journals! The ASME Bioengineering Division also recognizes the accomplishments of our ASME members with Fellow status (p. 18) and awards (p. 19). Under the leadership of the ASME Bioengineering Division's Past-Chair, Kris Billiar, we have brought two Communication and Outreach specialists to the leadership team: Zhenpeng Qin and Parisa Saboori. You may have noticed more posts on LinkedIn or Twitter (maybe even Facebook) about our activities. In addition, you're reading this newsletter! These contributions of ZP and Parisa (p. 20) are helping us stay connected to each other and ASME HQ in challenging times. They're doing a hard job fantastically well so please answer their requests for information when you get them and maybe even send

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them a note of thanks!

All of these activities and more are possible thanks to a dedicated team of volunteers and ASME staff. Supporting me as Chair this year on the Executive Committee are Alison Marsden (Secretary), Shannon Stott (Secretary Elect), Kris Billiar (Past Chair), Rafael Davalos (Treasurer), Rouzbeh Amini (Student relations), Bob Hauck, Spencer Lake, Christine Scotti, Patrick Segers, Amber Rath Stern (Members-at-Large), and our tireless yet efficient ASME Staff liaisons April Tone, Norma Johnston, and Krishna Hernandez.

In closing, it has been an honor to serve the ASME Bioengineering Division as Chair this year. It is a pleasure to serve a community whose values– research, education, mentoring, equity, diversity, inclusion, and justice – are so aligned with my own.

I hope 2021 brings you safety and good health, connection with family and community, and that we will all bring our best selves to the pursuit of equity and justice as we advance the application of mechanical engineering to biology, medicine, and health care.

Naomi Chesler, Chair
ASME Bioengineering Division
2020-2021
nchesler@uci.edu
@CheslerLab on Twitter

2021 Virtual Conference

The **SB³C 2021 Virtual Conference** will take place **June 14-18, 2021**. During the meeting we will listen to a stellar Plenary presentation from Celeste Nelson, celebrate our 2021 ASME Medal winners, cheer for students in the Student Paper Competition, and disseminate over 550 scientific abstracts in a mix of podium/poster formats.

Gather.Town

We are excited to announce the first ever **SB³C Gather.Town Conference World**! Custom designed for our community, our conference world provides access to all events, one-on-one and group dialogue, easy interaction with presenters, and access to many networking opportunities.

Whova

The **Whova Conference App** will provide easy program search capabilities, agenda planning, community boards, photo sharing and more.

Career Connections Student Registration	May 31, 2021
Poster Submissions	June 1, 2021
Pre-Conference Simulation Workshop	June 13, 2021
SB³C2021 Meeting	June 14 – 18, 2021

For more information, please see: *https://sb3c.org/2021-virtual-conference/*

For registration, please click: *https://sb3c.org/registration/*

ASME Bioengineering Division Technical & Executive Committee Meetings

Monday, June 14, 11:00 am -12:30 pm EDT	
Solid Mechanics	Vicky Nguyen
Education	Stephanie George
Industry	Suresh Raghavan
Tuesday, June 15, 9:30-11:00 am EDT	
Fluid Mechanics	John LaDisa
Design, Dynamics and Rehabilitation	Michael Moreno
Wednesday, June 16, 9:30-11:00 am EDT	
Tissue and Cellular Engineering	Grace O'Connell
Biotransport	Shawn He
Thursday, June 17, 10:00-11:00 am EDT	
Student Leadership Committee	Justin Scott, Marissa Grobbel
Friday, June 18, 10:00-11:00 am EDT	
ASME Bioengineering Division Open Meeting	Naomi Chesler

SB³C VIRTUAL MEETING PREVIEW

June 14-18, 2021

Jonathan Vande Geest
SB³C Conference Chair,
2020, 2021

Dear SB³C ASME Bioengineering Community,

First and foremost, I would like to thank all of you for your support and dedication to our community over the past few years. What a crazy few years it has been! We have faced an unprecedented worldwide pandemic forcing all of us into new areas of communication, education, scientific advancement, and dissemination. All of this was experienced amid an unprecedented time of civil and socioeconomic unrest in our country. I am proud to say that you all have made this very challenging period as smooth as it possibly could have been. Thank you!

As you know our original plans for hosting the 2020 Summer Biomechanics, Biotransport, and Bioengineering Conference in person in Vail Colorado were derailed by the global COVID-19 pandemic. As our conference organizing team moved through the difficult period of decision making in early Spring 2020, it became clear that a Vail meeting was simply not in the cards. As was the case in nearly all facets of our lives, a cloud of doubt and unknown enveloped our thought process as we started to discuss the possibility of a fully virtual 2020 SB³C. How many folks would actually be interested in an entirely virtual meeting? Would researchers have adequate access to scientific infrastructure to be able to submit new scientific abstracts? How would we navigate working with our Sponsors, Exhibitors, and others supporting agencies as we transitioned to a virtual meeting? Looking back, I am even more amazed and proud of what took place during our summer 2020 meeting. We had a record number of attendees for our inaugural Virtual SB³C – over 900 registrants! I believe this was not only a direct reflection of my conference organizing team's commitment to excellence but also another perfect example of how resilient, supportive, and dedicated our community is to each other and to our field. Thank you again!

As our organizing team finished our first ever virtual SB³C in late summer 2020, we began to dream of the possibilities of an in person 2021 meeting. While the news in late 2020 of vaccinations coming into mainstream use was promising, the timing and contractual constraints for planning an in person in the era of the 'unknown', forced our team to start planning for another virtual meeting in 2021. While we all would prefer to be meeting in person event in 2021, our conference organizing team is extremely excited to build on the experience of 2020 to plan what we believe will be an even better virtual 2021 meeting. We hope that you all will join us online for our Virtual SB³C 2021 from June 14 - 18 (www.sb3c.org). This year's meeting will include a new online interactive platform, a theme specific Opening Plenary Lecture from Prof. Celeste Nelson, synchronous podium sessions, our popular Student Paper Competition, conference workshops, interactive poster sessions, a Diversity Panel and Mentor-Mentee Event, and the inaugural 2021 PreConference Computational Workshop. We can't wait to see and interact with all of you online in June 2021!

I would like to end with a sincere thanks to my conference organizing committee. I can't believe you agreed to do this with me again – thanks!!! This is yet further evidence of the health and dedication of our community leadership! My Program Chair Jeff Ruberti and his team of ASME Bioengineering Division Technical Committee Chairs and Co-Chairs have done an excellent job of being flexible and yet persistent in putting together excellent 2020 and 2021 virtual programs! Brittany Coats (Info Chair) has not only excelled in communicating with our entire division but has also been absolutely critical in navigating the virtual platforms that have made our virtual meetings possible. The remainder of our committee (Craig Goergen: Publications Chair, Rebecca Heise: Diversity Chair, Spencer Lake: Local Arrangements, Luke Timmins:

Exhibits Chair, Ian Sigal: Student Paper Competition Chair, Suresh Raghavan: Industry Chair, Justin Scott and Marissa Grobbel: Student Leadership Chair) have all taken on new roles and have made this challenging transition a fun and successful experience. I could not have done it without your dedication and drive, and I can't wait thank you all in person – hopefully in summer 2022! Last but most certainly not least, I would like to thank Pat Cinfici and Debbie Pasquale at Boscovs, ASME, the NSF, and NIH (and PI Tammy Haut Donahue!) for their support of our 2020 and 2021 virtual meetings. I look forward to seeing you online and hopefully in person very soon!

Sincerely,

Jonathan Vande Geest
SB³C Conference Chair
jpv20@pitt.edu

Many thanks to the SB³C 2021 Sponsors!

PREMIER SPONSORS

ASME BIOENGINEERING DIVISION

Biomedical Engineering
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THE UNIVERSITY OF UTAH

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EXHIBITORS

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Bioengineering

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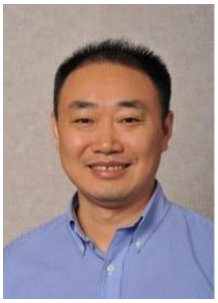
BIOENGINEEERING DIVISION TECHNICAL COMMITTEES

BIOTRANSPORT



X. Shawn He
Committee Chair, 2018-2021

Bumsoo Han
Committee Co-Chair, 2020-2021

First of all, the Biotransport (BIOT) Committee is deeply saddened by the recent loss of Prof. Ernest (Ernie) Cravalho, who was a pioneer and giant in the field of biotransport and a mentor of tremendous influence.

The BIOT Committee will hold its annual meeting during the virtual Summer Biomechanics, Bioengineering, and Biotransport Conference (SB^{3}C) in June 14-18, 2021. The exact date and time of the committee meeting is on the prior page. The 2021 SB^{3}C will have exciting sessions organized by our biotransport committee on biotransport in tumor microenvironment and immunotherapy; multiscale biotransport in drug delivery; and multiscale detection and diagnosis in biotransport.

This an open meeting and everyone interested in linking transport of energy, mass, and momentum with medicine and living systems is encouraged to attend. During the meeting, we will discuss plans for the upcoming 2022 SB^{3}C that is very likely to be held in person. In particular, we will organize a memorial session dedicated to Prof. Cravalho's tremendous research and educational impact during SB^{3}C 2022. We will also discuss participation in otherconferences including the future ASME Nanoengineering in Medicine and Biology (NEMB) Conference, ASME Summer Heat Transfer Conference (SHC), and ASME International Mechanical Engineering Congress and Exposition (IMECE).

We will further discuss plans for promoting our committee members for their career development, academic services, and scientific recognitions such as ASME awards/fellowship/committee membership and journal editorship. We have initiated a BIOT mentoring program for our junior committee members, for which we have received strong support from our successful senior members. We have also formed an ad hoc BIOT advisory committee consisting of mainly current and past chairs to facilitate the nomination our committee members for various awards, society fellowships, and service opportunities.

Lastly, we will take this opportunity to recognize achievements of our members in the past year. Time flies and I am about to finish my 3-year term to serving the committee as the chair. Dr. Bumsoo Han who is currently vice chair of our committee will take over following the upcoming SB^{3}C.

I look forward to seeing you in June virtually.

Shawn He, PhD
Committee Chair,
shawnhe@umd.edu

Bumsoo Han, PhD
Committee Co-Chair,
bumsoo@purdue.edu

DESIGN, DYNAMICS, & REHABILITATION

Mike Moreno
Committee Chair
2020-2023

Anita Singh
Committee Co-Chair
2020-2023

The Design Dynamics and Rehab (DDR) Technical Committee is looking forward to our annual gathering at the upcoming SB³C 2021 meeting. We will be holding our committee meeting on Tuesday, June 15 from 9:30-11:00 am on the SB³C Gather.Town platform. Please join us and engage in discussions of our ongoing activities, and future direction of our committee. This is an open meeting, and everyone interested in DDR topics (Biomechanics of Human Motion, Cardiovascular and Musculoskeletal Device Design, Design of Medical Technologies, Design of Global Health Solutions, Rehabilitation and Assistive Technologies, and other related topics) is encouraged to attend.

This year we have two podium and one poster sessions: Podium Session 1 (11:20 AM to 12:30 PM, Alpine Drift Room), Podium Session 2 (1:00 PM – 2:30 PM, Alpine Drift Room) and Poster Session (2:30 PM - 4:00 PM, Aspen Glade Room) are on June 15, 2021. Our Undergraduate Design Competition (UDC) session, organized by current DDR's Chair, Mike Moreno, will be held on Thursday, June 17 at 4:00 PM in the Mogul Madness Room. Even if you do not have a team submitting a project, we strongly recommend a visit to this session – the devices being developed by undergraduates are amazing! A big thanks to NSF for sponsoring our competition again this year! Finally, we'd like to send a thank you to all our DDR members who reviewed abstracts and continued to show their support. Please contact the committee Vice-chair at asingh2@widener.edu to join our e-mail list for updates or any questions.

Mike Moreno, PhD
Committee Chair & Undergraduate Design Competition Chair
michael.moreno@tamu.edu

Anita Singh, PhD
Committee Co-Chair
Asingh2@widener.edu

TISSUE & CELLULAR ENGINEERING

Grace O'Connell
Committee Chair
2021-2024

The Tissue & Cellular Engineering (TCE) Committee will hold their annual meeting at the SB³C Virtual Conference. We will discuss past initiatives, ongoing activities, and future direction of our committee in the ASME Bioengineering division. We will take this opportunity to recognize achievements of our members. This is an open meeting, and everyone interested in tissue engineering, cellular engineering, mechanobiology, or bioprinting / biomanufacturing is encouraged to attend. This is a great way to get more involved within the TCE Committee, and an opportunity to help shape the technical program of future meetings (e.g., new topics, workshops, special sessions).

Finally, we welcome the new Vice-Chair, David Corr from Rensselaer Polytechnic Institute (RPI). We will also welcome new sub-theme chairs for Bioprinting & Biomanufacturing (Lijie Grace Zhang from George Washington University) and Mineralized Tissue Engineering (Alix Deymier from the University of Connecticut and Arun Nair from the University of Arkansas).

David Corr
Committee Co-Chair
2021-2024

Please contact the committee chair or vice chair for further details or clarification.

Grace O'Connell, PhD
TCE Committee Chair
g.oconnell@berkeley.edu

David Corr, PhD
TCE Committee Chair
corrd@rpi.edu

SOLID MECHANICS

T. Vicky Nguyen
Committee Chair
2020-2023

The 2021 SB³C will occur on June 14-18, and Vice Chair Kristin Myers and I would like to thank the members of the Solid Mechanics Technical Committee (TCOM) for your help in organizing the technical program for this year's meeting. Our members reviewed over 200 abstracts that resulted in 3 poster sessions and 21 presentation sessions, 5 of which are joint with the Fluid Mechanics TCOM. I would like to thank in particular the theme leaders for managing the abstract review process and assisting in the program building for SB³C. The theme leaders are:

- Cardiovascular: Daniela Valdez-Jasso and Wei Sun
- G&R: Patrick Alford
- Injury: Brittany Coats
- Musculoskeletal: Matthew Fisher
- Joint and Spine: Beth Winkelstein
- Bone: Alix Deymier
- Other Solid Mechanics: Kristin Miller and Rouzbeh Amini.

Many of our members also served on the program committee and took a leadership role in organizing the student paper competition and in diversity and outreach.

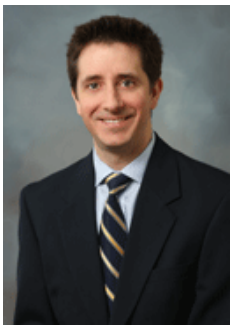
Kristin Myers
Committee Co-Chair
2020-2023

This year's committee meeting will occur on Monday, June 14th 10-11 am PDT via Zoom. Please join if you are interested in serving as a reviewer next year or if you have ideas for sessions and workshops to organize for the 2022 meeting. I am looking forward to seeing you again.

Vicky Nguyen, Ph.D.
Solid Mechanics Committee Chair
vicky.nguyen@jhu.edu

Kristin Myers, Ph.D.
Solid Mechanics Committee Co-Chair
kmm2233@columbia.edu

FLUID MECHANICS



John LaDisa
Committee Chair
2018-2021

The Biofluids Technical Committee (TCOM) chairs and theme leaders were focused this past year on implementing the collective feedback received from members during our annual committee meeting held virtually in July 2020. Suggestions included offering more methods-based themes for SB³C 2021 that considered experimental, in vitro, and computational approaches across application areas. An emphasis was also placed on co-hosting sessions with other TCOMs including Solid Mechanics and Biotransport. Draft themes were shared with the committee several months later during open period for comments and prior to forwarding our suggested themes to SB³C organizers. This refreshed approach for SB³C 2021 has resulted in 30 podium presentations and 35 poster presentations from the Biofluids TCOM, as well as 17 co-hosted talks with Solid Mechanics or Biotransport. Session co-chairs at SB³C 2021 will generally feature a diverse group of junior faculty members whose work is being presented in each session.

Alejandro Roldan-Alzate
Committee Co-Chair
2018-2021

John LaDisa, Ph.D.
Fluid Mechanics Committee Chair
john.ladisa@marquette.edu

Alejandro Roldan-Alzate, Ph.D.
Fluid Mechanics Committee Co-Chair
Roldan@wisc.edu

EDUCATION COMMITTEE

Stephanie George
Committee Chair,
2020-2023

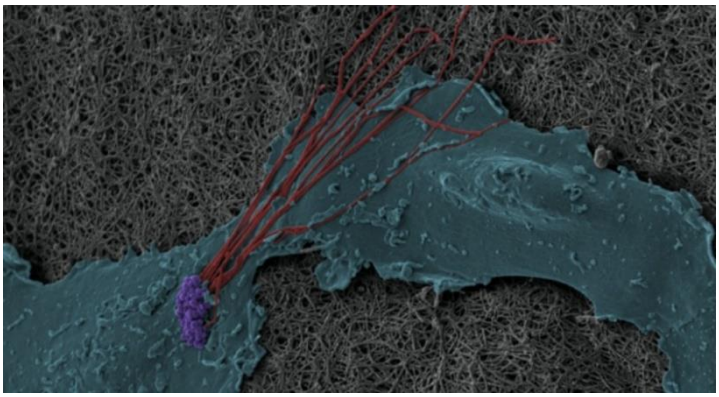
The past year has been an interesting and challenging year for higher education. For most of us, Spring Break 2020 unexpectedly marked the last time we saw our students in-person as we were faced with an abrupt pivot to online teaching. Nevertheless, the Bioengineering Division Education Committee had a productive Summer despite the fact that the Biomechanics, Bioengineering, and Biotransport Conference in June 2020 was fully virtual. In addition to three education-focused lightning talk sessions, the Education Committee meeting was attended by more than 30 members who engaged in a robust discussion and sharing of tips and challenges with online teaching. Throughout the year, several members also shared online teaching resources with one another.

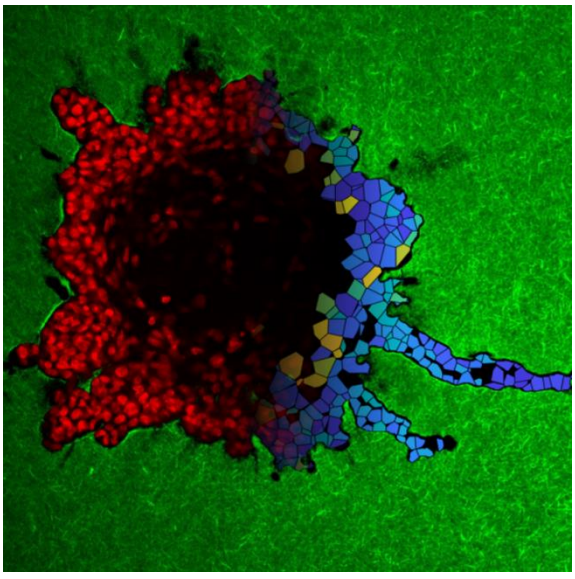
As we look ahead to our virtual SB^{3}C meeting in June 2021, we are excited to have a podium session on Advances in Biomedical Engineering Education, covering a wide array of topics including student outreach and retention, research during the pandemic, and innovations in teaching laboratory courses. We hope that many of you will attend these talks and engage in discussion on educational best practices. In addition, we have proposed a workshop on Remote and Online Teaching of Biomechanics and Mechanobiology Concepts, for educators to share their experiences and best practices in biomechanics and mechanobiology education. If you are interested in becoming more involved with the Education Committee, please join us for our Committee Meeting on Monday, June 14, from 11:00am to 12:30pm EDT during the conference. We will discuss ideas for SB^{3}C 2022, as well as ways to utilize and incorporate the online teaching tools and resources we have created over the past year into the classroom, as we cautiously prepare for a resumption of in-person teaching in Fall 2021. Please reach out to us directly if you have any questions or would like to get more involved with the Education Committee!

Victor Lai
Committee
Co-Chair
2020-2023

Stephanie George, PhD
Education Committee Chair
georges@ecu.edu

Victor Lai, Ph.D.
Education Committee Co-Chair
laix0066@d.umn.edu





INDUSTRY COMMITTEE

Suresh Raghavan
Committee Chair

The Industry committee comprises members from bioengineering industry, government, and academia and seeks to foster collaboration through three specific objectives: 1) Foster networking opportunities; 2) Facilitate career development opportunities for students in the industry; and 3) Promote industry-relevance in bioengineering curriculum and education. The Industry Committee has been working to organize and collect materials associated with industry perspectives with the intent of writing a white paper on the industry-relevance in a bioengineering curriculum. At the SB^{3}C 2021, the Industry Committee is organizing a Career Connections Event (Thursday, June 17, 6:30 -8;30 PM) for students, post docs, and faculty who seek career opportunities in bioengineering industry and academia. The event will host three separate sub-events, namely:

- 6:30 PM - Q&A with Industry panel on careers in the Industry
- 7:00 PM - Q&A with academic panel on careers in the academia
- 7:30 PM – Job fair with employers from both industry and academia

More details and registration information for employers and students may be found in the SB^{3}C Career Connections Page.

Ethan Kung
Committee Co-Chair

Are you interested in joining the Industry Committee? We'd love to have you in our committee. You can be from the industry, faculty with industry interest, or a student/post doc interested in entrepreneurship and/or careers in the industry. Ours is a relatively new committee and so you can help define our direction and make important inroads at the interface of industry and academia. Committee members meet online periodically to discuss and work on our above objectives. Individuals interested in becoming members of our committee should plan on attending our Industry Committee Meeting on Monday, June 14, 11 AM (links available through conference program). If unable to attend this meeting, you can sign up by emailing us.

Dr. Suresh M.L. Raghavan
Committee chair
ml-raghavan@uiowa.edu

Dr. Ethan Kung
Committee co-chair
ekung@g.clemson.edu

SB^{3}C
biomechanics.
bioengineering.
biotransport.

JUNE 17 6:30 PM

CAREER CONNECTIONS

AT THE 2021 SB³C

APPLY | RECRUIT | NETWORK

SB³C biomechanics. bioengineering. biotransport.

June 14-18, 2021, VIRTUAL

Looking for a job in industry or academia?

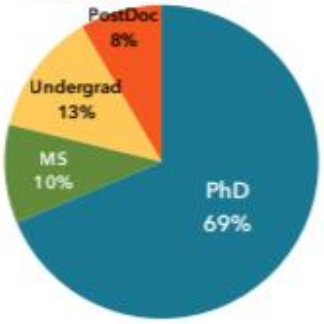
Network with industry employers and professors

Organized by the Industry Committee and Student Leadership Committee

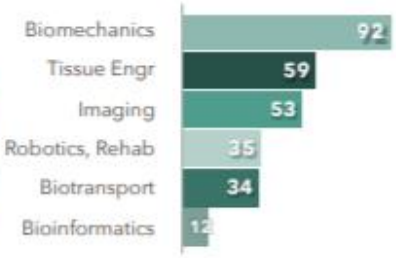
2019 EVENT DATA

125 job seekers

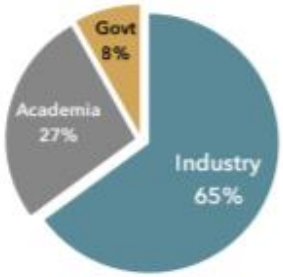
DEGREE STATUS



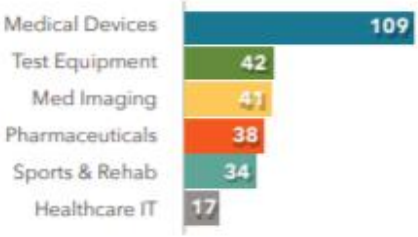
EXPERTISE



SEEKING CAREER IN



INDUSTRY OF INTEREST



Students and employers may register at http://sb3c.org/program/career-connections

Thursday June 17, 2021 6:30 - 8:30 PM ET

Virtual event

The SB³C is the annual conference for Bioengineering Division of the American Society of Mechanical Engineers. The Career Connections Event is a forum for networking among the nation's top students, elite bioengineering research laboratories and potential employees.

Enquiries:
Students: Xun Wang (Student Leadership Committee), xun.wang@columbia.edu
Employers: Suresh M.L. Raghavan (Industry Committee), ml-raghavan@uiowa.edu

SB3C.ORG

Student Affairs and Student Leadership Committee

1st Webinar: Introduction to Paper Writing

We hosted our first virtual workshop on March 26th, 2021 titled "Introduction to Paper Writing". The 4 member panel consisting of Dr. Farshid Guilak, Dr. Jay Humphrey, Dr. Shannon Stott, and Dr. Sarah Wells shared their experiences with paper writing and tips on improving the writing process. The discussions between participants and panelists broached a range of subjects and prompted a fantastic array of questions. This interactive webinar created a great opportunity to open communication between students and professors on the subject of technical writing. Our webinar reached an attendance of 147 total participants with an 18% international presence and 82% domestic. We are excited to implement more webinars in the future to encourage mentorship and accessibility to knowledge with a diverse range of scientists and members of the community.

Virtual Twitter Q&A Sessions:

Enthusiasm for the Introduction to Paper Writing seminar gave rise to virtual question and answer sessions utilizing unanswered questions from the webinar. The Q&A sessions sought to re-engage the audience and garner new participation for future webinars. The Twitter Q&A session connected the original panel members to the audience via social media channels over the course of several days. These Q&A sessions also acted as an opportunity to grow our social media presence and introduce a broader group to ASME Bioengineering Division.

ASME BIOENGINEERING DIVISION Student Leadership Committee Future Plans:

The student leadership committee (SLC) seeks to further establish our organization through the development of by-laws. We seek to improve the inclusivity of the SLC and garner more volunteers under delegation from each chair position. Additionally, we are planning student virtual engagement activities for the student population including a virtual event at the SB3C conference and a résumé book for networking and professional development opportunities.

Meet the Members of the Student Leadership Committee:

Rouzbeh Amini

r.amini@northeastern.edu

Student Affairs Committee Chair and Faculty Advisor

(2020-2021)

As the faculty advisor, Dr. Amini oversees and mentors the student leadership committee, communicates important information from the SB3C organizing committee, and acts as a liaison between the student leadership, ASME Bioengineering Division, and SB3C organizing committee.

Justin Scott and Marissa Grobbel

scottju5@msu.edu ; grobbe12@msu.edu

Chairs

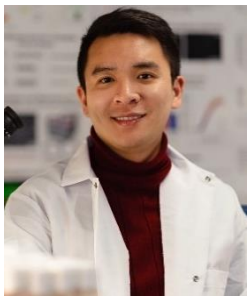
Justin and Marissa coordinate the chair position and take on responsibilities such as attending SB3C organizing committee meetings, coordinate with faculty advisor to plan leadership committee meetings, integrate feedback from student leadership and student participation from ASME and SB3C, and oversee projects from other student leadership chairs.


Bipin Tiwari and Meghan Pendyala
Bzt0020@auburn.edu ; pendym@rpi.edu

Co-Chairs
Bipin and Meghan support the chairs and student leadership committee members with their responsibilities, maintain organization of the online archives and communication channel, and help enforce deadlines for other committee positions.

Gabrielle Clark-Patterson
gclark2@tulane.edu
Secretary
Gabrielle acts as the secretary for the student affairs committee and is responsible for managing meetings through taking attendance, taking meeting minutes, and assists with items associated with record keeping.

Shannon Mowbray
shannonem@comcast.net
Online Networking Chair
Shannon, the online networking chair, manages the LinkedIn page, distributes the resume book to employers, boosts engagement of social media platforms, and advertises professional oppurtunities.



Xun Wang
xun.wang@columbia.edu
In-Person Networking Chair
As the In-Person Networking Chair, Xun coordinates with the SB^{3}C Industry Committee to organize onsite career connections events during the SB^{3}C meeting. He builds connections between employees and potential employers by creating an employer handbook and assists in the creation of a resume book to distribute to potential employers.

Cassandra Conway
cconway2@tulane.edu
Social Media Chair
Cassandra maintains the social media presence for the student leadership committee through Twitter and Facebook. Through posts she provides updates on events coordinated by the student leadership committee and engages the ASME student population.

Caleb Berggren
caleb.berggren@utah.edu
Student Workshop Chair
As the Student Workshop Chair, Caleb organizes online webinars throughout the year covering topics such as paper writing, schedules speakers for the webinars, and plans future events to promote professional development.

Bayan Alturkestani
baa79@cornell.edu
Social Events Chair
Bayan plans in-person events for the SB^{3}C meeting

Finally, Maryam Nikpasand, Meghan Kupratis, Mia Hoffman, Pete Gueldner, Xiaoqing Li, served the student leadership committee as Members at Large.

Promoting Diversity and Inclusion in SB^{3}C

Daniela Valdez-Jasso

The SB^{3}C prides itself with its sense of community, the inclusivity of our scientific meetings and our culture of mentorship. Since 2013, we have had a Diversity and Inclusive Committee first chaired by Naomi Chesler and Victor Barocas. Our annual DMME networking event connects students and early career investigators with each other and with established investigators. This event has served as a very important platform for networking, mentoring, and propelling the new generation of scientists and engineers working in bioengineering, biomechanics and biotransport fields. Discussions on *being yourself*, inviting and accepting new views and diversifying the work environment while being a scientist and engineer are some of the core topics of discussion. To increase facetime and interactions, this event includes small breakout discussion groups. We are happy to see new mentor-mentee relationships formed.

In spite of the pandemic, our 2020 DMME event was even better attended than ever. While SB^{3}C was held virtually, there was enthusiastic participation. We held a Diversity Mentor Mentee Event with all 72 of undergraduate students in attendance where we had a Think Tank discussing a variety of issues including racism in academia, equity in science, finding the right postdoctoral position or career job, imposter syndrome, self-efficacy, time management, creating welcoming environments, recognizing and correcting for implicit bias, and negotiation skills.

As a society, we are also acknowledging and openly discussing how the pandemic has affected some harder than others. Working from home, home-schooling and caregiving duties during the shutdown have had a disproportionately adverse effect on the productivity and career advancement of women scientists. The powerful *Picture a Scientist* film this past year was also a new avenue to expose gender disparities in academia and engage the community in ongoing discussions of the challenges that women scientists still face. Women principal investigators in biomedical engineering have also recently come together to highlight disparities in funding by the National Institutes of Health of Black scientists and to suggest new strategies for combating racism in research funding. These discussions have brought to light the need for institutions and our society to continue efforts in collecting data on disparities and engaging and retaining women and minorities in the STEM field.

Against the background of the Black Lives Matter social movement and the increased awareness of racism affecting Asian-American and Pacific Islander communities, this year we will be hosting a mentoring panel on *Justice, Equity, Diversity, Inclusion (JEDI):* https://sb3c.org/plenary/diversity-mentor-mentee-event/

Daniela Valdez-Jasso, Ph.D.
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Sources

https://cen.acs.org/careers/women-in-science/Women-scientists-affected-COVID-19/99/i10

https://www.scientificamerican.com/article/women-in-science-may-suffer-lasting-career-damage-from-covid-19/

https://doi.org/10.1016/j.cell.2021.01.011

EDITOR'S NOTE: ASME Journal of Biomechanical Engineering

Victor Barocos
Editor -in-Chief

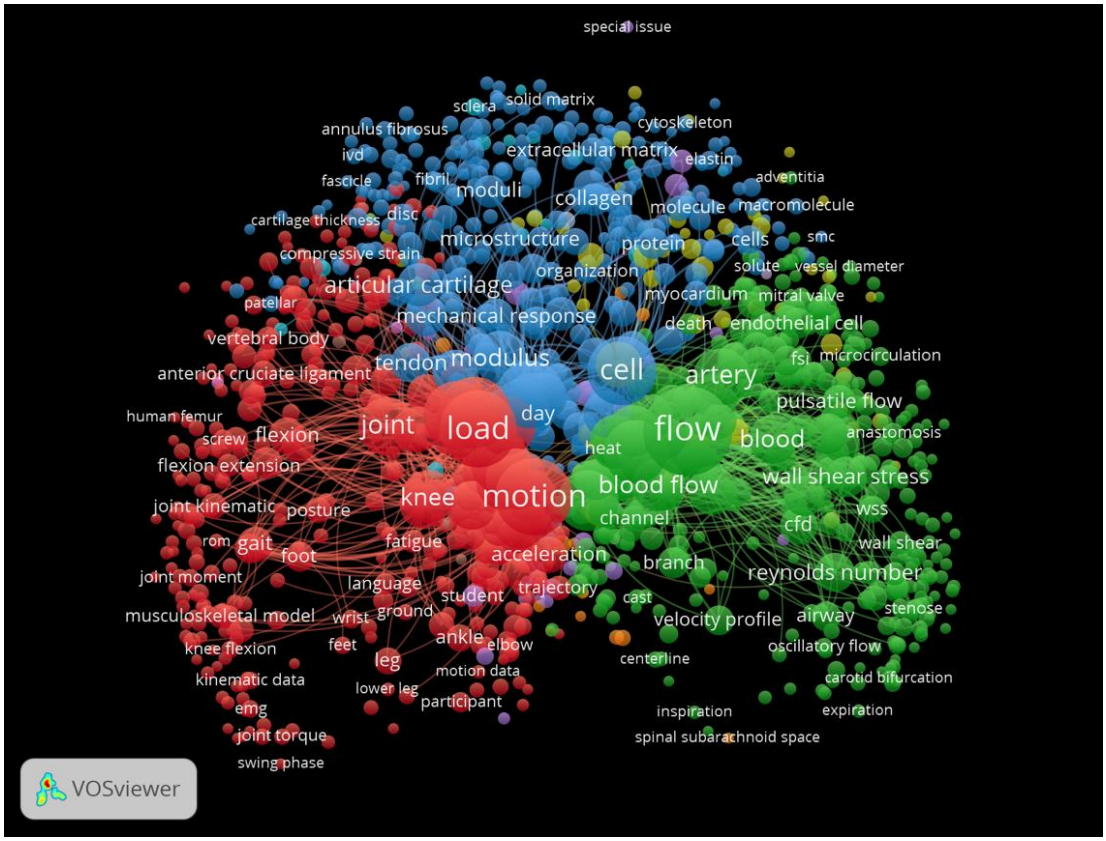
The *ASME Journal of Biomechanical Engineering* began 2021 with its first major editorial transition in almost a decade. Beth Winkelstein, who had served as one of the Editors-in-Chief since 2012, was elected chair of the ASME Board of Editors, which required her to step down from JBME. Ross Ethier was selected by the Bioengineering Division Executive Committee to fill Beth's role at JBME, joining Victor Barocas. Victor's term as Editor-in-Chief will end at the end of 2021, with a second new Editor-in-Chief expected to join Ross in January 2022. You can read about Ross's vision for the journal here: https://doi.org/10.1115/1.4050791

C. Ross Ethier
Editor -in-Chief

The Associate Editors of the journal continue to demonstrate a tremendous commitment to the community and to good science. The Editors-in-Chief thank outgoing AEs Seungik Baek, Tamara Bush, Alberto Figueroa, Eric Kennedy, Keefe Manning, Vicky Nguyen, Christian Puttlitz, and Nate Sniadecki. We also welcome new AEs Craig Goergen, Nicole Hashemi, Songbai Ji, Ethan Kung, Bruce MacWilliams, Matt Panzer, Sandra Shefelbine, Francesco Travascio, Sarah Vigmostad, and Tishya Wren. They, along with the continuing AEs, constitute a truly outstanding editorial board. ***Persons at Associate Professor or higher rank, or with equivalent industrial positions/experience, are encouraged to contact Victor and Ross if they are interested in possibly becoming an Associate Editor for JBME.***

JBME is also pleased to announce the creation of two new Diversity Advocate positions. The two Diversity Advocates are charged with promoting diversity, equity, and inclusivity at all levels of the Journal, including editors, authors, and readers. One new Diversity Advocate has been nominated and is currently going through the Bioengineering Division / ASME approval process. They will lead the search for a second Diversity Advocate once the approval process has been completed. ***As with Associate Editor positions, persons interested in the Diversity Advocate position are encouraged to contact Victor and Ross.***

For those who wonder what *JBME* is all about, Babak Safa, a post-doc working with Ross, produced this word cloud of keywords from the journal. Thanks to Babak for the great visual!



EDITOR'S NOTE: Journal of Medical Devices

Rupak K. Banerjee
Editor-in-Chief

The March 2021 Issue marked 15 full years of the Journal of Medical Devices (JMED). The JMD focuses on applied research aiming on development of new medical devices and their instrumentation and testing methodologies. This relatively newer journal reports publications on devices that improve diagnostic procedures, interventional methods, and therapeutic treatments. It provides special coverage of novel devices that allow innovative surgical strategies, methods of drug delivery, and futuristic devices that are intended to reduce the complexity, cost, or adverse results of health care. Significant biomechanical engineering content linked to devices across all dimensional scales, ranging from cells, tissues, organs to whole body, coupled with pre-clinical and clinical content is expected.

The JMED reports full-length original research articles, technical briefs, announcements, calls for papers, calendar of events, and letters to the Editor. The Design Innovation Paper category is encouraged for reporting about novel devices for which there may be less extensive clinical or engineering results. We continue to make JMED a premier medical device journal with the help of Associate Editors and the Bioengineering Division and DED. For the current year, we are delighted to report continued progress (see below) towards these goals, focusing on activities that is expected to further strengthen JMED.

In March of 2021, JMED successfully published the *fifth* Special Issue on *Medical Robotics and Human Interfaces* for which we had record number (20) of publications, having review and expert-view articles from established researchers. Since 2017, the JMED also successfully published multiple Special Issues on important cutting-edge technology: a) *Medical Devices for Economically Disadvantaged People and Populations*; b) *3D Printing of Medical Devices* in September of 2019; c) *Microscale Medical Devices* in December of 2018; and d) *Cardiovascular Device Development and Safety Assessment using Computational and/or Experimental Approaches* in June of 2017. In March of 2022, we are in the process of publishing another Special Issue on *COVID-related Devices*.

William Durfee
Editor-in-Chief

Journal Impact Factor (JIF) and the Number of Citations. The JMED is observing an increasing trend in both journal impact factor (JIF) and the number of citations. Over the last two years (2017 – 2019) the JIF increased by 95% and the citation increased by 14.2%. The JIF increased by 50% from the year 2018 to the year 2019. After an increase of 21% in the previous year, the number of citations remained nearly the same from the year 2018 (number of citations: 658) to the year 2019 (number of citations: 621). The increase in JIF and number of citations is indicative of the fact that the JMED is heading in the right direction. The increasing trend of the JIF is reflective of addition of special issue, removal of DMD conference papers from the journal, and modification in the editorial review process that includes a priori review by Editors before assignment of manuscript to AEs or GEs. Manuscripts, which do not meet JMED journal criteria are either returned to authors with suggested major changes for resubmission or are rejected using fast track process. The JMED subscription copies increased appreciably, by 43%, from 2018 to 2019. This continued progress is a credit to our Associate Editors and reviewers.

In the last year we have added *four* new Associate Editors from government, industry, and academia. This has helped to keep up with the increased submissions and reduced review time, while adding special issues and covering a broader scope of topics. We are grateful to all of our AEs and GEs for their service. The JMED is now accepting Associate Editor nominations. Please send your nominations to the Editors.

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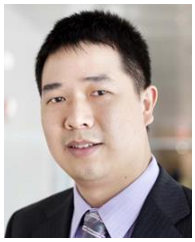
BME
Bucknell University

David Corr
Associate Professor
BME
Rensselaer Polytechnic Institute

Suvranu De
Distinguished Professor
MANE, BME, ITWS
Rensselaer Polytechnic Institute

Philipp Epple
Professor
Fluid Dynamics and Turbo Machinery
Coburg University of Applied Sciences

Ender Finol
Associate Professor
ME
University of Texas at San Antonio



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Professor
ME, BME, Cell & Developmental Biology
University of Michigan

Dayong Gao
Endowed Professor
ME
University of Washington

Bumsoo Han
Professor
ME and BME
Purdue University

Kam Leang
Professor
ME
University of Utah

Jun Liao
Associate Professor
BME
University of Texas at Arlington

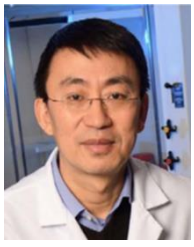
Keefe Manning
Professor
BE
The Pennsylvania State University

Robert T. M'Closkey
Professor
AE and ME
University of California, Los Angeles

Assad Oberai
Professor, Vice Dean
AE and ME
University of Southern California

Christian Puttlitz
Department head, Professor
Mechanics
Colorado State University

Parisa Saboori
Associate Professor
ME
Manhattan College



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Associate Professor
BME
Georgia Tech and Emory University

Kenji Takizawa
Professor
ME
Waseda University

Ajit Yoganathan
Emeritus Regents' Professor
BME
Georgia Tech and Emory University

Hongyan Yuan
Associate Professor
Mechanics & AE
Southern University of Science and Technology

ASME Bioengineering Division Awards

Y.C. Fung Early Career Award 2021

Kristin S. Miller
Associate Professor
BE
Tulane University

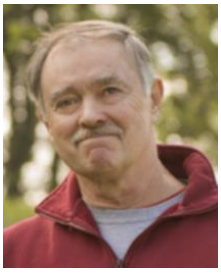
H.R. Lissner Medal 2021

C. Ross Ethier
Professor
BE
Georgia Tech and
Emory University

Van C. Mow Medal 2021

Rafael V. Davalos
Professor
BME
Virginia Tech

Robert M. Nerem Education and Mentorship Medal 2021

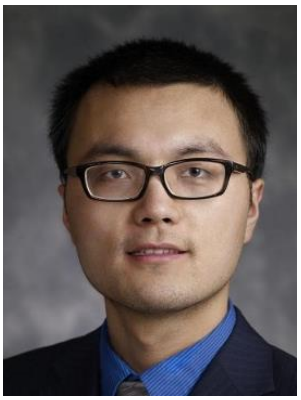


Maury L. Hull
Professor
BE & ME
University of
California, Davis

Savio L-Y. Woo Translational Biomechanics Medal 2021

Danny Bluestein
Professor
BME
Stony Brook University

ASME Bioengineering Division Leadership Communication and Outreach



Zhenpeng "ZP" Qin
Communication & Outreach Specialist

"Effective communication and outreach need integration of social media, mainstream new outlets, as well as local and university news outlets. I believe that the best communication strategy integrates these channels to maximize the impact. As not everyone is on Twitter or watching news on TV, integrating these strategies will reach the broadest audience. I will work with the executive board and leaders of the field (ASME Medal winners, TCOM chairs, journal editors, Bioengineering Division Executive Committee) to develop a vision for communication and outreach. I will build an effective communication and outreach team to implement the vision."

Parisa Saboori
Communication & Outreach Specialist

"As the Communications and Outreach Specialist in Bioengineering Division at ASME, I will improve its presence within ASME and bioengineering in general, by proving access to everyday information that bioengineers need to stay current with their profession. I believe that it should have an attractive and fresh presence by presenting materials that change on a regular basis, to encourage users to return to the various online locations, and thereby keep them engaged, while also providing solid information that is useful and often difficult to find elsewhere."

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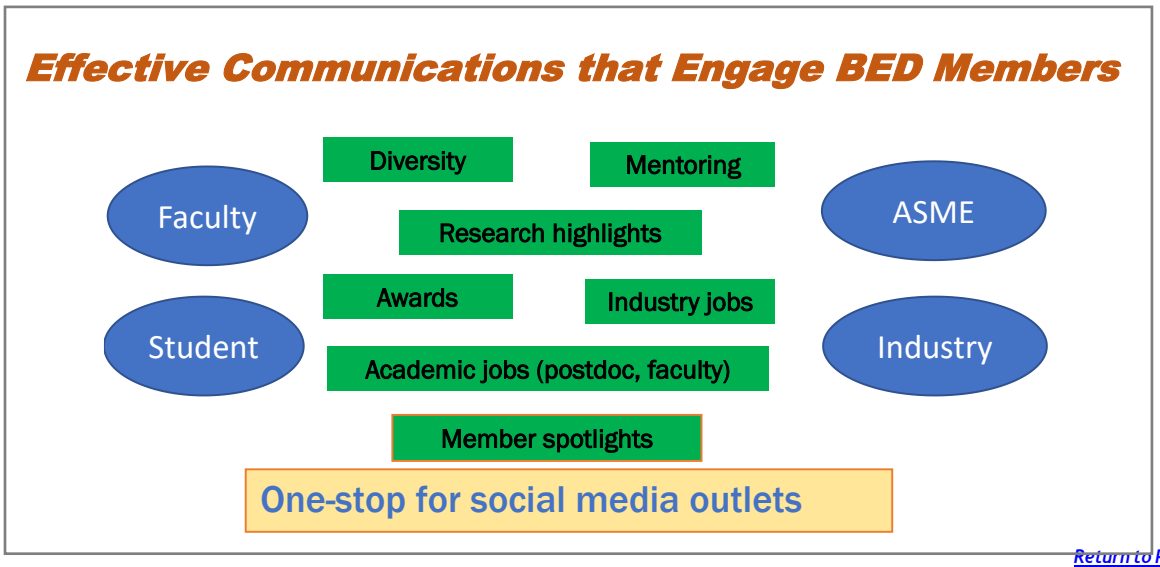


One-stop for social media outlets

LinkedIn

American Society of Mechanical Engineers- Bioengineering Division

Listed group

SB3C Women's Networking Group

Listed group

Twitter

American Society of Mechanical Engineers- Bioengineering Division

SB3C Women's Networking Group

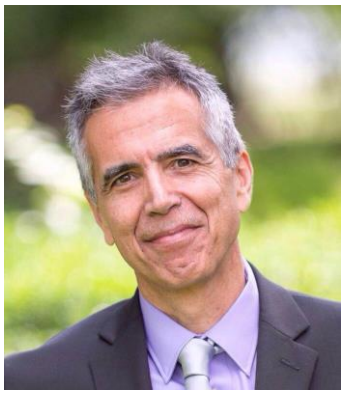
@ASME_BED

@asmebedstudents

@SB3C2021

ASME Bioengineering Division Sponsored Activities

ASME IMECE COVID session: Utilizing Engineering Principles to Understand SARS-CoV-2 transport, infection, and inactivation.



John Georgiadis
Illinois Institute of Technology

How mechanical engineers can help in medicine/Covid using design principles and Simulation

Chris Hogan
University of Minnesota

Testing Control Technologies for Infectious Airborne Particles

Akira Tsuda
Tsuda Lung Research

Intersection of lung biology and engineering

ASME News Special Edition - Announcing TEC Talks, a new webinar series featuring ASME Divisions

"Developing Medical Devices for Combat Medics and Civilian First-Responders"

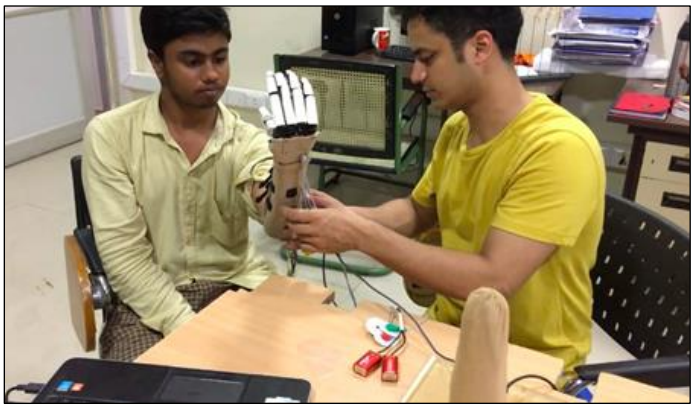
R. Lyle Hood, Department of Mechanical Engineering, UT San Antonio

The foundation of this TEC Talk is how innovative designs to address airway and other emergency medical needs must stem from close collaboration with the end-users throughout the design process to ensure real understanding of the environment for employment and the challenges faced. Mechanical systems that properly balance portability, ruggedization, and performance are in tremendous demand, which has risen to popular recognition world-wide during the recent COVID pandemic. Because patients can die within minutes of airway obstruction, marginal technology leads to an unacceptably high rate of downstream complications and poor patient outcomes. It is the shared responsibility of our engineering community to better empower our military and civilian first responders with improved technologies to enhance their capabilities to save patient lives.

ASME & Bioengineering Division: Medical Devices in the Developing World

ASME's Bioengineering Division and Engineering Global Development's (EGD) IShow, the prestigious international accelerator of hardware-led social innovation frequently finds themselves closely linked. It is not at all uncommon to find nascent Medical Device developers as IShow entrants.

As one can easily imagine the IShow's focus on improving everyone's quality of life through building engineering capacity and talent and the promoting and development of impactful solutions frequently finds itself in the domain of under resourced Medical Device entrepreneurs.

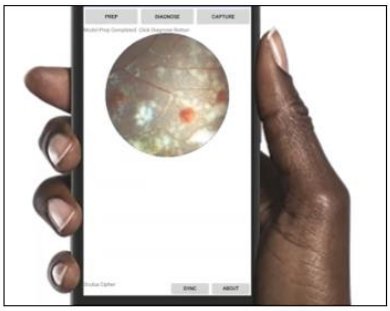


One Medical Device example from the recently completed 2021 IShow comes from Delhi, India's ***Life and Limb*** "Bionicli" innovation – a functional prosthetic hand with six grip patterns to assist wearers with more than 15% of daily living activities.

Moreover, one of the winners of the 2020 IShow and another recent example of where the Bioengineering Division and EGD find themselves in the same space is Cipher, a tool that enables the detection and assisting in the diagnosing of cerebral malarial retinopathy with a smartphone. This has the potential of being immense help not just in urban settings but also in remote areas where it could just be a split-second decision to treat a child for malaria or consider other causes of illness which could be life-threatening as well.

The combination of what both the ASME's Bioengineering Division with their experience in

MedicaL Devices and the Engineering Global Development IShow with its proven method for moving high-potential new products from prototype to scale for the people who need them has the potential to successfully address some exceedingly difficult and under resourced problems.



Contributed by
Robert Hauck, Member at Large
ASME Bioengineering Division Executive Committee

Covid-19: Innovation and Investment in Medical Devices and PPE:

During the COVID-19 pandemic there have been worldwide shortages of critical personal protective equipment (PPE) and medical devices, primarily ventilators and oxygen therapy devices. In response to the increased demand for these technologies during the pandemic, the U.S FDA enacted Emergency Use Authorizations (EUA) during the COVID-19 crisis to expand the availability of PPE, ventilators, and other critical medical equipment.

- PPE
  Personal protective equipment (PPE) has been proven to reduce the spread of the COVID-19 virus. Common types of PPE include masks, respirators, face shields, protective goggles, gowns, aprons, and gloves.

- Medical Devices: Ventilators
  Medical oxygen has become a primary treatment for severely ill and critical COVID-19 patients. To provide this treatment, oxygen therapy devices are needed for oxygen distribution, oxygen regulation and conditioning, and oxygen delivery and patient monitoring.

- Manufacturing Innovations for Medical Devices and PPE
  There are clear guidelines on the best practices for the design of PPE and medical devices, but one of the main barriers to distributing PPE and ventilator technologies to individuals around the world is a manufacturing bottleneck, meaning current manufacturing capacity cannot keep up with demand.

Learn more about E4C:

Engineering Response to Covid-19: A Reference List For Low-Resource Settings

Covid-19: Affordable Testing Solutions

Covid-19: stories and technologies

E4C Fellowship

E4C Fellows are matched with Research Collaborations informed by cross-sector partners, all of which are published on E4C's Research page, gaining ample professional development opportunities during the Fellowship and beyond through E4C's Alumni Network. Fellows' also focus on researching technology-based solutions that will be added to E4C's Solutions Library, gaining expertise about available technologies and advancements and an understanding of the advancements, gaps, opportunities and good practices of technologies in various sectors in Engineering Global Development.

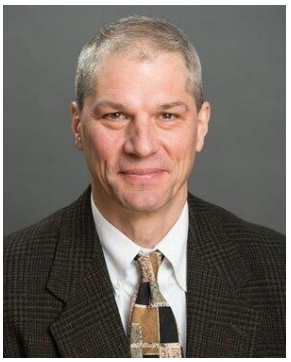
2020-2022 ASME Congressional Fellow - Bioengineering

Jaclyn Brennan
2021-2022 ASME
Congressional Fellow -
Bioengineering

Jaclyn Brennan will be serving as a 2021-2022 ASME Congressional Fellow-Bioengineering. Jaclyn recently completed her PhD in Biomedical Engineering from The George Washington University and currently holds a Postdoctoral Researcher position in the same lab. Her research expertise spans cardiovascular bioengineering and cardiac electrophysiology. During her PhD, Jaclyn had the unique opportunity to perform experiments on explanted donor human hearts that were rejected for transplantation, and this work resulted in the discovery of two spatially distinct leading pacemakers in the mammalian heart. Jaclyn holds a BS in Materials Science and Engineering from Virginia Tech and an MS in Bioengineering from the University of Oklahoma. She is also an alumnus of the Whitaker International Fellows Program, where she spent a year doing basic scientific research in a hydrodynamics laboratory at École Polytechnique in Palaiseau, France. Jaclyn is passionate about both science policy and science communication. She regularly writes articles for the member magazine of the American Society for Biochemistry and Molecular Biology (ASBMB Today) and holds a certificate in “Science Policy and Advocacy for STEM Scientists" from the University of California Irvine GPS-STEM Program. Jaclyn will begin her Congressional Fellowship on September 1, 2021. Jaclyn is jointly sponsored by the ASME Foundation, the ASME Bioengineering Division, and ASME Government Relations.

ASME
SETTING THE STANDARD

National Science Foundation Engineering Research Center for ADVANCED TECHNOLOGIES FOR THE PRESERVATION OF BIOLOGICAL SYSTEMS



John Bischof, Director
University of Minnesota

The Engineering Research Center (ERC) for Advanced Technologies for the Preservation of Biological Systems (ATP-Bio) aims to "stop biological time" and radically extend the ability to bank and transport cells, aquatic embryos, tissue, skin, whole organs, microphysiological systems ("organs-on-a-chip"), and even whole organisms through a team approach to build advanced biopreservation technologies.

The figure to the right captures the main societal benefits of ATP-Bio's research. We also aim to

- Build a more robust and diverse STEM workforce, especially in the growing number of fields needing biopreservation technologies.
- Promote and deliver equitable and inclusive STEM education from middle school to graduate school and beyond.
- Partner extensively with for-profit and non-profit organizations to commercialize ATP-Bio technology, drive new biopreservation research, and contribute to the workforce development and culture of inclusion goals of the Center.
- Focus extensively on ethical and public policy considerations around biopreservation so that ATP-Bio's technology can be effectively translated to public benefit.

ATP-Bio is co-led by the University of Minnesota's Institute for Engineering in Medicine (IEM) and the Center for Engineering in Medicine and Surgery (CEMS) at Massachusetts General Hospital (MGH). The University of California Riverside and University of California Berkeley are core collaborating institutions.

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For more information, please click here.

ASME Bioengineering Division ROSTER 2020-2021

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Newsletter Editors: Zhenpeng Qin and Parisa Saboori

We acknowledge contributions from ASME Bioengineering Division Executive Committee members (Naomi Chesler and Robert Hauck), SB^{3}C chair, committee chairs and co-chairs. Special thanks to Naomi Chesler for proof-reading the newsletter, April Tone for providing ASME resources, Tiffany Leong and Xueqi Xu for editing assistance.