



Vivek P. Buch, MD

Assistant Professor of Neurosurgery and, by courtesy, of Bioengineering

CLINICAL OFFICE (PRIMARY)

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Bio

BIO

Dr. Buch is a board certified neurosurgeon with fellowship training in pediatric and adult epilepsy, functional, and minimally invasive neurosurgery. He is an Assistant Professor of Neurosurgery and Bioengineering, and the Christina and Hamid Moghadam Endowed Faculty Scholar at Stanford University.

Dr. Buch focuses his expertise on the open and minimally invasive treatment of epilepsy, low grade brain tumors, movement and neuropsychiatric disorders, facial and body pain syndromes, and other complex neurological conditions. He uses advanced and innovative techniques to treat both pediatric and adult patients. For each patient, he develops a personalized care plan that is designed to be both comprehensive and compassionate.

Dr. Buch has conducted extensive research. His academic career goal is to develop restorative bioengineering approaches for complex neurocognitive, neurodevelopmental, and neuropsychiatric disorders. He is creating network-neuroprosthetics and precision molecular therapies to restore abnormal brain circuit function in these vulnerable patient populations. He is further pioneering novel intraoperative technologies including personalized network-based targeting, holographic mixed reality, and artificial intelligence platforms for minimally invasive cranial surgery. He has presented this work at numerous professional conferences at the national and international level.

He has co-authored articles on his research discoveries in *Science*, *Nature*, *Nature Medicine*, *Nature Neuroscience*, *Nature Communications*, *Neuron*, *Brain*, *Annals of Surgery*, *New England Journal of Medicine*, *ACS Nano*, and many other journals. Articles focus on developing novel network control theory applications to human brain functions and new techniques and technologies to enhance neurosurgical effectiveness and patient outcomes.

He is the AI/Data Science Section Editor for *NEUROSURGERY*, and a guest editor for *Surgical Innovation* and *Brain Sciences*. He also has co-authored chapters in the books *Neurosurgical Atlas*, *Operative Techniques in Epilepsy Surgery*, *Deep Brain Stimulation*, and *The Encyclopedia of Medical Robotics*.

For his clinical, research, and academic achievements. Dr. Buch has earned many honors. He has won awards from the American Association of Neurological Surgeons, American Roentgen Ray Society, Congress of Neurological Surgeons, and National Institutes of Health, including twice earning the honor of national Young Neurosurgeon award from the Congress of Neurological Surgeons in his first 5 years of practice.

Dr. Buch is a national leader in epilepsy surgery, functional neurosurgery, and surgical AI. He is a member of the Wu Tsai Neuroscience Institute, Human Performance Alliance, Stanford BioX, and Human Centered AI Institute. He is also a member of the American Association of Neurological Surgeons, Congress of Neurological Surgeons, World Society for Stereotactic and Functional Neurosurgery, American Association of Stereotactic and Functional Neurosurgery, American Epilepsy Society, and Alpha Omega Alpha Medical Honor Society.

He has designed and holds patents on artificial intelligence systems for surgical guidance, neural control signals for closed-loop stimulation therapy, novel arrays for bioelectrical sensing and stimulation, and surgical devices including percutaneous anchoring mechanisms and digital neurological assessment tools.

Essential tremor patient story: <https://www.youtube.com/watch?v=fV6BzyU9b3c>

Parkinson's disease patient story: <https://www.youtube.com/watch?v=vAKP7SRKs08>

Epilepsy patient story: <https://www.youtube.com/watch?v=HXy-gXg0t94&t=3s>

Deep brain stimulation treatment: <https://www.youtube.com/watch?v=xLgEcb447gA&t=1s>

Laser interstitial thermal therapy treatment: <https://www.youtube.com/watch?v=z-nRUMbs2kY&t=2s>

MR-guided focused ultrasound treatment: <https://www.youtube.com/watch?v=3Bwq2YxD9eU>

CLINICAL FOCUS

- Epilepsy Surgery
- Deep Brain Stimulation
- Laser Interstitial Thermal Therapy
- Focused Ultrasound
- Functional Mapping for Brain Tumors
- Awake Craniotomies
- Movement Disorders
- Facial Pain Syndromes
- Neurological Surgery

ACADEMIC APPOINTMENTS

- Assistant Professor - University Medical Line, Neurosurgery
- Assistant Professor - University Medical Line (By courtesy), Bioengineering
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance

- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Christina and Hamid Moghadam Faculty Scholar, School of Medicine, (2024- present)

HONORS AND AWARDS

- Young Neurosurgeon of the Year Award - Functional & Restorative Neurosurgery, Congress of Neurological Surgeons
- Nomination for TV Documentary Series, "New Frontiers in Neurosurgery"
- Cover Article Selection, Epilepsia
- Editor's Choice, World Neurosurgery Best Papers
- Pilot Award, Penn Health-Tech Medical Device Competition
- "Rookie of the Year" Influencers of Healthcare Nomination, Philadelphia Inquirer
- Invited Speaker, PennHealthX Medical Innovation Symposium
- Nomination, STAT Wunderkinds
- Resident Award, American Roentgen Ray Society
- Podium Presentation Selections, American Association of Neurological Surgeons
- Editor's Choice: Best Papers, Journal of Neurosurgery Peds
- Award, Who's Who in America
- National Innovation Pre-Accelerator Advancement Selection, FedTech
- National Innovation Cohort Selection, Best Team, Lead Inventor, FedTech
- Podium Presentation Selection Functional Scientific Session, American Association of Neurological Surgeons
- Annual Meeting Best Oral Presentation, Pennsylvania Neurosurgical State Society
- Alpha Omega Alpha Selection, Medical National Honor Society
- Sigma Xi Research Award -- Most Outstanding Student Researcher in MD Class of 2013, The Warren Alpert Medical School of Brown University (2013)
- Dr. Stanley M. Aronson Award -- Most Outstanding Student in Neurosciences in MD Class of 2013, The Warren Alpert Medical School of Brown University (2013)
- National Institutes of Health Research Scholar Selection, Howard Hughes Medical Institute
- 2nd Place Overall Abstract Award, North American Neuromodulation Society
- Podium Presentation Selection, American Society for Stereotactic and Functional Neurosurgery
- Best Poster Award, Movement Disorders, American Society for Stereotactic and Functional Neurosurgery
- New Investigator Award Finalist, Rhode Island Hospital Research Celebration
- Presidential Scholar, United States Department of Education

PROFESSIONAL EDUCATION

- Board Certification: Neurological Surgery, American Board of Neurological Surgery (2024)
- Fellowship: Stanford University Dept of Neurosurgery (2021) CA
- Fellowship: University of Pennsylvania Dept of Neurology PA
- Instructor, Stanford University , Epilepsy, Restorative, and Functional Neurosurgery, Department of Neurosurgery (2021)
- Fellowship, University of Pennsylvania , Epilepsy and Minimally Invasive Neurosurgery, Department of Neurosurgery (2020)
- Residency: University of Pennsylvania Dept of GME (2020) PA
- Medical Education: Warren Alpert Medical School Brown University (2013) RI

- Research Scholar, Howard Hughes Medical Institute - National Institutes of Health , Complex Network Science (2012)

LINKS

- Video Story: Essential tremor patient story: <https://stanfordhealthcare.org/stanford-health-care-now/videos/welders-shaky-hands-steadied-by-mr-guided-focused-ultrasound.html>
- Parkinson's disease patient story: <https://stanfordhealthcare.org/stanford-health-care-now/videos/cartoonist-gains-the-ability-to-draw-again-in-the-operating-room.html>
- Epilepsy patient story: <https://stanfordhealthcare.org/stanford-health-care-now/videos/seizure-free-and-a-new-perspective-after-minimally-invasive-epilepsy-treatment.html>
- Deep brain stimulation treatment: <https://stanfordhealthcare.org/stanford-health-care-now/videos/deep-brain-stimulation-dbs-for-parkinsons-disease-essential-tremor-epilepsy.html>
- Laser interstitial thermal therapy treatment: <https://stanfordhealthcare.org/stanford-health-care-now/videos/laser-interstitial-thermal-therapy-litt-for-epilepsy.html>
- MR-guided focused ultrasound treatment: <https://stanfordhealthcare.org/stanford-health-care-now/videos/mr-guided-focused-ultrasound-mrgfus.html>

Research & Scholarship

CLINICAL TRIALS

- Vibrotactile Coordinated Reset in Parkinson's Disease - Proof of Concept Study, Not Specified

Teaching

STANFORD ADVISEES

Med Scholar Project Advisor

Fatima Al Rashed, Zane Norville, Sina Sadeghzadeh, Alaa Taha

Postdoctoral Faculty Sponsor

Alex Muselman, Jay Park, Manuel Rebol

Doctoral Dissertation Co-Advisor (NonAC)

Michelle Hedlund

Publications

PUBLICATIONS

- **Electrophysiological connections linking medial pulvinar, anterior nuclei of the thalamus and the hippocampus.** *Brain : a journal of neurology*
Togo, M., Lyu, D., Huang, W., Pantis, S., Fisher, R., Matsumoto, R., Buch, V., Parvizi, J.
2025
- **Mapping human thalamocortical connectivity with electrical stimulation and recording.** *Nature neuroscience*
Lyu, D., Stiger, J. R., Lusk, Z., Buch, V., Parvizi, J.
2025
- **Conserved brain-wide emergence of emotional response from sensory experience in humans and mice.** *Science (New York, N.Y.)*
Kauvar, I., Richman, E. B., Liu, T. X., Li, C., Vesuna, S., Chibukhchyan, A., Yamada, L., Fogarty, A., Solomon, E., Choi, E. Y., Mortazavi, L., Chau Loo Kung, G., Mukunda, et al
2025; 388 (6750): eadt3971
- **Naturalistic acute pain states decoded from neural and facial dynamics.** *Nature communications*
Huang, Y., Gopal, J., Kakusa, B., Li, A. H., Huang, W., Wang, J. B., Persad, A., Ramayya, A., Parvizi, J., Buch, V. P., Keller, C. J.
2025; 16 (1): 4371
- **Human response times are governed by dual anticipatory processes with distinct neural signatures.** *Communications biology*

- Ramayya, A. G., Buch, V., Richardson, A., Lucas, T., Gold, J. I.
2025; 8 (1): 124
- **Ictal Involvement of the Pulvinar and the Anterior Nucleus of the Thalamus in Patients With Refractory Epilepsy.** *Neurology*
McGinn, R., Von Stein, E. L., Datta, A., Wu, T., Lusk, Z., Nam, S., Dilts-Garcha, M., Fisher, R. S., Buch, V., Parvizi, J.
2024; 103 (11): e210039
 - **Multinuclear thalamic targeting with human stereotactic electroencephalography: surgical technique and nuances.** *Journal of neurosurgery*
Jamiolkowski, R. M., Datta, A., Willsey, M. S., Parvizi, J., Buch, V. P.
2024: 1-9
 - **"Quality over quantity:" smaller, targeted lesions optimize quality of life outcomes after MR-guided focused ultrasound thalamotomy for essential tremor.** *Frontiers in neurology*
Buch, V. P., Purger, D., Datta, A., Wang, A., Barbosa, D., Chodakiewitz, Y., Lev-Tov, L., Li, C., Halpern, C., Henderson, J., McNab, J. A., Bitton, R. R., Ghanouni, et al
2024; 15: 1450699
 - **Cross-regional coordination of activity in the human brain during autobiographical self-referential processing.** *Proceedings of the National Academy of Sciences of the United States of America*
Stieger, J. R., Pinheiro-Chagas, P., Fang, Y., Li, J., Lusk, Z., Perry, C. M., Girn, M., Contreras, D., Chen, Q., Huguenard, J. R., Spreng, R. N., Edlow, B. L., Wagner, et al
2024; 121 (32): e2316021121
 - **Safety and Efficacy of Staged, Bilateral Focused Ultrasound Thalamotomy in Essential Tremor: An Open-Label Clinical Trial.** *JAMA neurology*
Kaplitt, M. G., Krishna, V., Eisenberg, H. M., Elias, W. J., Ghanouni, P., Baltuch, G. H., Rezai, A., Halpern, C. H., Dalm, B., Fishman, P. S., Buch, V. P., Moosa, S., Sarva, et al
2024
 - **Translating Molecular Approaches to Oligodendrocyte-Mediated Neurological Circuit Modulation.** *Brain sciences*
Song, J., Saglam, A., Zuchero, J. B., Buch, V. P.
2024; 14 (7)
 - **Dichotomous frequency-dependent phase synchrony in the sensorimotor network characterizes simplistic movement.** *Scientific reports*
Buch, V. P., Brandon, C., Ramayya, A. G., Lucas, T. H., Richardson, A. G.
2024; 14 (1): 11933
 - **Emerging Outlook on Personalized Neuromodulation for Depression: Insights from Tractography-Based Targeting.** *Biological psychiatry. Cognitive neuroscience and neuroimaging*
Sadeghzadeh, S., Swaminathan, A., Bhanot, P., Steeman, S., Xu, A., Shah, V., Purger, D. A., Buch, V. P.
2024
 - **The fasciola cinereum of the hippocampal tail as an interventional target in epilepsy.** *Nature medicine*
Jamiolkowski, R. M., Nguyen, Q. A., Farrell, J. S., McGinn, R. J., Hartmann, D. A., Nirschl, J. J., Sanchez, M. I., Buch, V. P., Soltesz, I.
2024
 - **Neural decoding from stereotactic EEG: accounting for electrode variability across subjects**
Mentzelopoulos, G., Chatzipantazis, E., Ramayya, A. G., Hedlund, M. J., Buch, V. P., Daniilidis, K., Kording, K. P., Vitale, F.
edited by Globerson, A., Mackey, L., Belgrave, D., Fan, A., Paquet, U., Tomczak, J., Zhang, C.
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2024
 - **Ultrasound-Induced Cascade Amplification in a Mechanoluminescent Nanotransducer for Enhanced Sono-Optogenetic Deep Brain Stimulation.** *ACS nano*
Wang, W., Kevin Tang, K. W., Pyatnitskiy, I., Liu, X., Shi, X., Huo, D., Jeong, J., Wynn, T., Sangani, A., Baker, A., Hsieh, J. C., Lozano, A. R., Artman, et al
2023
 - **Subjective states induced by intracranial electrical stimulation matches the cytoarchitectonic organization of the human insula.** *Brain stimulation*
Duong, A., Quabs, J., Kucyi, A., Lusk, Z., Buch, V., Caspers, S., Parvizi, J.
2023

- **Developing the surgeon-machine interface: using a novel instance-segmentation framework for intraoperative landmark labelling.** *Frontiers in surgery*
Park, J. J., Doiphode, N., Zhang, X., Pan, L., Blue, R., Shi, J., Buch, V. P.
2023; 10: 1259756
- **Accumbens connectivity during deep-brain stimulation differentiates loss of control from physiologic behavioral states.** *Brain stimulation*
Rolle, C. E., Ng, G. Y., Nho, Y. H., Barbosa, D. A., Shivacharan, R. S., Gold, J. I., Bassett, D. S., Halpern, C. H., Buch, V.
2023
- **Long-term outcomes of mesial temporal laser interstitial thermal therapy for drug-resistant epilepsy and subsequent surgery for seizure recurrence: a multi-centre cohort study.** *Journal of neurology, neurosurgery, and psychiatry*
Youngerman, B. E., Banu, M. A., Khan, F., McKhann, G. M., Schevon, C. A., Jagid, J. R., Cajigas, I., Theodotou, C. B., Ko, A., Buckley, R., Ojemann, J. G., Miller, J. W., Laxton, et al
2023
- **Causal evidence for the processing of bodily self in the anterior precuneus.** *Neuron*
Lyu, D., Stieger, J. R., Xin, C., Ma, E., Lusk, Z., Aparicio, M. K., Werbaneth, K., Perry, C. M., Deisseroth, K., Buch, V., Parvizi, J.
2023
- **Multisite thalamic recordings to characterize seizure propagation in the human brain.** *Brain : a journal of neurology*
Wu, T. Q., Kaboodvand, N., McGinn, R. J., Veit, M., Davey, Z., Datta, A., Graber, K. D., Meador, K. J., Fisher, R., Buch, V., Parvizi, J.
2023
- **Taking modern psychiatry into the metaverse: Integrating augmented, virtual, and mixed reality technologies into psychiatric care.** *Frontiers in digital health*
Ford, T. J., Buchanan, D. M., Azeez, A., Benrimoh, D. A., Kaloiani, I., Bandeira, I. D., Hunegnaw, S., Lan, L., Gholmieh, M., Buch, V., Williams, N. R.
2023; 5: 1146806
- **Pilot study of responsive nucleus accumbens deep brain stimulation for loss-of-control eating.** *Nature medicine*
Shivacharan, R. S., Rolle, C. E., Barbosa, D. A., Cunningham, T. N., Feng, A., Johnson, N. D., Safer, D. L., Bohon, C., Keller, C., Buch, V. P., Parker, J. J., Azagury, D. E., Tass, et al
2022
- **Magnetic resonance imaging-guided laser interstitial thermal therapy for refractory focal epilepsy in a patient with a fully implanted RNS system: illustrative case.** *Journal of neurosurgery. Case lessons*
Buch, V. P., Mirro, E. A., Purger, D. A., Zeineh, M., Wilmer-Fierro, K., Razavi, B., Halpern, C. H.
2022; 3 (21): CASE22117
- **How the Brain Anticipates: From Neurons to Networks**
Ramayya, A. G., Buch, V., Richardson, A., Lucas, T., Gold, J.
AMER ASSOC NEUROLOGICAL SURGEONS.2022
- **Conversion to Hybrid Deep Brain Stimulation System to Enable Multi-Contact Fractionation Can be Therapeutic.** *Movement disorders : official journal of the Movement Disorder Society*
Ojukwu, D. I., Wang, A. R., Hornbeck, T. S., Lim, E. A., Sharrard, J., Dhall, R., Buch, V. P., Halpern, C. H.
2022
- **Network Brain-Computer Interface (nBCI): An Alternative Approach for Cognitive Prosthetics** *FRONTIERS IN NEUROSCIENCE*
Buch, V. P., Richardson, A. G., Brandon, C., Stiso, J., Khattak, M. N., Bassett, D. S., Lucas, T. H.
2018; 12: 790
- **Functional Architecture of the Human Insula Revealed by Causal Intracranial Mapping.** *Research square*
Parvizi, J., Quabs, J., Pantis, S., Chen, G., Huang, W., Ma, E., Del Vecchio, M., Lyu, D., Wang, C., Avanzini, P., Buch, V., Ramayya, A., Caspers, et al
2026
- **Safety, feasibility, and technique of stereo-electroencephalography in children younger than 3 years.** *Journal of neurosurgery. Pediatrics*
Uchitel, J., Fariyike, O. A., Rockwood, S. J., Steeman, S., Kim, L. H., Choi, J., Berg, A., Ren, A., Teeyagura, P., Grant, G., Buch, V., Mahaney, K. B., Prolo, et al
2026: 1-10

- **Stereo-encephalography-guided multi-lead deep brain stimulation for treatment-refractory obsessive compulsive disorder - Study design and individualized surgical targeting approach.** *Journal of affective disorders*
Seilheimer, R. L., Qiu, L., Rocchio, G., Nho, Y. H., Campos, G., Horn, A., Rolle, C. E., Buch, V. P., Ganguly, T. M., Cristancho, M., Oathes, D. J., Brown, L., Pesaran, et al
2026: 121349
- **Arachnoid Membrane Segmentation in Intraoperative Microscopic MVD Surgery Scenes**
Lee, J., Lee, H., Park, J. J., Ahn, J., Kwon, J., McMahon, C., Lewandowski, J., Park, S., Lee, S., Buch, V. P.
edited by Dou, Q., Ban, Y., Jin, Y., Bano, S., Unberath, M.
SPRINGER INTERNATIONAL PUBLISHING AG.2026: 168-177
- **Distinct neural temporal architectures encode rapid social expressions and sustained internal mood states.** *bioRxiv : the preprint server for biology*
Kakusa, B., Gopal, J. R., Forman, L., Hartford, J. W., Brennan, T., Pantis, S., Persad, A. R., Cline, C. C., Buch, V. P., Parvizi, J., Huang, Y., Keller, C. J.
2025
- **ConvNeXt-Driven Detection of Alzheimer's Disease: A Benchmark Study on Expert-Annotated AlzaSet MRI Dataset Across Anatomical Planes.** *Diagnostics (Basel, Switzerland)*
Basereh, M., Abikenari, M. A., Sadeghzadeh, S., Dunn, T., Freichel, R., Siddarth, P., Ghahremani, D., Lavretsky, H., Buch, V. P.
2025; 15 (23)
- **sEEG-guided responsive neurostimulation to treat neocortical epilepsy: A multicenter retrospective study of the efficacy and safety of depth electrode-mediated neuromodulation.** *Epilepsia open*
Sadeghzadeh, S., Purger, D. A., Bhanot, P., Johnson, N., Barbosa, D. A., Huang, Y., Park, J. J., Schonfeld, E., Abikenari, M. A., Jain, B., Aronson, J. P., Drees, C., Fisher, et al
2025
- **Seizure outcomes of laser interstitial thermal therapy (LITT) for drug-resistant extratemporal epilepsy.** *Epileptic disorders : international epilepsy journal with videotape*
Touponse, G. C., Wang, A. R., Buch, V. P., Purger, D. A., Halpern, C. H., Henderson, J. M., Falco-Walter, J., Le, S.
2025
- **Combining Clinical Evaluations and Neuroscience Research in the Human Intracranial Electroencephalography Practice: 15-Year Cohort Study** *JOURNAL OF COGNITIVE NEUROSCIENCE*
Lusk, Z., Kwon, A. Y., Pantis, S., Nam, S., Lyu, D., Fisher, R., van Staaldin, E. K., Buch, V., Parvizi, J.
2025; 37 (11): 2108-2125
- **Optimal stimulation of the thalamic centromedian nucleus in children with Lennox-Gastaut syndrome: patient series.** *Journal of neurosurgery. Case lessons*
Warren, A. E., Xu, A., Barros Guinle, M. I., Johnstone, T., Teeyagura, P., Solidum, R., Hyslop, A., Kim, H., Grant, G., Parker, J. J., Buch, V., Porter, B. E., Knowles, et al
2025; 10 (12)
- **Targeted multinodal thalamic deep brain stimulation for epilepsy: A retrospective case series.** *Epileptic disorders : international epilepsy journal with videotape*
Chang, R., Reid, B., McGeoch, P., Lusk, Z., Graber, K., Fisher, R., Parvizi, J., Buch, V.
2025
- **Direct interactions between the human insula and hippocampus during memory encoding.** *Nature neuroscience*
Huang, W., Lyu, D., Stieger, J. R., Gotlib, I. H., Buch, V., Wagner, A. D., Parvizi, J.
2025
- **Evaluation of temperature elevation associated with low-intensity focused ultrasound (LIFU) stimulation with or without a deep brain electrode**
Rao, V., Coetzee, J., Adamson, M., Buch, V., Perez, L., Yoon, B. C.
MARY ANN LIEBERT, INC.2025
- **Combining Clinical Evaluations and Neuroscience Research in the Human Intracranial Electroencephalography Practice: 15-Year Cohort Study.** *Journal of cognitive neuroscience*
Lusk, Z., Kwon, A. Y., Pantis, S., Nam, S., Lyu, D., Fisher, R., van Staaldin, E. K., Buch, V., Parvizi, J.

2025: 1-18

- **Topographical map of subjective states evoked by focal seizures and electrical stimulation of the human insula.** *Epilepsia*
Duong, A., Daliri, A., Montavont, A., Von Stein, E. L., van Staaldhuizen, E. K., Pantis, S., Marc, G., Rheims, S., Buch, V., Mazzola, L., Parvizi, J.
2025
- **Ketamine Increases Theta Oscillations and Cortical Connectivity of the Human Hippocampus**
Solomon, E., Liu, T., Kauvar, I., Vesuna, S., Chibukhchyan, A., Yamada, L., Fogarty, A., Mukunda, P., Patron, K., Nuyujukian, P., Rodriguez, C., Buch, V., Deisseroth, et al
ELSEVIER SCIENCE INC.2025
- **Intracranial neuromodulation for pediatric drug-resistant epilepsy: early institutional experience.** *Frontiers in surgery*
Uchitel, J., Lui, A., Knowles, J., Parker, J. J., Phillips, H. W., Halpern, C. H., Grant, G. A., Buch, V. P., Hyslop, A., Kumar, K. K.
2025; 12: 1569360
- **Editorial for Brain Sciences Special Issue "Advances in Restorative Neurotherapeutic Technologies".** *Brain sciences*
Line, T. A., Elkinbard, I. S., Purger, D. A., Buch, V. P.
2025; 15 (3)
- **Intraoperative Absolute Depth Estimation in MVD Surgery**
Lee, J., Lee, H., Park, J. J., Htun, E., Xu, B., Cho, S., Lee, S., Buch, V. P.
edited by Sicilia, R., Santamaria, L. P., Papadopoulos, G. A., Gonzalez, A. R., Guarrasi, Cazzolato, M. T., Kane, B.
IEEE COMPUTER SOC.2025: 341-342
- **Applying normative atlases in deep brain stimulation: a comprehensive review** *INTERNATIONAL JOURNAL OF SURGERY*
Chang, B., Park, J. J., Buch, V. P.
2024; 110 (12): 8037-8044
- **Deep learning models using intracranial and scalp EEG for predicting sedation level during emergence from anaesthesia.** *BJA open*
Han, L., Purger, D. A., Eagleman, S. L., Halpern, C. H., Buch, V., Gaston, S. M., Razavi, B., Meador, K., Drover, D. R.
2024; 12: 100347
- **Applying normative atlases in deep brain stimulation: a comprehensive review.** *International journal of surgery (London, England)*
Chang, B., Park, J. J., Buch, V. P.
2024; 110 (12): 8037-8044
- **Navigated peel-away sheath assisted placement of fully pre-assembled Ommaya reservoir systems: Technical note.** *World neurosurgery: X*
Wathen, C. A., Punchak, M., Madsen, P., Vaughan, K., Buch, V., Marcotte, P. J.
2024; 23: 100295
- **Causal Cortical and Thalamic Connections in the Human Brain.** *bioRxiv : the preprint server for biology*
Lyu, D., Stiger, J., Lusk, Z., Buch, V., Parvizi, J.
2024
- **Rates and Predictors of Pain Reduction With Intracranial Stimulation for Intractable Pain Disorders.** *Neurosurgery*
Huang, Y., Sadeghzadeh, S., Li, A. H., Schonfeld, E., Ramayya, A. G., Buch, V. P.
2024
- **Causal Cortical and Thalamic Connections in the Human Brain.** *Research square*
Parvizi, J., Lyu, D., Stieger, J., Lusk, Z., Buch, V.
2024
- **Naturalistic acute pain states decoded from neural and facial dynamics.** *bioRxiv : the preprint server for biology*
Huang, Y., Gopal, J., Kakusa, B., Li, A. H., Huang, W., Wang, J. B., Persad, A., Ramayya, A., Parvizi, J., Buch, V. P., Keller, C.
2024
- **Dosimetric Comparison of Dedicated Radiosurgery Platforms for the Treatment of Essential Tremor: Technical Report.** *Cureus*
Marianayagam, N. J., Paddick, I., Persad, A. R., Hori, Y. S., Maslowski, A., Thirunarayanan, I., Khanna, A. R., Park, D. J., Buch, V., Chang, S. D., Schneider, M. B., Yu, H., Weidlich, et al
2024; 16 (4): e57452

- **An individualized tractography pipeline for the nucleus basalis of Meynert lateral tract.** *Imaging neuroscience (Cambridge, Mass.)*
Crockett, R. A., Wilkins, K. B., Zeineh, M. M., McNab, J. A., Henderson, J. M., Buch, V. P., Brontë-Stewart, H. M.
2024; 2
- **Evolution of SEEG Strategy: Stanford Experience.** *Neurosurgery clinics of North America*
Buch, V. P., Parvizi, J.
2024; 35 (1): 83-85
- **An individualized tractography pipeline for the nucleus basalis of Meynert lateral tract** *Imaging Neuroscience*
Crockett, R. A., Wilkins, K. B., Zeineh, M. M., McNab, J. A., Henderson, J. M., Buch, V. P., Brontë-Stewart, H. M.
2024: 1–13.
- **An Individualized Tractography Pipeline for the Nucleus Basalis of Meynert Lateral Tract.** *medRxiv : the preprint server for health sciences*
Crockett, R. A., Wilkins, K. B., Zeineh, M. M., McNab, J. A., Henderson, J. M., Buch, V. P., Brontë-Stewart, H. M.
2023
- **Predicting Sedation Level using Surface and Intracranial EEG with Convolutional Neural Networks during Emergence from Anesthesia**
Han, L., Purger, D., Eagleman, S., Halpern, C., Buch, V., Razavi, B., Meador, K., Drover, D.
LIPPINCOTT WILLIAMS & WILKINS.2023: 583-585
- **Beyond mAP: Towards better evaluation of instance segmentation**
Jena, R., Zhornyak, L., Doiphode, N., Chaudhari, P., Buch, V., Gee, J., Shi, J., IEEE
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