



MINUTES OF THE 2022 IEEE NUCLEAR AND PLASMA SCIENCES SOCIETY (NPSS) NUCLEAR  
MEDICAL AND IMAGING SCIENCES COUNCIL (NMISC) ANNUAL GENERAL MEETING

DATE: FRIDAY, NOV 11, 2022, 12:45-14:30PM CET

LOCATION : TURQUOISE 2, MICO CONVENTION CENTRE, MILANO, ITALY

ZOOM LINK: [HTTPS://WEILLCORNELL.ZOOM.US/J/99902907022](https://weillcornell.zoom.us/j/99902907022)

MEETING ID: 999 0290 7022, PASSCODE: NMISC2022

***Voting Members:***

*Executive*

Andrew Goertzen (NMISC Chair)

Youngho Seo (NMISC Vice Chair)

Roger Fulton (NMISC Past Chair, NMISC Awards-Fellows Sub-Committee Chair)

***NMISC Term ending 2022:***

Joyita Dutta

Antonio Gonzalez Martinez

Marie-Claude Gregoire

Craig Levin

Youngho Seo

***NMISC Term ending 2023***

*Dimitra Darambara*

*Andrea Gonzalez Montoro*

*Hamid Sabet*

*Emilie Roncali*



*Volkmar Schultz*

***NMISC Term ending 2024:***

Esther Giarrocchi

Arman Rahmim

Mitra Safavi-Naeini

Hideaki Tashima

Larry Zeng

***Non-Voting Members:***

Steve Meikle (NPSS President)

Adam Alessio (AdCom representative)

Robert Miyaoka (AdCom representative)

Lorenzo Fabris & Merry Keyser (Valentin T. Jordanov Award Committee co-Chairs)

Dimitris Visvikis (TRPMS Editor in Chief)

Vesna Sossi (TRPMS Senior Editor)

Nicolas Karakatsanis (NMISC Secretary)

Suleman Surti (JOS Chair)

GianFranco Della Batta (JOS Past Chair)

Michael Lerch (JOS Vice Chair)

Kisung Lee (JOS Representative)

Larry Zeng (JOS Representative)

John Valentine (RISC Chair)



### 1. Introduction. Delivered by Andrew Goertzen

### 2. NMISC Chair's report. Delivered by Andrew Goertzen

- Reviewed technical committees and executive members.
- Reviewed current roster of NMISC voting members.
  - Thank for their service the 5 members ending their term in 2022.
  - Welcome the 5 new members elected in 2022 to serve for the 2023-2025 term
- Reviewed 2022 Elections
  - A new NMISC AdCom representative was elected (2023-2026 term):
    - Jae Sung Lee
  - Five new NMISC members were elected (2023-2025 term):
    - Alexandre Bousse, Yong Du, Georgios Konstantiniou, Sun Il Kwon, Irene Polycarpou,
  - New NMISC JOS representative needs to be elected by end of 2022.
    - Larry Zeng's term ends in 2022.
  - A new NMISC Vice Chair will need to be elected in 2023
    - to serve for the 2024-2025 term as NMISC Vice Chair and 2026-2027 as NMISC Chair
- Recent Activities:
  - Technical Co-Sponsorship of the 2022 PSMR-TBP workshop (Elba, Italy, May 28 – June 1, 2022)
    - Chairs: Nicola Belcari and Stefaan Vandenberghe
- Upcoming Activities
  - Constitution and By-Laws review sub-committee (last updated in 2013)
    - Will establish subcommittee to review documents.
    - Timeline discussed for 2022-2023
    - Open call for participation

### 3. B. NMISC Secretary's Report, (delivered by Nicolas A Karakatsanis)

- Current Secretary agrees to continue service in this role for a 2<sup>nd</sup> consecutive term (2023-2024)
  - after the recommendation of NMISC Chair and Vice-Chair
- Non-Routine Motions Voted on since 2022 mid-year T-con (May 2022)
  - None
- Welcome note to the new elected NMISC members starting in 2023 (term of 2023-2025)
- NMISC JOS Representative Elections for 2023-2024 term
  - Deadline for nominations: December 2<sup>nd</sup>, 2022

### 3. NMISC Awards/Nominations Sub-Committee (delivered by Roger Fulton, Chair of sub-committee)

- Announcement and reminder of the available 2023 NMISC awards
  - Edward J Hoffman Medical Imaging Scientist Award



- Medical Imaging Technical Achievement Award
- Bruce H Hasegawa Young Investigator's Award
- Nomination deadline for 2022 awards was July 15 2022, but extended to July 30 2022
- Announcement of 2022 awardees:
  - **2022 Edward J Hoffman Medical Imaging Scientist Awardee:** Johan Nyuts (KU Leuven, Belgium)
  - **2022 Medical Imaging Technical Achievement Awardee:** Jae Sung Lee (Seoul National University, S. Korea)
  - **2022 Bruce Hasegawa Young Investigator Medical Imaging Science Awardee:** Fernando Hueso González Instituto de Física Corpuscular (IFIC), University of Valencia, Spain
- NPSS-levels Award Nominations Deadline: Jan 31<sup>st</sup>, 2023
- Highlight the importance & opportunity of the new (3 years so far) IEEE NPSS Edward J. Hoffman Earl
  - Career Development Grant, funded by the IEEE NPSS Edward J. Hoffman Memorial Fund
  - Prize: 10K USD
- IEEE Fellows Report
  - Nomination Deadline: March 1<sup>st</sup>
  - There are no female or Asia-Pacific region fellows from NMISC.
  - 2 women were nominated in 2022 in the total field out of 11 NPSS nominees.

#### 4. NMISC Initiatives Sub-Committee report (delivered by Robert S Miyaoka)

- Current members: Robert Miyaoka (chair); Dimitra Darambara, Antonio Gonzalez, Mercedes Rodriguez, and Youngho Seo
- 2 meetings held in 2022 to discuss potential initiative ideas.
- seeking interested partners for creating a hardware library of equipment and supplies for nuclear medical instrumentation (Instrumentation Hardware Library Initiative)
  - Examples: photodetectors, scintillators, detector modules, electronics, etc.
  - Concept is being developed as an initiative to put forward to AdCom for funding.
  - Simon Cherry (UC Davis) is willing to donate to the library.
  - Equipment would be available for loan to research groups and NPSS Schools
  - New ideas for initiatives are always welcomed.

#### 5. MIC Future Directions and Topics Sub-Committee (delivered by Vesna Sossi)

- Original committee did not meet in the last year
- Recommendations are being followed by 2023 MIC Program Chairs
- **Short course** selection done with strong input from program chairs
- **Hot topics** proposed (Margaret/Rutao) – need to be approved by NMISC
- **Highlights** from other relevant meetings: under considerations
- Workshops will be decided after the 2022 meeting



- Student abstract reviewing: pilot project in place
- It is time to form an NMISC hot topic selection sub-group to work with MIC program chairs.

#### **6. IEEE NSS/MIC/RTSD Conference Record report** (delivered by Youngho Seo)

Future of the conference record format discussed

- Issues
  - Copyright of IEEE Pubs affects publication of full papers in peer-reviewed journals including TRPMS, TNS, TMI
  - Often Conf. Rec. papers were published a long after the conference
- Suggestions for discussion
  - Publish “abstracts (~1/2 page)” only in IEEE Xplore – still citable, subject to copyright
  - This can happen just before, during, or right after the conference
  - Full papers will not have much copyright issue for submission to any journals
- Proposed actions and discussion items
  - Form a joint subcommittee w/ RISC to reach a consensus before the next abstract deadline (Apr/May 2023)
  - Phase out conference record in the current form going forward
  - Expansion of abstract to ~1 page including figures/tables/refs for both abstract publication (if accepted) and for review – no 2-page summary.
  - Most importantly, a volunteer from NMIC for the subcommittee is welcomed

#### **7. 2022 NSS/MIC/RTSD Conference Report** (delivered by Chiara Guazzoni)

- Great support from organization committee (35% women, 50% as Program Chairs)
- Stats:
  - 1257 Submitted Abstracts, >40 countries
  - >1710 attendees (25% virtual, the rest onsite)
  - 7 Short Courses, 302 Short Course Attendees (196 onsite and 106 virtual)
  - 553 Workshops and Special Events (WIE...)
  - 58 exhibitors booths sold
  - Dinner’s and Luncheon sold out!
  - 188 offered Trainee Grants and 175 used
- Hybrid conference and Q&A system supported
- Budget balance was challenging but accomplished

#### **8.2023 NSS/MIC/RTSD Conference Report** (delivered by V. Sossi)

- Organization Committee Activities
  - Committee had an in-person venue visit in June 2022
  - Several zoom meetings after that



- In-person meetings: Wed Nov 9<sup>th</sup>
- VCC contract fully executed
- Planned format: Hybrid (observing 2022 Milano conference hybrid format)
- Program
  - Floor plan for **exhibitors** and **posters** ~ finalized; prospectus distributed at this meeting
  - **Hot topic** session – Margaret/Rutao
  - Session on **highlights** from other relevant topical meetings (maybe)
  - Pilot project: **Student** abstract **reviewers**
  - **Publishing** submission **abstracts** rather than conference record (working on details)
- Hotel Accommodation and Social Events
  - No hotel blocks will be reserved for attendees,
  - Social events venues were chosen (Science World (NSS), Aquarium (MIC))
- Following the **NPSS WIE pledge**: *“Work toward gender-diversified panels at all IEEE meetings, conferences, and events, including our own”*
- Overall comment: Programming is on schedule.

#### 9.2024 IEEE NSS/MIC/RTSD conference report (delivered by Lorenzo Fabris)

- After Boston dropped the ball, the organization committee settled on Tampa after considering other three tier-2, US locations (San Diego, Knoxville, Savannah) and weighing all variables.
- Tampa offered good rates, hospitality, and a great venue (Tampa Convention Center) and hotels. Many options will be available and lots of space.
- \$69.5k for Convention Center after F&B min \$300k
- Site visit was done early August by me and Suleman.
- Consider continuing offering a hybrid meeting, contingent on the experience in Milan and Vancouver.
- MCE involved in a similar way to what 2023 organization is doing.
- Contract is being approved.
- Organization Committee synthesis confirmed.
  - Georges El Fakhri and Kira Grogg as MIC co-Chairs

#### 10. 2025 IEEE NSS/MIC/RTSD conference report (delivered by Ikuo Kanno)

- Planned schedule: 1<sup>st</sup> (Sat.) -8<sup>th</sup> (Sat.) Nov. 2025
- Venue: Pacifico Yokohama North (originally planned for 2021)
- Contract with the Venue by the end of 2022
- Organizing committee is planned to be the same as 2021

#### 11. Joint Oversight Subcommittee (JOS) update Report, delivered by Suleman Surti, JOS Chair

- Current JOS membership and IEEE NSS/MIC/(RTSD) conference meeting schedule is presented



- 2022 – Milan
- 2023 – Vancouver
- 2024 – Boston (makeup for 2020)
- 2025 – Yokohama (makeup for 2021)
- 2026 – Europe (back to normal cycle)
- 2027 – likely North America
- 2028 – likely Rest of the World (outside Europe and North America)
- Plans for 2026 site selection (European site)
  - April 2022: Call for sites in Europe
  - Aug/Sep 2022: Proposal submission deadline
  - Oct 2022: Preliminary discussion
  - Nov 08, 2022: Site presentations, JOS discussion, Selection of 3-5 sites for site-visit
  - Feb 2023: Complete site visits and reports
  - Apr 2023: Discussion and ranking
  - Sep 2023: Examination of candidates for Chair (from RISC)
  - Candidate Cities: Athens, Berlin, Copenhagen, Grenada, Geneva, Hague, Rotterdam
- Plans for 2027 site selection (North America site)
  - Dec 01, 2022: Call for sites in North America
  - Mar 31, 2023: Proposal submission deadline
  - Apr 2023: Preliminary discussion
  - May 2023: JOS discussion, Selection of 3-5 sites for site-visit
  - Sep 2023: Complete site visits and reports
  - Oct/Nov 2023: Discussion and ranking
  - Dec 2023/Apr 2024: Examination of candidates for Chair (from NMISC)?

## 12. IEEE NPSS Journals/Publications (delivered by D. Visvikis)

- TRPMS Published issues stats.
  - Number of published pages and articles increased in 2022.
  - Number of submissions dropped in 2021 and 2022 after a surge in 2020
- TRPMS Journal Citation Indicator (JCI) Report
  - Ranked 41/200 in the category “Radiology, Nuclear Medicine and Medical Imaging”
  - JCI Score: 1.00 (steady increase in last 5 years)
    - EJNNMI Phys JCI=1.06, Phys Med Biol JCI=0.92
- Clarivate announced a modified approach for its 2023 Citation Report
  - This means that all 26 IEEE journals in Emerging Source Citation Index (ESCI) will receive their first impact factor in June 2023
- Announced Best Paper Award and upcoming Special Issues for TRPMS
- TRPMS has successfully moved to 8 issues / year (Jan, Feb, Mar, Apr, May, Jun, Sep, Nov)



- Based on current citation numbers in 2022, the 2023 Impact Factor will be >>3
- Open call for any suggestions for TRPMS review articles and special issues

### 13. IEEE NPSS School on Advanced Topics in PET/CT & PET/MR (delivered by R. Fulton)

- Organized by the IEEE Nuclear and Plasma Sciences Society and the Thai Medical Physicist Society (TMPS). It will be held, in part, in conjunction with
  - the Annual Scientific Meeting of the Thai Medical Physicist Society (<http://thaimps.org>) in Nan, Thailand, from 27 - 29 January 2023, and
  - subsequently from 30 Jan - 1 Feb 2023 at the King Chulalongkorn Memorial Hospital, Bangkok, Thailand.
- The first NPSS EduCom School to be organized by the Nuclear Medical and Imaging Sciences Technical Committee (NMISTC).
- Organizing Committee announced
- Goals of the School: Through a combination of lectures and practical exercises:
  - to train master level students in the area hybrid PET/CT and PET/MR imaging.
  - to promote the participation of young scientists in medical imaging and related fields
  - to provide refreshers on PET/CT and PET/MR for medical physicists working with these technologies.
  - to raise participants' awareness of the benefits of participating in and contributing to IEEE activities, consistent with NPSS strategic goals.
- Why in conjunction with TMPS? TMPS brings medical physicists from Thailand and surrounding countries together for 3 days. This provides an opportunity for NPSS lecturers to:
  - Interact with medical physicists from the region in scientific and social settings,
  - Promote the NPSS and IEEE,
  - Contribute invited lectures to the TMPS program.
  - Consistent with NPSS' Mission Statement it will "provide opportunities for scientific exchange and career development and to promote a diverse and inclusive community of nuclear and plasma scientists and engineers".
- Five lectures confirmed and program finalized
- Applications: accept applications from Masters Students in medical physics, and practicing medical imaging physicists, from Thailand and neighboring countries.
  - Applications submitted through the School website (<https://indico.cern.ch/event/1209524/>)
  - Standard EduCom school questions about educational background, research experience, ability to recognize relevant keywords, motivation to take the course, English familiarity and how participation will benefit their future career.
  - Qualified candidates selected by committee.
  - Currently 25 applicants (15 female, 10 male; 22 from Thailand, 1 from Indonesia, 2 from Myanmar).
- NPSS Lecturer Contributions to TRPMS (requested)
  - The NPSS Schools Program





- Image Reconstruction in PET/CT and PET/MR
- AI in PET/CT and PET/MR
- PET kinetic Modelling
- Recent Technology Developments in PET/CT and PET/MR
- Proton therapy

#### 14. NMISC AdCom Activities Report (delivered by R. Miyaoka and V. Sossi)

- NPSS Newsletter
  - Efforts are being made to change the format of the NPSS newsletter into an interactive online format to increase readership and better disseminate information.
  - Open call for content, opportunity to advertise work going on in your laboratory. contact Andrew Goertzen ([andrew.goertzen@umanitoba.ca](mailto:andrew.goertzen@umanitoba.ca))
- TRPMS: The journal is ranked 40th of 200 journals governing similar topics (radiology, nuclear medicine & medical imaging category)
- IEEE Young Professionals (YP)
  - IEEE YP Event organized by Srilalan Krishnamoorthy, YP Chair)
  - IEEE YPs are IEEE members who have graduated from their first professional degree within 15 years.
  - Activities involving YPs include:
    - educational events,
    - diversity and inclusion student/trainee review of abstracts as well as
    - networking, mentoring and encouraging volunteering.
  - Srilalan also provided a list of other toolkits available and indicated that he is willing to help organize YP events and find speakers for them:
    - e.g. IEEE Student50Discount toolkit: new and renewing IEEE students and graduate students can save up to 50% on their membership dues
- NPSS Foundation Fund (General Chair: Roger Fulton)
  - Aims of the Fund
    - provide continuity of support for NPSS mission-driven imperatives beyond the 3-year initiative cycle.
    - To accept donations from NPSS and other donors to support and enhance its NPSS mission-driven educational, outreach, diversity and humanitarian efforts.
  - Breakout Session at June AdCom meeting
    - Should imperatives be distinguished from initiatives, and what types of NPSS imperatives/initiatives should the Fund support?
    - What types of donors (members, conference attendees, AdCom members, conference exhibitors, philanthropic, etc) should be targeted, and how?
- NPSS EduCom (Chair: Stefan Ritt: [stefan.ritt@psi.ch](mailto:stefan.ritt@psi.ch))
  - EduCom was established after AdCom motion Oct. 2021 starting Jan 1, 2022.
  - NPSS Schools were a 3 year initiative funded by initiative money



- Third year can be shifted to 2022 due to Corona → US\$ 45,000 budget for 2022
- Placed new initiative (schools ↔ EduCom) for 2023-2025 with US\$ 50,000 per year
- Roles and Responsibilities:
  - Report to AdCom for NPSS Schools, identify local organizers, organize schools, manage budget
  - New educational initiatives with all TCs
  - Identify hosts and speaker for educational activities
  - Maintain Webpage

### 15. Trainee Grants Report (delivered by L. Fabris/M. Keyser)

Jordanov grant: meant to “promote graduate level study and research on radiation instrumentation and to promote membership in IEEE”. (Travel grant)

- Reimbursement of expenses for conference participation (\$1,500 with \$12,000 annual cap)
- Funded by IEEE Foundation through gift from Valentin Jordanov.
- Grad students (or highest degree < 5 yrs)
- 8 recipients this year (4 NSS, 4 MIC) – one had to decline due to a visa situation.
  - Agus Rachman, Andrea Gonzalez-Montoro, Shrin Pourashraf, Steven Seeger, Adriana Simancas, Atreyo Mukherjee, Julien Rossignol, Taisei Ueki.
- Good geographical/gender balance.

Trainee Grant: Supporting conference expenses. Typically, \$345 (from conference budget, through sponsorships)

- A good balance of NSS/MIC/RTSD
- A total of 186/218 was granted.
- Definitely need more sponsorship (this year it was quite low) in order to fund 100% of applicants, which is the goal.

### 16. Other Business

#### 16.1 Initiative for PET Raw Data Format & Archiving Standardization (delivered by N. Karakatsanis)

- Originated from discussions on Sitek, A. *et al.* “Artificial Intelligence in PET: An Industry Perspective. PET Clinics 16, 483–492 (2021)”
- Pushed forward by Arman Rahmim, later led by Glenn Wells who is the current President of Physics, Instrumentation & Data Sciences Council (PIDSC) of SNMMI
- Large international group of interested people.
  - ~50 total (Academics + industry)
  - Clinical and preclinical



- First meeting Feb 202
- Informal and not currently associated to any society.
- Vision: To create an open standardized data format for raw emission-tomography acquisition data allowing:
  - data storage/archiving, pre-reconstruction processing and evaluation and reconstruction of clinically-acceptable and quantitative images.
- Short-term goals:
  - to define a standardized (vendor-independent) data format and content for PET list-mode and associated data;
  - to define the standard used for storage and transmission of that data; and
  - to develop software to access and manipulate the standardized data.
- Long-term goal:
  - to expand the standard's scope to include other emission modalities (SPECT and planar).
- Sub-Groups of the Initiative
  - Data Elements (core structure): led by K. Thielemans and A. Kesner
  - Data Wrapper/Container: Led by M. Hansen
  - Use cases: led by N. Karakatsanis
  - Data archiving and network transfer/transmission (to be constructed)
- Description will be human *and* machine readable.
  - As opposed to a "format", we are working towards an API, automatically generated from the formal description.
- Vendor-format will be converted to standard (different output "container formats" will be supported)
  - converters should be written with vendor support.
  - forward looking: older scanners might not be supported
- Designed to benefit the Open-Source Software (OSS) Community
  - No need for research agreements,
  - Vendor-independent processing,
  - Much larger impact,
  - Opens potential for multi-centre trials using (almost) identical processing,
  - Removes need to write difficult and hard-to-maintain code to decode existing file formats efficiently,
  - Practical expertise in the community
  - "Description -> API" will be OSS
  - OSS will form the basis for converters
  - OSS Hackathons/projects to implement use-cases
- Description/Application Programming Interface (API) (led by M Hansen, implemented by J. Stairs, Microsoft Research)
  - Working prototype, will be OSS on GitHub (end of 2022?)

#### **17. IEEE Brain Technical Community (IEEE Brain) Report** (delivered by V. Sossi)



The mission of IEEE Brain is to

- unite engineering and computing expertise across IEEE in order to support the advancement of innovative technologies that improve our understanding of the brain and mitigate the effects of neurological disease and injury in an ethical and responsible manner, and
- strengthen cross-disciplinary collaboration and coordination among and between IEEE Societies and outside agencies that are engaged in brain-related research and technology development.
- focus is broad—including brain-machine interfaces (BMIs), bioelectronics, computational neuroscience, neuromorphic computing, clinical applications, neuroethics and standards, and other emerging areas.

#### Background

- Driving Need for founding of IEEE Brain Initiative
  - Growing global efforts in government, academia, and industry, focusing on brain research and new technologies to transform our understanding of the brain to treat diseases and to improve lives
  - IEEE complements the many worldwide BRAIN Initiatives' efforts and neuroscience programs. We
- Desired Outcome
  - Establish IEEE as an integral thought leader & contributor to the worldwide BRAIN efforts and programs
  - Build a strong portfolio of assets with diverse products, services, and community.

#### Integration into IEEE Operations

- Previously the IEEE Brain Initiative, it has, in the meantime, transitioned to become an IEEE Technical Community (in 2021) with the support of nine IEEE Societies at three membership levels — Core, Supporting, and Affiliate
- IEEE Brain Community was incorporated into the 2021 IEEE Membership where members of the above sponsoring societies can join for free while others pay a fee.
- IEEE Brain Technical Community continues to collaborate with IEEE SA, IEEE EA, IEEE TechEthics, and IEEE Entrepreneurship to share and develop assets.

#### Steering Committee (SC) and Governance (established in summer 2021)

- Steering Committee
  - Representatives from each Supporting Society constitute SC,
  - voting members consist of Core Member societies and Affiliate Members
  - Chair is chosen by rotating Core Member Societies for 1 year term as Chair-elect, 1 year as Chair, 1-year Past Chair
  - Monthly meetings to discuss and plan activities.



- Communities continue to grow:
  - 1780 Community members
  - Funding society members can join for free,
  - \$2255 in revenue generated from paid members (2021)
  - 6617 Twitter Followers
  - 2.8k Facebook Followers
  - 8136 Collabratec Brain members

#### IEEE Brain Content & Communications

- IEEE Brain Website Redesign: Launched March 30, 2022
  - User-friendly design compatible with IEEE requirements
- IEEE Brain Neurotech Entrepreneurs Corner – Interview Series
  - 11 video interviews on translation of neurotechnology from research to commercialization
- IEEE Brain Webinar Series
  - 9 webinars in 2021 (averaging 99 registrants/webinar); more planned Fall 2022
  - Free on-demand access for any IEEE Brain Community Members
- IEEE Brain Podcast Series
  - Popular series available on the Brain website, Soundcloud, Apple Podcasts, Google Podcasts, and Spotify
  - Highlight SMEs chosen by Member Societies
- IEEE Brain Newsletter: BrainInsight
  - New Editor-in-Chief and Editorial Board formed summer 2021
  - Published 2 times per year; Recent issues published December 2021, June 2022

#### IEEE Brain Ethics & Standards

- IEEE Brain Neuroethics Framework
  - Eight Working Groups drafting documents addressing the ethical, legal, social, and cultural implications of the use of a neurotechnology in the context of an application
  - IEEE Socio-technical Standard: PAR paperwork approved September 2022 for new IEEE Neuroethics 7700 Series
- Gaining national and international recognition: Recent events coordinated with the International Brain Initiative (IBI) Neuroethics Working Group, IEEE TechEthics, the NIH Brain Initiative Meeting, and the International Neuroethics Society (INS)
- IBI Data Standards and Roadmap
  - IEEE Brain representation on international Data Standards and Neurotechnology Standards Roadmap



### IEEE Brain – Building Connections

- IEEE Brain Best Paper Awards
  - Stimulate brain-related research & support paper awards within each Member Society
- Workshop and Conference Sponsorships
  - BR41N.IO hackathons (global reach with local networking opportunities)
  - IEEE International Conference MetroXRINE (Extended Reality, AI, and Neural Engineering)
  - ISRC-CN3 Autumn School (Europe)
- IEEE Brain Future Directions in Consumer Neurotechnology, Nov 30 – Dec 1, 2021, virtual event
  - Focus on non-medical use of neurotechnology for consumers; not widely addressed today
  - Mix of large companies, start-ups, and VCs
  - Pave the way for in-person event in upcoming years with exhibits and revenue/sponsorship opportunities
- 2022 IEEE Brain Discovery Neurotechnology Workshop: Brain, Mind, Body — Nov 10-11, 2022
  - In-person/hybrid satellite event, Society for Neuroscience Conference, held at UC San Diego