



## Byung Chul Yoon, MD, PhD ("Jason")

Assistant Professor of Radiology (Veterans Affairs)

### Bio

---

#### ACADEMIC APPOINTMENTS

- Assistant Professor - University Medical Line, Radiology

#### HONORS AND AWARDS

- Outstanding Author, Journal of Spine Surgery (2025)
- Recognizing Individuals for Support and Empowerment (RISE) Award, Stanford-HBMC Summer Research Program (2025)
- Early Career Development Program, VA Palo Alto (2024)
- Recognizing Individuals for Support and Empowerment (RISE) Award, REACH-HBMC Summer Research Program (2024)
- PAVIR Bid & Proposal Award, Palo Alto Veterans Institute for Research (2022)
- Thrall Innovation Grant, Department of Radiology, Massachusetts General Hospital (2021)
- ASNR20 Head and Neck Outstanding Presentation Award, American Society of Neuroradiology (2020)
- Alpha Omega Alpha, Stanford (2018)
- Moskowitz Research Award, The Moskowitz Fund; Stanford Radiology (2015)
- Gates Cambridge Scholarship, Bill and Melinda Gates Foundation (2007)
- Overseas Research Scholars Award, Secretary of State for Education and Science, United Kingdom (2007)
- William Welch Award, Johns Hopkins School of Medicine (2007)
- Phi Beta Kappa (junior class induction), Johns Hopkins University (2003)
- Provost's Undergraduate Research Award, Johns Hopkins University (2002)
- Woodrow Wilson Undergraduate Research Fellowship, Johns Hopkins University (2002)

#### PROFESSIONAL EDUCATION

- Fellowship, Massachusetts General Hospital , Neuroradiology (Chief Fellow 2019-2020) (2020)
- Residency, Stanford Health Care , Diagnostic Radiology (Chief Resident 2017-2018) (2018)
- MD, Johns Hopkins School of Medicine , Medicine (2012)
- PhD, Cambridge University (Trinity College) , Physiology, development and neuroscience (2010)
- BA, Johns Hopkins University , Neuroscience (2005)

## Research & Scholarship

---

### CURRENT RESEARCH AND SCHOLARLY INTERESTS

1. Alzheimer Disease and amyloid-related imaging abnormalities (ARIA)
2. Low-intensity focused ultrasound (LIFU)
3. Ultrasound imaging

## Publications

---

### PUBLICATIONS

- **White matter microstructure disruption associated with PET and cognitive impairment in Alzheimer's disease.** *PloS one*  
Gonzales, M., Kang, X., Cort, C., Adamson, M. M., Chao, S. Z., Yoon, B. C.  
2026; 21 (4): e0346661
- **Evaluation of temperature elevation associated with low-intensity focused ultrasound (LIFU) stimulation with or without a deep brain electrode.** *Brain stimulation*  
Rao, V., Coetzee, J., Perez, L., Penalba, A., Adamson, M., Yoon, B. C.  
2025
- **Giant calcified lumbar disc herniation in post-operative adjacent segment degeneration: a case report.** *Journal of spine surgery (Hong Kong)*  
Keyserling, H., Zhang, Y., Skirboll, S., Sobel, R. A., Yoon, B. C.  
2025; 11 (3): 757-763
- **Toward Foundational Model for Sleep Analysis Using a Multimodal Hybrid-Self-Supervised Learning Framework.** *IEEE transactions on cybernetics*  
Lee, C. H., Kim, H., Yoon, B. C., Kim, D. J.  
2025; PP
- **Improving real-time ultrasound spine imaging with a large-aperture array.** *Science advances*  
Lu, N., Foiret, J., Guo, Y., Yoon, B. C., Ferrara, K. W.  
2025; 11 (30): eadw2601
- **Sex differences in structural and functional connectivity in healthy young adults from the Amsterdam Open MRI Collection.** *Brain structure & function*  
Kang, X., Adamson, M. M., Yoon, B. C.  
2025; 230 (6): 98
- **Corrigendum to "Low-intensity focused ultrasound (LIFU) for the treatment of post-traumatic headache (PTH) in veterans: A feasibility study" [Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation, vol. 17 (2024), pg. 1290-1292/No. 6].** *Brain stimulation*  
Yoon, B. C., Coetzee, J. P., Kang, X., Brar, R., Timmerman, M., Harris, O., Madrigal, E., Adamson, M. M.  
2025; 18 (2): 211
- **Relationship Between Structural and Functional Network Connectivity Changes for Patients With Traumatic Brain Injury and Chronic Health Symptoms.** *The European journal of neuroscience*  
Kang, X., Grossner, E., Yoon, B. C., Adamson, M. M.  
2025; 61 (2): e16678
- **Toward Foundational Model for Sleep Analysis Using a Multimodal Hybrid Self-Supervised Learning Framework** *arXiv*  
Lee, C., Kim, H., Yoon, B. C., Kim, D.  
2025
- **Low-intensity focused ultrasound (LIFU) for the treatment of post-traumatic headache (PTH) in veterans: a feasibility study.** *Brain stimulation*  
Yoon, B. C., Coetzee, J. P., Kang, X., Brar, R., Timmerman, M., Harris, O., Madrigal, E., Adamson, M. M.  
2024

- **Characteristics of the Structural Connectivity in Patients with Brain Injury and Chronic Health Symptoms: A Pilot Study.** *Neuroinformatics*  
Kang, X., Yoon, B. C., Grossner, E., Adamson, M. M.  
2024
- **Implicit screening of abdominal aortic aneurysms among veterans using lumbar spine MRI.** *Current problems in diagnostic radiology*  
Mashhood, A., Malik, S., Yoon, B. C.  
2024
- **Artificial Intelligence-Enhanced Neurocritical Care for Traumatic Brain Injury : Past, Present and Future.** *Journal of Korean Neurosurgical Society*  
Kim, K. A., Kim, H., Ha, E. J., Yoon, B. C., Kim, D. J.  
2024
- **NeuroNet: A Novel Hybrid Self-Supervised Learning Framework for Sleep Stage Classification Using Single-Channel EEG** *Arxiv*  
Lee, C., Kim, H., Han, H., Jung, M., Yoon, B. C., Kim, D.  
2024
- **Incorporating algorithmic uncertainty into a clinical machine deep learning algorithm for urgent head CTs.** *PloS one*  
Yoon, B. C., Pomerantz, S. R., Mercaldo, N. D., Goyal, S., L'Italien, E. M., Lev, M. H., Buch, K. A., Buchbinder, B. R., Chen, J. W., Conklin, J., Gupta, R., Hunter, G. J., Kamalian, et al  
2023; 18 (3): e0281900
- **Correlation of Intraoperative Ultrasonographic Oral Tongue Shape and Border and Risk of Close Margins** *OTOLARYNGOLOGY-HEAD AND NECK SURGERY*  
Au, V. H. H., Yoon, B. C. C., Juliano, A., Sadow, P. M. M., Faquin, W. C. C., Varvares, M. A. A.  
2023
- **Fixel-Based Analysis of the Diffusion Properties of the Patients with Brain Injury and Chronic Health Symptoms.** *Neuroscience research*  
Kang, X., Yoon, B. C., Shah, S., Adamson, M. M.  
2023
- **Diffuse Large B-cell Lymphoma (DLBCL) of the brain and intravascular Large B-cell Lymphoma (IVLDCL) in the patient: which came first?** *99th Annual Meeting of American Association of Neuropathologists.*  
Sobel, R. A., Saleem, A., Yoon, B. C., Fei, F., Lau, H. D.  
2023
- **Low-intensity focused ultrasound (LIFU) for the treatment of post-traumatic headache (PTH): a pilot study.** *Focused Ultrasound Neuromodulation conference.*  
Yoon, B. C., Coetzee, J. P., Kang, X., Brar, R., Timmerman, M., Adamson, M. M.  
2023
- **Improving lumbar spine imaging with a large array.** *2022 IEEE IUS International Ultrasonics Symposium.*  
Foiret, J., Yoon, B. C., Ferrara, K.  
2022
- **Intracranial Densitometry-Augmented Machine Learning Enhances the Prognostic Value of Brain CT in Pediatric Patients With Traumatic Brain Injury: A Retrospective Pilot Study.** *Frontiers in pediatrics*  
Kim, Y. T., Kim, H., Lee, C. H., Yoon, B. C., Kim, J. B., Choi, Y. H., Cho, W. S., Oh, B. M., Kim, D. J.  
2021; 9: 750272
- **The utility of intra-oral ultrasound in improving deep margin clearance of oral tongue cancer resections.** *Oral oncology*  
Bulbul, M. G., Tarabichi, O., Parikh, A. S., Yoon, B. C., Juliano, A., Sadow, P. M., Faquin, W., Gropler, M., Walker, R., Puram, S. V., Varvares, M. A.  
2021; 122: 105512
- **Case 30-2021: A 47-Year-Old Man with Recurrent Unilateral Head and Neck Pain** *NEW ENGLAND JOURNAL OF MEDICINE*  
Lindsay, M. E., Dudzinski, D. M., Yoon, B. C., Jaff, M. R., Thakuria, J. V.  
2021; 385 (14): 1317-1325
- **Severity of Chest Imaging is Correlated with Risk of Acute Neuroimaging Findings among Patients with COVID-19.** *AJNR. American journal of neuroradiology*

- Lang, M., Li, M. D., Jiang, K. Z., Yoon, B. C., Mendoza, D. P., Flores, E. J., Rincon, S. P., Mehan, W. A., Conklin, J., Huang, S. Y., Lang, A. L., Gao, D. M., Leslie-Mazwi, et al  
2021; 42 (5): 831-837
- **Brachiocephalic vein compression with jugular venous reflux may mimic cavernous dural arteriovenous fistula on arterial spin labeling** *NEURORADIOLOGY*  
Deng, F., Yoon, B. C.  
2021; 63 (3): 291-294
  - **Comparison between computed tomography and ultrasound for presurgical evaluation of oral tongue squamous cell carcinoma tumor thickness.** *American journal of otolaryngology*  
Yoon, B. C., Buch, K., Cunnane, M. E., Sadow, P. M., Varvares, M. A., Juliano, A. F.  
2021; 42 (6): 103089
  - **Incorporating algorithmic uncertainty into a clinical deep learning algorithm for head CTs** *Radiological Society of North America (RSNA) 2021 Annual Meeting*  
Yoon, B. C., Pomerantz, S. R., Mercaldo, N. D., Goyal, S., L'Italien, E., Lev, M. H., Buch, K., Buchbinder, B. R., Chen, J. W., Conklin, J., Gupta, R., Hunter, G. J., Kamalian, et al  
2021
  - **Blood Flow Imaging in the Neonatal Brain Using Angular Coherence Power Doppler** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*  
Jakovljevic, M., Yoon, B., Abou-Elkacem, L., Hyun, D., Li, Y., Rubesova, E., Dahl, J. J.  
2021; 68 (1): 92-106
  - **Lung apical findings in coronavirus disease (COVID-19) infection on neck and cervical spine CT.** *Emergency radiology*  
Applewhite, B. P., Buch, K., Yoon, B. C., Lang, M., Li, M. D., Rincon, S. P., Mehan, W. A.  
2020; 27 (6): 731-735
  - **Risk of Acute Cerebrovascular Events in Patients with COVID-19 Infection.** *AJNR. American journal of neuroradiology*  
Lang, M., Li, M. D., Buch, K., Yoon, B. C., Applewhite, B. P., Leslie-Mazwi, T. M., Rincon, S., Mehan, W. A.  
2020; 41 (11): E92-E93
  - **Chest CT Scanning in Suspected Stroke: Not Always Worth the Extra Mile.** *AJNR. American journal of neuroradiology*  
Li, M. D., Lang, M., Yoon, B. C., Applewhite, B. P., Buch, K., Rincon, S. P., Leslie-Mazwi, T. M., Mehan, W. A.  
2020; 41 (11): E86-E87
  - **Paraspinal Myositis in Patients with COVID-19 Infection.** *AJNR. American journal of neuroradiology*  
Mehan, W. A., Yoon, B. C., Lang, M., Li, M. D., Rincon, S., Buch, K.  
2020; 41 (10): 1949-1952
  - **Clinical and Neuroimaging Correlation in Patients with COVID-19.** *AJNR. American journal of neuroradiology*  
Yoon, B. C., Buch, K., Lang, M., Applewhite, B. P., Li, M. D., Mehan, W. A., Leslie-Mazwi, T. M., Rincon, S. P.  
2020; 41 (10): 1791-1796
  - **Comparison of Intraoperative Sonography and Histopathologic Evaluation of Tumor Thickness and Depth of Invasion in Oral Tongue Cancer: A Pilot Study.** *AJNR. American journal of neuroradiology*  
Yoon, B. C., Bulbul, M. D., Sadow, P. M., Faquin, W. C., Curtin, H. D., Varvares, M. A., Juliano, A. F.  
2020; 41 (7): 1245-1250
  - **Preoperative assessment of tumor thickness for oral tongue squamous cell carcinoma using computed tomography.** *2020 American Society of Head and Neck Radiology*  
Yoon, B. C., Buch, K., Cunnane, M. E., Sadow, P. M., Varvares, M. A.  
2020
  - **Polymeric perfluorocarbon nanoemulsions are ultrasound-activated wireless drug infusion catheters.** *Biomaterials*  
Zhong, Q., Yoon, B. C., Aryal, M., Wang, J. B., Ilovitsh, T., Baikoghli, M. A., Hosseini-Nassab, N., Karthik, A., Cheng, R. H., Ferrara, K. W., Airan, R. D.  
2019; 206: 73-86
  - **Suppression of in vivo flow artifacts in power Doppler through spatial and angular coherence beamforming**

- Dahl, J. J., Yoon, B. C., Durot, I., Ducey-Wysling, J., D'Hondt, A., Patek, B., Rubesova, E., Jakovljevic, M., Li, Y.  
2019
- **Tracking blood flow changes in the brains of neonates using angular-coherence-based power Doppler**  
Jakovljevic, M., Yoon, B., Abou-Elkacem, L., Rubesova, E., Dahl, J., Byram, B. C., Ruitter, N. V.  
2019
  - **Evaluation of Thick-Slab Overlapping MIP Images of Contrast-Enhanced 3D T1-Weighted CUBE for Detection of Intracranial Metastases: A Pilot Study for Comparison of Lesion Detection, Interpretation Time, and Sensitivity with Nonoverlapping CUBE MIP, CUBE, and Inversion-Recovery-Prepared Fast-Spoiled Gradient Recalled Brain Volume.** *AJNR. American journal of neuroradiology*  
Yoon, B. C., Saad, A. F., Rezaii, P., Wintermark, M., Zaharchuk, G., Iv, M.  
2018
  - **Current Clinical State of Advanced Magnetic Resonance Imaging for Brain Tumor Diagnosis and Follow Up.** *Seminars in roentgenology*  
Iv, M. n., Yoon, B. C., Heit, J. J., Fischbein, N. n., Wintermark, M. n.  
2018; 53 (1): 45–61
  - **Changes in the gray and white matter of patients with ischemic-edematous insults after traumatic brain injury.** *Journal of neurosurgery*  
Kim, H. n., Kim, Y. T., Song, E. S., Yoon, B. C., Choi, Y. H., Kim, K. n., Kim, D. J.  
2018: 1–11
  - **CORRELATION OF VASARI-BASED MRI PHENOTYPES WITH MGMT AND IDH STATUS ACROSS GLIOMA GRADES: A STATISTICAL ANALYSIS IN 372 PATIENTS**  
Das, D., Yoon, B., Golden, L., Samghabadi, P., Vogel, H., Yeom, K., Iv, M., Massoud, T.  
OXFORD UNIV PRESS INC.2017: 150
  - **THE EFFECT OF PATIENT AGE AT GLIOMA PRESENTATION ON MRI PHENOTYPE: A COMPREHENSIVE ANALYSIS OF VASARI-BASED FEATURE-SET CRITERIA IN 711 PATIENTS**  
Das, D., Yoon, B., Golden, L., Samghabadi, P., Vogel, H., Yeom, K., Iv, M., Massoud, T.  
OXFORD UNIV PRESS INC.2017: 158
  - **Abilities of a Densitometric Analysis of Computed Tomography Images and Hemorrhagic Parameters to Predict Outcome Favorability in Patients With Intracerebral Hemorrhage.** *Neurosurgery*  
Kim, H. n., Yang, X. n., Choi, Y. H., Yoon, B. C., Kim, K. n., Kim, D. J.  
2017
  - **Finite element analysis of periventricular lucency in hydrocephalus: extravasation or transependymal CSF absorption?** *JOURNAL OF NEUROSURGERY*  
Kim, H., Jeong, E., Park, D., Czosnyka, Z., Yoon, B. C., Kim, K., Czosnyka, M., Kim, D.  
2016; 124 (2): 334-341
  - **Finite element analysis for normal pressure hydrocephalus: The effects of the integration of sulci** *MEDICAL IMAGE ANALYSIS*  
Kim, H., Park, D., Yi, S., Jeong, E., Yoon, B. C., Czosnyka, M., Sutcliffe, M. P., Kim, D.  
2015; 24 (1): 235-244
  - **Thresholds of resistance to CSF outflow in predicting shunt responsiveness** *NEUROLOGICAL RESEARCH*  
Kim, D., Kim, H., Kim, Y., Yoon, B. C., Czosnyka, Z., Park, K., Czosnyka, M.  
2015; 37 (4): 332-340
  - **National trends in burn and inhalation injury in burn patients: results of analysis of the nationwide inpatient sample database.** *Journal of burn care & research*  
Veeravagu, A., Yoon, B. C., Jiang, B., Carvalho, C. M., Rincon, F., Maltenfort, M., Jallo, J., Ratliff, J. K.  
2015; 36 (2): 258-265
  - **Quantitative analysis of computed tomography images and early detection of cerebral edema for pediatric traumatic brain injury patients: retrospective study** *BMC MEDICINE*  
Kim, H., Kim, G., Yoon, B. C., Kim, K., Kim, B., Choi, Y. H., Czosnyka, M., Oh, B., Kim, D.  
2014; 12
  - **Metastatic spine tumors.** *Spine Surgery Basics.*  
Yoon, B. C., Molina, C., Sciubba, D. M.

Springer Berlin Heidelberg.2014: 423-432

- **Axonal mRNA localization and local protein synthesis in nervous system assembly, maintenance and repair** *NATURE REVIEWS NEUROSCIENCE*  
Jung, H., Yoon, B. C., Holt, C. E.  
2012; 13 (5): 308-324
- **14-3-3 proteins regulate retinal axon growth by modulating ADF/cofilin activity** *DEVELOPMENTAL NEUROBIOLOGY*  
Yoon, B. C., Zivraj, K. H., Strohlic, L., Holt, C. E.  
2012; 72 (4): 600-614
- **Local Translation of Extranuclear Lamin B Promotes Axon Maintenance** *CELL*  
Yoon, B. C., Jung, H., Dwivedy, A., O'Hare, C. M., Zivraj, K. H., Holt, C. E.  
2012; 148 (4): 752-764
- **Metastatic Spine Disease in the Elderly: Diagnostic and Management Considerations.** *Aging Health*  
Yoon, B. ., Molina, C., Gokaslan, Z., Sciubba, D. M.  
2011; 7 (4): 607-617
- **Local translation and mRNA trafficking in axon pathfinding.** *Results and problems in cell differentiation*  
Yoon, B. C., Zivraj, K. H., Holt, C. E.  
2009; 48: 269-288
- **The opportunistic use of reference frames for rotating scene stimuli** *Vision Sciences Society Annual Meeting*  
Shelton, A., Lau, Y., Zacks, J., Yoon, B. C.  
2008