

Our Third IMS Three Minute Thesis Competition

John W. Bandler, Erin M. Kiley, and Rui Ma

You've been there: lost in a jungle of specialist jargon, drowning in a sea of hard-to-unscramble words, dizzied by detail-jammed slides flashing by your eyes at breakneck speed. You've been there—as audience and presenters, as technical specialists, and as members of a general audience.

Brevity, clarity, and engagement are challenging. As you have doubtless discovered, sheer enthusiasm is not enough. To engage is effortful; it

John W. Bandler (bandler@mcmaster.ca) is with McMaster University and Bandler Corporation, Hamilton, Ontario, Canada.

Erin M. Kiley (emkiley@mcla.edu) is an assistant professor of mathematics with the Massachusetts College of Liberal Arts, North Adams, Massachusetts, United States.

Rui Ma (r.ma@ieee.org) is with Mitsubishi Electric Research Laboratories, Cambridge, Massachusetts, United States.

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takes practice and empathy to capture the nonspecialist's imagination. First of all, you have to kill the jargon.

Be surprised; it's possible [1]. Just watch a few of the videos from our inau-

gural [2] and second [3] IEEE Microwave Theory and Techniques Society International Microwave Symposium (IMS) Three Minute Thesis (3MT) competitions.

What's 3MT all about? In three minutes or fewer, using only one static slide and no other props, contestants deliver presentations to a panel of nonspecialist judges who rank them on how engaging, accessible, and compelling they made their presentations. A speaker who goes over his or her allotted time is disqualified.

Originally developed by the University of Queensland, Australia, in 2008, the 3MT [4] challenges contestants to improve their communication and delivery skills, showcasing the creativity, theatricality, and control of narrative that the most skilled of presenters draw upon in giving brief, clear, and understandable research talks.

The IMS2019 3MT Competition

The IMS 3MT competition [5] provides an avenue for students and young

professionals (YPs) to improve their communication and presentation skills. Finalists work with the chairs of the competition in the months leading up to IMS2019, attending a webinar and receiving feedback on their drafts, videos and practice runs. This hard work will culminate in a 3MT presentation to be delivered in Boston, possibly earning a spot in the top three (and a cash prize that comes with those honors), leaving the presenter with a battery of techniques and strategies for improving communication of technical work—skills useful across disciplines and career paths.

An equally important benefit of the competition is the promotion of our field, surprising and engaging the general public with our breakthroughs in microwaves and high-frequency electromagnetics and making people curious about our innovations—a far cry from the microwave popcorn that generally comes to the minds of nonspecialists when “microwaves” is mentioned.

Such engagement should stimulate public interest in microwaves as a transformative technology that is rewarding both to those who study it and to those whose daily lives benefit from incorporating the latest developments in consumer products.

Showcasing the human element of our Society on the IMS’s YouTube channel through award-winning three-minute presentations by passionate and articulate younger members of the IEEE Microwave Theory and Techniques Society [2], [3] should help attract high school students, undergraduates, and women to our profession.

To this end, IMS2019 warmly welcomes all symposium attendees and guests to attend both the briefing session and the competition in Boston [5]. New for 2019 will be a coaching session open to attendees and guests.

The Expanding World of 3MT Presentations

Outstanding 3MT presentations from around the world can be found via the University of Queensland [6]. A collection of videos from the first-ever McMaster University, Department of

Electrical and Computer Engineering, 2018 3MT competition is available [7]. And we invite you to watch our own IMS 3MT videos on our Society’s IMS YouTube channel [2], [3].

As you watch the online presentations, be aware that you are watching videos and not the live presentations on which the judges based their rankings [8]. Live presentation dos and don’ts in general, as well as 3MT issues in particular, were discussed [9], along with issues related to presentations, including a Q&A session with a 3MT winner [10].

For 3MT, it is highly desirable to deliver an overview and avoid jargon, convey enthusiasm and a commitment to the “long haul,” and demonstrate empathy through human stories. In preparation for the competition, finalists should review the references provided in [1]–[17].

The Prizes

Winners will be selected by the panel of nonspecialist judges; in addition, an Audience Choice winner will be chosen. Awards will be presented during the closing session of IMS2019. Cash prizes will be awarded to the top three ranked contestants as well as the Audience Choice winner.

IMS2019 3MT Competition Procedure

The contestants for the 3MT Competition were chosen from among those who identified their desire to enter the competition upon submitting their paper. A contestant must be a student or YP; YPs are defined by the IEEE as poststudent members within 15 years of their first professional degree.

As for all regular IMS2019 submissions, 3MT submissions were reviewed by the Technical Paper Review Committee (TPRC). Only papers selected by the TPRC for either an oral or interactive forum presentation, whose authors had self-identified as eligible for the competition, and that met the published IMS2019 3MT criteria were eligible to participate in the 3MT Competition [11], [12].

Finalists were selected and recommended by the IMS2019 3MT Competition committee from the eligible 3MT submissions. Contestants may speak only once, with no substitutions, and only one 3MT presentation per accepted paper is allowed.

Contestants will make their presentations to symposium attendees, invited guests, and a panel of five nonspecialist judges. The judges will rank the contestants in accordance with the 3MT rules [12], and their decision is final. Judging criteria are in accordance with the University of Queensland [13].

The equipment available will be the same as for any technical session, with the addition of a videographer who will record each three-minute presentation for uploading to YouTube. The competition is scheduled for Monday, 3 June 2019, at the Boston Convention and Exhibition Center, Room 162 A/B.

Asking for More!

Given three minutes, can you present your highly technical work to an audience that is educated but has specialized neither in your personal niche nor even in your broad field of endeavor? Can you capture their nonspecialist imagination and inspire them to ask for more? Is it even possible?

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Figure 1. The MTT-S Historic Exhibit will be on display at IMS2019.

InfoAge Museum [2] and first shown at IMS last year. This exhibit has been updated, and we plan to bring this interesting and important piece of history to Boston this year.

The Boston area is the home of numerous companies that focus on RF and microwave products. One example is General Radio (GR), which was founded in 1915 to manufacture measuring equipment for use at radio frequencies. Edwin H. Armstrong used some of GR's early standard capacitors in the experimental radio equipment he built. After World War I, the new radiobroadcasting phenomenon drove much of the company's product line. For a short time, the company produced components for use in radio equipment, but their main effort eventually went back to producing radio test equipment. GR was first

located in Cambridge, Massachusetts, at Massachusetts Avenue and Windsor Street, and its operations moved to Concord, Massachusetts, in 1958. Microwave test equipment included signal generators, impedance measuring equipment, and the GR series of sexless coaxial connectors [3].

The National Electronics Museum (NEM) permanently houses the MTT-S Historical Collection in Linthicum, Maryland, close to the Baltimore/Washington Thurgood Marshall International Airport. The museum includes many microwave-related exhibits, including components and radar systems from Hughes, Northrop Grumman, Raytheon, RCA, Western Electric, and Westinghouse, as well as communications and countermeasures equipment from a variety of companies. Specific

radar exhibits include SCR-270 (Pearl Harbor radar), SCR-584 gun-directing radar, Nike-Ajax missile defense equipment, and military aircraft radars from World War II (AN/APS-4) to the present (AWACS, F-35). The newest exhibit is a World War II vintage SU shipborne X-band radar built by Raytheon in the 1950s for the Canadian Navy. NEM houses several local IEEE Society functions and receives generous support from the MTT-S annually. It provides numerous educational and hands-on programs throughout the year; in 2018, it reached more than 5,000 students at on-site and off-site events. A new exhibit, Satellites Transform Our Lives, is funded by the Society of Satellite Professionals International. NEM is open to the public Monday–Friday, 10:00 a.m.–4 p.m., and on Saturdays, 10 a.m.–2 p.m. It is located at 1745 W. Nursery Rd., Linthicum, Maryland [4].

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