

Neural Interfaces 2025 Conference: Call for Proposals

Submission Guidelines

Join us at [Neural Interfaces 2025](#), where scientists, engineers, clinicians, patient advocates, ethicists, and industry leaders convene to advance neural interface neuromodulation technologies and drive impactful healthcare solutions.

We invite proposals for dynamic, solution-oriented sessions that foster collaboration among academia, industry, and clinical practice. Submissions are encouraged from both experienced researchers and emerging voices in the field, whether from academia or industry or the patient community—especially those that highlight translational efforts and clinical applications, whether in animal or human subjects. Interactive and engaging session formats are highly encouraged to promote cross-disciplinary dialogue and audience participation.

Submission Deadline: Monday, January 6, 2025, at 1:00 PM Central

NOTE: We recommend reviewing the information and criteria outlined below prior to submitting your proposal in Survey Monkey, as partial submissions will not be saved. A [Submission Requirements Checklist](#), including all survey questions, is provided at the end of this document to help you prepare your responses.

All proposals must be submitted by January 6, 2025. Late or incomplete submissions will not be accepted. You may submit more than one proposal. For questions or concerns, please contact Caitlyn Hicks, NANS Education Manager at chicks@neuromodulation.org.

[Access the NI 2025 Call for Proposals Submission Form](#)

Session Format

All proposals should be designed for **75-minute sessions**, which will be selected and curated by the conference steering committee. To maximize engagement, breadth, and impact, each session should be thoughtfully structured to foster dialogue and audience participation.

Proposals should specify the proposed **session structure(s) and learner engagement format(s)**, such as rapid-fire presentations, moderated discussions, panels, roundtables, or other formats. At least **20 minutes of each 75-minute session** must be dedicated to audience discussion, Q&A, or other forms of engagement to encourage cross-disciplinary exchange and dynamic interaction.

Each session must include:

- **A moderator** with the option of including a co-moderator to help facilitate the session and manage audience engagement. The moderator will be the point of contact for your session with NANS staff and serve as the primary session planner.
- **Up to four speakers** who contribute expertise and drive the session's core content.

When developing your proposal, ensure the **Session Agenda** reflects these requirements and supports a balanced, impactful exchange of ideas.

Potential Topic Areas

Potential topic areas for the Neural Interfaces 2025 conference span a wide range of exciting advancements, from clinical applications to cutting-edge research in neuromodulation and neural interfaces. This list is by no means exhaustive, as the field is evolving rapidly with novel technologies, therapies, and breakthroughs emerging continuously.

Potential topics include:

1. **Clinical Neuromodulation in Pain Management:** Advances in spinal cord stimulation, deep brain stimulation, and peripheral nerve stimulation for chronic pain, cancer pain, and neuropathic pain relief. Session elements may include, but are not limited to, topics including electrode materials, device hardware/software, and clinical trial outcomes.
2. **Clinical Neuromodulation for Movement Disorders:** Applications of neuromodulation in treating movement disorders (e.g., Parkinson's, essential tremor) including deep brain stimulation and developments in novel neural interface technologies. Session elements may include, but are not limited to, novel indications, brain-circuit modulation, and advanced imaging for electrode targeting.
3. **Functional Electrical Stimulation and Neuromodulation in Rehabilitation:** Techniques and applications in motor restoration, including spinal cord stimulation, vagus nerve stimulation, peripheral nerve stimulation, and neuromodulation in stroke and spinal cord injury recovery.
4. **Brain Computer Interfaces:** Technologies designed to capture and interpret neural signals to restore movement and communication, enhance cognitive and sensory functions, and provide novel approaches to interaction with assistive technologies. Topics span advances in devices and signal processing, user experiences, and clinical trials.

5. **Non-Invasive Rehabilitation and Cognitive Restoration:** Neuromodulation for cognitive or physical rehabilitation in conditions such as stroke, spinal cord injury, psychiatric conditions, and dementia. Modalities may include transcranial magnetic stimulation, transcranial electrical stimulation, optical stimulation, surface electrical recording, etc.
6. **Prosthetics and Sensory Feedback:** Innovations in prosthetic devices that provide sensory feedback, control strategies for prosthetic limbs, and user experience enhancements for amputees and individuals with sensory deficits.
7. **Auditory Prosthesis and Cochlear/Vestibular Implant Innovations:** Advances in cochlear implants, auditory prostheses, and emerging auditory neural interfaces and device-based treatments of tinnitus. Potential to present clinical outcomes and trial results.
8. **Vision Prosthesis:** Innovations in electrode arrays, visual signal processing, and the integration of brain-computer interfaces (BCIs) to provide visual feedback.
9. **Autonomic Neuroprosthesis:** Technologies to stimulate the autonomic nervous system and vagus nerve to control end organ function (e.g., bladder, heart rate, blood pressure, gastrointestinal function).
10. **Neural Signal Decoding and Cognitive State Detection:** Techniques for decoding cognitive states, identifying neural biomarkers, and BCI applications. Applications in mental state monitoring and neurofeedback, with potential clinical use cases.
11. **High Channel-Count Electrophysiology:** Factors influencing material choice, form factor for devices, wireless data transmission with security and fidelity, data management including archiving and mining.
12. **Neuromorphic Biotechnology:** Neuromorphic biotechnology aims to emulate the structure and function of the human brain in biocompatible, silicon-based devices, enabling the creation of intelligent, energy-efficient systems that can process neural signals in real time. Applications include brain-inspired chips for advanced prosthetics, adaptive neural interfaces, and neuroprosthetic systems that mimic natural neural processing to enhance sensory and motor functions. Topics may also cover recent developments in materials, algorithms, and the translational potential of neuromorphic designs for healthcare.
13. **Machine Learning and Computational Models in Neural Interfaces:** AI-driven neural data analysis, adaptive modeling of neural signals, and computational approaches to predict treatment outcomes in neuromodulation.
14. **Advanced Imaging and Neural Recording Techniques:** New neural monitoring technologies, such as two-photon imaging and calcium imaging, enhancing our understanding of neural dynamics in real time. Emerging applications in clinical and translational research.
15. **Device-Tissue Interaction and Neuroinflammation:** Mechanisms of neuroinflammation and tissue responses to implanted devices, with focus on chronic device performance and tissue compatibility. Material factors relevant for improving clinical device longevity.
16. **Material Science for Neural Interfaces:** Biocompatible materials, coatings, and encapsulation techniques to improve stability and reduce inflammation in chronic implants, indirectly impacting clinical application sustainability.
17. **Regulatory and Ethical Consideration for Human Neuroprosthetics Trials:** Determination of significant risk, determination of regulatory pathway 510K vs PMA, FDA NIH interaction in federally funded device development. This would include experiences and challenges of different neural

interface clinical trials, from Level I devices (for intraoperative use), to Level II (used up to 30 days) and Level III (fully implanted) devices.

18. **Features of Highly Functioning Teams in Neural Interface Development:** This could be a round-table discussion to illustrate the crucial nature of surgeon, neuroscientist, engineer, neurophysiologist and neurologist interactions in teams working on interface development.
19. **Future Directions in Neuromodulation and Neural Interfaces:** Exploration of novel applications, ethical and regulatory considerations, and market potential for new neuromodulation and neural interface technologies.

Submissions are encouraged on any relevant topics that advance the science and clinical applications of neural interfaces. Proposals that explore novel or emerging topics are welcomed.

Recommended Target Audience(s)

Neural Interfaces unites a multidisciplinary professional community through sessions that foster collaboration and innovation, addressing critical challenges and shaping the future of this transformative field. Attendees reflect a diverse range of professions and expertise, all dedicated to advancing neural interface research, development, and application.

- **Researchers:** Basic and translational scientists advancing foundational knowledge and exploring interdisciplinary applications in clinical and technological contexts.
- **Neural Engineers:** Innovators specializing in the development of neural devices, computational models, signal processing technologies, and integrated neurotechnology systems.
- **Clinicians:** Healthcare professionals, including neuromodulation specialists, interventionalists, neurosurgeons, and rehabilitation experts, focused on integrating neural interfaces into patient care.
- **Industry Professionals:** Leaders from biotechnology, medical technology, innovation firms, and entrepreneurs involved in developing and commercializing neural technologies.
- **Government and Regulatory Representatives:** Stakeholders from research funding agencies, regulatory bodies, public health officials, and policy organizations supporting neural technology innovation and oversight.
- **Students and Trainees:** Graduate students, postdoctoral fellows, early-career researchers, and engineers exploring the field of neural interfaces.
- **Other Stakeholders:** Patient advocates, community representatives, ethicists, and others shaping the broader landscape of neural interface innovation.

Proposals are not limited to the professions listed above. Submitters are encouraged to consider additional audiences relevant to their session content, particularly those representing emerging fields or innovative collaborations that advance the session's objectives.

Ideal sessions will engage attendees across professional roles, experience levels, and areas of expertise. While some sessions may target specific audience groups, others may appeal to broad interdisciplinary interests. Both approaches are encouraged and can effectively enrich the Neural Interfaces community.

Submission Requirements Checklist

Please be prepared to answer the following questions about your proposal. [Download a PDF version of the online submission form, including all survey questions, on the Call for Proposals page.](#)

- Session Proposal Title:** Provide a brief title, that is creative, yet descriptive for your session. Please use title case formatting. (*Maximum word limit: 25 words*).
- Submitter Contact Information:** Complete the textbox fields with your first and last name, credentials, professional title, affiliation, email address, and phone number.
- Session Information:**
 - Session Topic(s):** Select the primary topics (up to three) covered by your session based on the list above or select “Other” to enter your own in the comment box.
 - Short Description:** Provide a brief description for your session. This information will be shared with attendees and used for marketing purposes. (*Maximum word limit: 200 words*).
 - Target Audience(s):** Briefly describe the primary group(s) your session is designed to engage, such as professional roles and/or level of expertise (see examples above). If your session has broad appeal, explain how it addresses the interests of multiple groups and why it will be relevant across disciplines. (*Maximum word limit: 50 words*).
- Session Objectives:** Provide two to three learning objectives that describe in measurable terms what you expect participants to take away from your session. For examples of learning objectives please see the following [resource on Bloom’s Taxonomy](#).
- Set of Driving Questions:** Provide up to four key questions that will steer the session discussion and engage the audience.
- Session Format & Faculty (See Session Format section above for additional criteria)**
 - Proposed Format:** Specify the session structure and learner engagement methods (e.g., rapid-fire presentations, moderated discussions, panels, roundtables).
 - Draft Agenda:** Provide a draft agenda for your proposed 75-minute session. At least 20 minutes should be allocated to moderated Q&A, discussion, or other forms of audience engagement.

The agenda does not need to follow a specific format but should include the following details as described in your session proposal:

 - Key topics to be covered
 - Session structure and learner engagement methods
 - Faculty members (moderators and speakers)
 - Moderator(s):** Each session must include one moderator may include one additional co-moderator to facilitate the session and manage audience engagement.

- **Contact Information:** Provide contact information for at least one session moderator.
 - **Speaker(s):** Sessions may have up to four speakers in addition to moderators. If a moderator is also presenting during their session, they should be listed as both a moderator and one of the four session speakers below.
 - **Contact Information:** Provide contact information for at least one speaker.
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Selection Process

The final proposal selection and session scheduling are made by the Neural Interfaces Conference Steering Committee who oversees the selection of the scientific program, including conference sessions and abstract posters. The Committee may suggest modifications to proposals such as combining two proposals into one, or substitutions of faculty to a proposal. The moderators will be contacted regarding decisions related to their proposal in mid-February 2025.

Visit [Neural Interfaces 2025](#) for up-to-date information related to the Call for Proposals, upcoming Call for Abstracts, and more.