Yu (Andy) Huang

Senior Scientist, Soterix Medical Inc.
1480 US Highway 9 North, #204, Woodbridge, NJ 07095
Incoming Assistant Professor at Department of Computer Science
University of Colorado at Colorado Springs
1420 Austin Bluffs Pkway, Colorado Springs, CO 80918
Email: andypotatohy@gmail.com
Homepage: https://andypotatohy.github.io/

Education

- Ph.D. in Biomedical Engineering, City College of New York (CCNY), 2010.08–2017.01
  Research Area: computational models of current flow in transcranial electrical stimulation (TES)
- M.S. in Biomedical Engineering, University of Electronic Science and Technology of China (UESTC), Chengdu, China, 2007.09–2010.06
  Research Area: brain-computer interface (BCI) and biomedical signal processing
- B.S. in Biomedical Engineering, UESTC, Chengdu, China, 2003.09–2007.06

Work Experience

Assistant Professor in Computer Science, University of Colorado at Colorado Springs, 2026–

Senior Scientist, Soterix Medical Inc., Woodbridge, NJ, 2022–present

- Sep 2022–present Write grant applications for various funding opportunities at the NIH
- Sep 2022–present Lead various research projects such as developing novel algorithms for optimizing interferential stimulation (IFS), validating brain stimulation models with *ex vivo* and *in vivo* data, and assessing inter-individual variability of computational models
- Sep 2022–present Translate neuromodulation methods into Soterix HD software
- Mar 2022–Jun 2023 Worked with 12 radiologists for cross-site validation of AI method for segmenting breast cancer

Postdoctoral Research Associate, Department of Radiology, Memorial Sloan Kettering Cancer Center, MSK-CCNY Partnership for Artificial Intelligence, New York, NY, 2019–2022

- Sep 2021–Aug 2022 Data mining for optimal treatment in brain metastasis of non-small cell lung cancer
- Sep 2021–Aug 2022 Development of deep neural networks for detecting spinal cord compression due to metastasis
- Jan 2021–Aug 2022 Development of novel recurrent deep networks for breast tumor detection
- Sep 2019–Aug 2021, Automatic detection of hydrocephalus from human head MRIs using deep learning

  - • Pre-processed 900 clinical brain MRIs using my own pipeline
  - • Trained a deep neural network to segment the ventricles and brain tissues for detecting hydrocephalus
  - • Worked with clinical team to design features from segmentation and train a classifier for detection
  - • Achieved radiologist-level performance in detection

- May 2017–Dec 2020, Automatic detection of breast cancers from human breast MRIs using deep learning
  - • Organized, cleaned, pre-processed 25 TB clinical breast MRI data
  - • Worked with data scientists and radiologists to design and train a deep neural network to segment breast tumors and achieved radiologist-level performance

Postdoctoral Research Associate, Parra Lab, Department of Biomedical Engineering, CCNY, 2017–2019
Scientist, Soterix Medical Inc., New York, NY, 2017–2019

- Nov 2018–Sep 2019, optimization of IFS to achieve non-invasive deep focal brain stimulation
  - • First one proposed the formal mathematical framework for IFS optimization
  - • Solved the optimization problem analytically and computationally to achieve deep focal brain stimulation
  - • Provided guidelines for IFS optimization in practice

- Feb 2018–Aug 2018, Study if electric current can reach deep brain regions under TES
  - • Proved mathematically and computationally that TES can achieve deep brain stimulation
  - • Compared TES with other trending techniques of non-invasive brain stimulation and clarified common misunderstandings in the community

- May 2017–Oct 2018, Research and development of new open-source TES modeling pipeline software ROAST
  - • Proposed idea of realistic and volumetric modeling for TES
  - • Design, implementation, testing, and user support of this software
  - • Evaluated ROAST with commercial software for finite element modeling (FEM) and other open-source FEM tools

- Jan 2017–Sep 2017, Lead the development of industrial software HD-Targets by Soterix
  - • Expanded software functionality to target brain structures instead of just single points
  - • Algorithm design and prototype testing of new functionality of multi-focal targeting
  - • Scientific consultant for software engineers on implementations and debugging

- Jan 2016–Aug 2019, Support an NIH-funded clinical trial on the effectiveness of high-definition transcranial direct current stimulation (HD-tDCS) for treating chronic aphasia post stroke
  - • Built patient-specific computational models for 58 subjects
  - • Performed optimization for each subject to provide optimal model-prescribed HD-tDCS therapy

Research Assistant, Neural Engineering Lab, Department of Biomedical Engineering, CCNY, 2010–2016

- Oct 2014–Dec 2016, Validation of TES models using intracranial *in vivo* recordings
  - • Built high resolution computational models for 14 epilepsy patients under TES
  - • Compared the model output with the intracranial recordings
  - • First solid validation in history of TES models by *in vivo* intracranial data
- Apr 2014–Dec 2014, Construction of a high-resolution standard head model for the neuroimaging community
  - • Segmentation of a standard head (ICBM-152) and built the model based on it
  - • Evaluated the standard model using individualized models in terms of electroencephalogram (EEG) source imaging and targeted TES
  - • Showed that the standard model can replace the individualized models that are usually expensive to get
- Oct 2012–Mar 2014, Study of automated segmentation of magnetic resonance images (MRI) of human heads
  - • Theoretical development of the algorithm based on statistical physics
  - • Implemented the algorithm in Matlab and C
  - • Evaluated the algorithm using online MRI database
  - • Showed that the algorithm can significantly improve smoothness of the segmentation
- Feb 2011–Sep 2012, Development of automated modeling techniques for individualized HD-tDCS
  - • Developed a Matlab script for automated clean-up of MRI segmentation and automated HD virtual electrode placement on human heads
  - • Evaluated the automated modeling techniques using manually obtained models
  - • Showed that manual labor can be greatly reduced without affecting the modeling accuracy

Research Assistant, Key Laboratory for NeuroInformation of Ministry of Education, UESTC, Chengdu, China, 2007–2010

- Jan 2009–Jun 2010, Development of EEG-based voluntary BCI system
  - • Studied algorithm on real-time detection of voluntary motor imagery
  - • Collected EEG data on human subjects to train the parameters of the algorithm
  - • Implemented the algorithm, developed the user interface for real-time EEG control and tested the system
- Sep 2008–Dec 2008, Principal contributor, BCI Competition IV
- Jan 2007–Jun 2007, Senior design: classification of EEG signal when the brain is doing math

Teaching

- Teaching Assistant in the following courses:
  - • BME 50500–Image and Signal Processing in Biomedicine (undergraduate), Fall 2015, Fall 2014
  - • BME I5000–Medical Imaging and Image Processing (graduate), Fall 2013
  - • BME I5100–Biomedical Signal Processing (graduate), Spring 2016
- Tasks accomplished as in Teaching Assistant:
  - • Tutored students on basic/advanced Matlab programming
  - • Graded all homework assignments, quizzes and exams
- Two guest lectures on image segmentation

Mentoring

PhD students

- Nelson Jaimes, Aug 2016–May 2017

Master students

- Andrew Birnbaum, Jan 2024–Jun 2025
- Tapasi Brahma, Jun 2023–Dec 2023
- Kofi Agyeman, Oct 2015–May 2017
- Bhoomika Joyappa, Mar 2015–Jul 2015
- René Kempe, Sep 2012–Jul 2013

Undergraduate students

- Kaelyn Chang, June 2024–Jan 2026
- Mohigul Nasimova, June 2021–Apr 2022
- Ramon Camilo Jimenez, June 2020–Aug 2020
- Taner Avci, Jan 2020
- Noor-E-Jannat Anindita, Jan 2020
- Chris Thomas, Feb 2015–May 2016
- Jakov Kendes, Aug 2016
- Hetince Zhao, May 2015–Aug 2015
- Ahmed Kayal, Jun 2014–Nov 2014

High school students

- Shaqib Alam, Jul 2019

Awards (attempted)

- 2023&2024&2025, NIH Small Business Innovation Research grant (scored 34% & 44% & 55%)
- 2023, NIH NCI Advances in AI to Generate AIMI Annotations (declined)
- 2023, U.S. Army SBIR on AI/ML open topic (declined)
- 2022&2023, NIH Blueprint MedTech Incubator (declined)
- 2022, Chan Zuckerberg Initiative: Essential Open Source Software for Science Program (declined)
- 2021&2022, NIH R01 Award (scored 44% & 50%)
- 2020, NIH Pathway to Independence (K99/R00) Award (Not Discussed)
- 2020&2021, Columbia University Rising Stars in Engineering in Health (declined)
- 2020, Blavatnik Regional Awards (declined)

Awards (received)

- 2025, Co-I on NIH grant R01DA060914
- 2025, Consultant on NIH grant U01MH135436
- 2020, Outstanding Presentation, NYC Neuromodulation 2020 Online Conference
- 2019, Inaugural Fellow of the MSK-CCNY Partnership for Artificial Intelligence
- 2018, Young Investigator Award, The 2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series
- 2010–2011, Departmental Fellowship for Ph.D students, Dept. of Biomedical Engineering, CCNY
- 2007–2010, Comprehensive Fellowship for Graduate Students, UESTC
- 2004–2006, People's Scholarship for Academic Excellence, UESTC

Academic Services

- Jul 2025, Project Mentor, Neuromatch Academy
- Apr 2025, Reviewer at the NIH Study Section
- Feb 2024, Moderator, *Machine learning in non-invasive electromagnetic brain stimulation*, Neuromodec Webinar Series
- 2023-present, Associate Editor, *Frontiers in Human Neuroscience* (Brain Health and Clinical Neuroscience section)

- 2021, Member of Scientific Committee, 2022 Workshop on MRI of Neuromodulation, International Society for Magnetic Resonance in Medicine
- 2020-2021, Reviewer for German Research Foundation
- Reviewer for Conferences: *2022 Workshop on MRI of Neuromodulation, International Society for Magnetic Resonance in Medicine*, *2019 IEEE Engineering in Medicine and Biology Conference*, *2019 Annual Meeting of the Organization for Human Brain Mapping*, *2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series*
- 2019, Top 1 reviewer (out of 465 reviewers) for the journal *Brain Stimulation*
- 2017–present, Reviewer for Journals: *Brain Stimulation*, *PloS One*, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, *Journal of Neural Engineering*, *Scientific Reports*, *Biomedical Physics & Engineering Express*, *Computational and Mathematical Methods in Medicine*, *IEEE Transactions on Biomedical Engineering*, *Future Neurology*, *The Journal of Pain*, *Nutritional Neuroscience*, *F1000 Research*, *Bioelectrochemistry*, *Neuromodulation*, *PloS Computational Biology*
- 2017–present, Creator, contributor, maintainer and admin for the open-source software ROAST, the github repository, and the users' mailing list

Services

- Dec 3, 2024, Panelist, Devices & Product Development, BMES Graduate Student Chapter, CCNY
- 2014–2019, Admin of computing cluster Edison and other servers, CCNY Neural Engineering Lab
- 2010–2016, Assistant in the printer room, Dept. of Biomedical Engineering, CCNY
- Nov 6, 2014, Panelist, Graduate Students Chat with BMES Undergraduate Student Chapter, CCNY

Publications

Journal Articles

*†: authors contributed equally

– Machine learning and its applications

JM.1 Birnbaum, A.M., Buchwald, A., Turkeltaub, P., Jacks, A., Carr, G., Kannan, S., **Huang, Y.**, et al, 2025, Full-head Segmentation of MRI with Abnormal Brain Anatomy: Model and Data Release, *Journal of Medical Imaging*, 12(5) 054001, doi: 10.1117/1.JMI.12.5.054001

JM.2 Hirsch, L., Sutton, E.J., **Huang, Y.**, Kayis, B., Hughes, M., Martinez, D., Makse, H.A., Parra, L.C., 2025, High-performance Open-source AI for Breast Cancer Detection and Localization in MRI, *Radiology: Artificial Intelligence*, e240550, doi: 10.1148/ryai.240550

JM.3 Hirsch, L., **Huang, Y.**, Makse, H.A., Martinez, D.F., Hughes, M., Eskreis-Winkler, S., Pinker, K., Morris, E.A., Parra, L.C., Sutton, E.J., 2025, Early Detection of Breast Cancer in MRI Using AI, *Academic radiology*, pp.S1076-6332. doi: 10.1016/j.acra.2024.10.014

JM.4 **Huang*, Y.**, Leotta*, N.J., Hirsch, L., et al., 2024, Cross-site Validation of AI Segmentation and Harmonization in Breast MRI, *Journal of Imaging Informatics in Medicine*. doi: 10.1007/s10278-024-01266-9

JM.5 **Huang*, Y.**, Moreno*, R., Malani, R., Meng, A., Swinburne, N., Holodny, A.I., Choi, Y., Rusinek, H., Golomb, J.B., George, A., Parra, L.C., Young, R.J., 2022, Deep Learning Achieves Neuroradiologist-Level Performance in Detecting Hydrocephalus Requiring Treatment, *Journal of Digital Imaging*, doi: 10.1007/s10278-022-00654-3

JM.6 Hirsch, L., **Huang*, Y.**, Parra*, L.C., 2021, Segmentation of MRI head anatomy using deep volumetric networks and multiple spatial priors, *Journal of Medical Imaging*, 8(3), 034001, doi: 10.1117/1.JMI.8.3.034001

JM.7 Hirsch*, L., **Huang*, Y.**, et al., 2021, Radiologist-Level Performance by Using Deep Learning for Segmentation of Breast Cancers on MRI Scans, *Radiology: Artificial Intelligence*, 2021 Dec 15;4(1):e200231, doi: 10.1148/ryai.200231

JM.8 **Huang, Y.**, Parra, L.C., 2015. Fully Automated Whole-Head Segmentation with Improved Smoothness and Continuity, with Theory Reviewed. *PLOS ONE*, 10, e0125477, doi: 10.1371/journal.pone.0125477

JM.9 **Huang, Y.**, Wu, Q., Lei, X., Yang, P., Xu, P., Yao, DZ., 2009. An algorithm for idle-state detection and continuous classifier design in motor-imagery-based BCI. *Journal of Electronic Science and Technology*, 7 (1), 27-33

– *Physics-based computational modeling and optimization*

JP.1 Brahma, T., Guillen, A., Moreno, J., Datta, A., **Huang, Y.**, 2025, On the need of individually optimizing temporal interference stimulation of human brains due to inter-individual variability, *Brain Stimulation*, doi: 10.1016/j.brs.2025.07.006

JP.2 **Huang, Y.**, 2023, Visualizing interferential stimulation of human brains. *Front. Hum. Neurosci.* 17:1239114. doi: 10.3389/fnhum.2023.1239114

JP.3 Guillen, A., Truong, D.Q., Datta, A., **Huang, Y.**, 2023, Optimized high-definition tDCS in patients with skull defects and skull plates. *Front. Hum. Neurosci.* 17:1239105. doi: 10.3389/fnhum.2023.1239105

JP.4 Guillen, A., Abbott, C.C., Deng, Z.D., **Huang, Y.**, Pascoal-Faria, P., Truong, D.Q., Datta, A., 2023, Impact of modeled field of view in electroconvulsive therapy current flow simulations. *Frontiers in Psychiatry*. doi: 10.3389/fpsyt.2023.1168672

JP.5 Nasimova, M., **Huang, Y.**, 2022, Applications of open-source software ROAST in clinical studies: A review, *Brain Stimulation*, 15 (4), 1002-1010, doi: 10.1016/j.brs.2022.07.003

JP.6 **Huang, Y.**, Datta, A., Parra, L.C., 2020. Optimization of interferential stimulation of the human brain with electrode arrays, *Journal of Neural Engineering*, doi: 10.1088/1741-2552/ab92b3

JP.7 Seibt, O., Truong, D.Q., Khadka, N., **Huang, Y.**, Bikson, M., Computational Finite Element Method (FEM) forward modeling workflow for transcranial Direct Current Stimulation (tDCS) current flow on MRI-derived head: Simpleware and COMSOL Multiphysics tutorial, *bioRxiv 704940*

JP.8 Jiang, J., Truong, D.Q., Esmaeilpour, Z., **Huang, Y.**, Badran, B.W., Bikson, M., 2019. Enhanced tES and tDCS computational models by meninges emulation, *Journal of Neural Engineering*, 17 (1), 016027

JP.9 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., 2019. Realistic vOlumetric-Approach to Simulate Transcranial Electric Stimulation – ROAST – a fully automated open-source pipeline, *Journal of Neural Engineering*, 16 (5), 056006, doi: 10.1088/1741-2552/ab208d

JP.10 **Huang, Y.**, Parra, L.C., 2018. Can transcranial electric stimulation with multiple electrodes reach deep targets? *Brain Stimulation*, 12 (1), 30–40, doi: 10.1016/j.brs.2018.09.010

JP.11 **Huang*, Y.**, Liu*, A.A., Lafon, B., Friedman, D., Dayan, M., Wang, X., Bikson, M., Doyle, W.K., Devinsky, O., Parra, L.C., 2017. Measurements and models of electric fields in the *in vivo* human brain during transcranial electric stimulation. *eLife*, 6, e18834, doi: 10.7554/eLife.18834

JP.12 **Huang, Y.**, Parra, L.C., Haufe, S., 2016. The New York Head–A precise standardized volume conductor model for EEG source localization and tES targeting. *NeuroImage*, 140, 150-162, doi: 10.1016/j.neuroimage.2015.12.019

JP.13 Kempe, R., **Huang, Y.**, Parra, L.C., 2014. Simulating pad-electrodes with high-definition arrays in transcranial electric stimulation. *Journal of Neural Engineering*, 11 (2), 026003

JP.14 **Huang, Y.**, Dmochowski, J.P., Su, Y., Datta, A., Rorden, C., Parra, L.C., 2013. Automated MRI segmentation for individualized modeling of current flow in the human head. *Journal of Neural Engineering*, 10 (6), 066004, doi: 10.1088/1741-2560/10/6/066004

JP.15 Dmochowski, J.P., Datta, A., **Huang, Y.**, Richardson, J.D., Bikson, M., Fridriksson, J., Parra, L.C., 2013. Targeted transcranial direct current stimulation for rehabilitation after stroke. *NeuroImage*, 75, 12-19

– *Miscellaneous collaborations*

JC.1 Wout-Frank, M., Sorensen, D.O., Parra, L.C., **Huang, Y.**, et al, 2025, Pathway to response: Associations between individual electrical fields and psychophysiological habituation to predict clinical outcomes to transcranial direct current stimulation combined with virtual reality for PTSD, *Brain Stimulation*, Volume 18, Issue 3, 797–799. doi: 10.1016/j.brs.2025.04.001

JC.2 Ma, W., Wang, F., Yi, Y., **Huang, Y.**, Li, X., Liu, Y., Tu, Y., 2024, Mapping the Electric Field of High-Definition Transcranial Electrical Stimulation Across the Lifespan, *Science Bulletin*. doi: 10.1016/j.scib.2024.10.001

JC.3 Jog, M.A., Jann, K., Yan, L., **Huang, Y.**, Parra, L.C., Narr, K., Bikson, M., Danny, W., 2020, Concurrent imaging of markers of current flow and neurophysiological changes during tDCS, *Frontiers in Neuroscience, Brain Imaging Methods*, doi: 10.3389/fnins.2020.00374

JC.4 Hermann, B., Raimondo, F., Hirsch, L.A., **Huang, Y.**, Denis-Valente, M., Perez, P., Engemann, D-A., Faugeras, F., Weiss, N., Demeret, S., Rohaut, B., Parra, L.C., Sitt, J.D., Naccache, L., 2020, Combined behavioral and electrophysiological evidence for a direct cortical effect of prefrontal tDCS on disorders of consciousness, *Scientific Reports*, 10, 4323

JC.5 Liu, A.A., Voroslakos, M., Kronberg, G., Henin, S., Krause, M., **Huang, Y.**, Opitz, A., Mehta, A., Pack, C., Krekelberg, B., Berenyi, A., Parra, L.C., Melloni, L., Devinsky, O., Buzsáki, G., 2018. Immediate neurophysiological effects of transcranial electrical stimulation, *Nature Communications*, 9:5092

JC.6 Lafon*, B., Henin*, S., **Huang, Y.**, Friedman, D., Melloni, L., Thesen, T., Doyle, W., Buzsáki, G., Devinsky, O., Parra†, L.C., Liu†, A.A., 2017. Low frequency transcranial electrical stimulation does not entrain sleep rhythms measured by human intracranial recordings. *Nature Communications*, 8:1199

JC.7 Santos, M.D., Cavenaghi, V.B., Mac-Kay, A.P.M.G., Serafim, V., Venturi, A., Truong, D.Q., **Huang, Y.**, Boggio, P.S., Fregni, F., Simis, M., Bikson, M., Gagliardi, R.J., 2017. Non-invasive brain stimulation and computational models in post-stroke aphasic patients: single session of transcranial magnetic stimulation and transcranial direct current stimulation. A randomized clinical trial. *Sao Paulo Medical Journal*, 135(5), 475-480

JC.8 Senço, N.M., **Huang, Y.**, D'Urso, G., Parra, L.C., Bikson, M., Mantovani, A., Shavitt, R.G., Hoexter, M.Q., Miguel, E.C., Brunoni, A.R., 2015. Transcranial direct current stimulation in obsessive-compulsive disorder: emerging clinical evidence and considerations for optimal montage of electrodes. *Expert Review of Medical Devices*, 12, 381-391

JC.9 Seibt, O., Brunoni, A.R., **Huang, Y.**, Bikson, M., 2015. The Pursuit of DLPFC: Non-neuronavigated Methods to Target the Left Dorsolateral Pre-frontal Cortex With Symmetric Bicephalic Transcranial Direct Current Stimulation (tDCS). *Brain Stimulation*, 8, 590-602

JC.10 Lacey, E.H., Jiang, X., Friedman, R.B., Snider, S.F., Parra, L.C., **Huang, Y.**, Turkeltaub, P.E., 2015. Transcranial Direct Current Stimulation for Pure Alexia: Effects on Brain and Behavior. *Brain Stimulation*, 8, 305-307

JC.11 Ren, JR., Liu, TJ., **Huang, Y.**, Yao, DZ., 2009. A study of Electromyogram based on human-computer interface. *Journal of Electronic Science and Technology*, 7 (1), 69-73

Proceedings

P.1 **Huang, Y.**, Datta, A., Comparison of optimized interferential stimulation using two pairs of electrodes and two arrays of electrodes, *Proceedings of the 43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Mexico, November 2021, 4180-4183

P.2 Thomas, C., **Huang, Y.**, Faria, P.C., Datta, A., High-resolution head model of transcranial direct current stimulation: A labeling analysis. *Proceedings of the 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Berlin, Germany, July 2019, 6442-6445

P.3 **Huang, Y.**, Thomas, C., Datta, A., Optimized Transcutaneous Spinal Cord Direct Current Stimulation using Multiple Electrodes from 3/9/7 System. *Proceedings of the 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Berlin, Germany, July 2019, 6290-6293

P.4 Thomas, C., **Huang, Y.**, Datta, A., 2019. Influence of model extent in forward simulations of tDCS: towards standardizing model extent. *Brain Stimulation*, 12 (2), e103–e105

P.5 **Huang, Y.**, Thomas, C., Datta, A., Parra, L.C., 2019. Inaccurate segmentation of lesioned brains can significantly affect targeted transcranial electrical stimulation on stroke patients. *Brain Stimulation*, 12 (2), e87–e89

P.6 Datta, A., **Huang, Y.**, Thomas, C., Dayan, M., Caparelli-Daquer, E., 2019. Improving penetration depth of transcranial electrical stimulation without compromising surface focality: A modeling analysis. *Brain Stimulation*, 12 (2), e74–e75

P.7 Datta, A., **Huang, Y.**, Thomas, C., Bikson, M., Shereen, A.D., 2019. Influence of incorporating electrode information from MR images: Towards building more realistic forward models. *Brain Stimulation*, 12 (2), e72–e74

P.8 Datta, A., Thomas, C., **Huang, Y.**, Venkatasubramanian, G., Exploration of the Effect of Race on Cortical Current Flow due to Transcranial Direct Current Stimulation: Comparison across Caucasian, Chinese, and Indian Standard Brains. *Proceedings of the 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Honolulu, HI, July 2018, 2341-2344

P.9 **Huang, Y.**, Thomas, C., Datta, A., Parra, L.C., Optimized tDCS for Targeting Multiple Brain Regions: An Integrated Implementation. *Proceedings of the 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Honolulu, HI, July 2018, 3545-3548

P.10 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., ROAST: an open-source, fully-automated, Realistic vOlumetric-Approach-based Simulator for TES. *Proceedings of the 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Honolulu, HI, July 2018, 3072-3075

P.11 Lafon, B., Liu, A., **Huang, Y.**, Minhas, P., Kar, K., Bikson, M., Friedman, D., Krekelberg, B., Parra, L.C., 2017. Direct Experimental Validation of Computational Current Flow Models with Intra-Cranial Recordings in Human and Non-Human Primates. *Brain Stimulation*, 10 (1), e15

P.12 **Huang, Y.**, Su, Y., Rorden, C., Dmochowski, J., Datta, A., Parra, L.C., 2012. An automated method for high-definition transcranial direct current stimulation modeling. *Proceedings of the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, San Diego, CA, August 2012, 5376-5379

Patents

- Kempe, R., **Huang, Y.**, Parra, L.C., 2016. Neurocranial Electrostimulation Models, Systems, Devices and Methods. US20160228702 A1

Conference Posters

*†: authors contributed equally

C.1 Brahma, T., Guillen, A., Datta, A., **Huang, Y.**, Optimized interferential stimulation of human brains is sensitive to head anatomies and target locations, *The 2024 NYC Neuromodulation Conference*, New York, NY, August 2024

C.2 **Huang, Y.**, Hirsch, L., et al., Cross-site Validation of Deep-Learning Method for Segmenting Breast Cancers on MRI, *The New Wave of AI in Healthcare conference*, New York, NY, May 2023

C.3 Guillen, A., Datta, A., **Huang, Y.**, Interindividual variability of optimized interferential stimulation of human brains, *The 5th International Brain Stimulation Conference*, Lisbon, Portugal, February 2023

C.4 **Huang, Y.**, Moreno, R., Malani, R., Meng, A., Swinburne, N., Holodny, A., Choi, Y., Parra, L., Young, R., Neuroradiologist-Level Performance in Detecting Hydrocephalus Requiring Treatment by Using Deep Learning, *The BioMedical Engineering and Imaging Institute (BMEII) 10th Annual Symposium*, New York, NY, April 2022

C.5 **Huang, Y.**, Dmochowski, J.P., Parra, L.C., ROAST-target: An open-source software tool for targeting transcranial electric stimulation, *The 2019 Joint Meeting of Neuromodulation: the Science & NYC Neuromodulation*, Napa, California, October 2019

C.6 **Huang, Y.**, Datta, A., Parra, L.C., Optimized interferential electric fields for noninvasive deep focal brain stimulation, *The 2019 Joint Meeting of Neuromodulation: the Science & NYC Neuromodulation*, Napa, California, October 2019

C.7 **Huang, Y.**, Parra, L.C., Deep Brain Areas Can Be Reached by Transcranial Electric Stimulation with Multiple Electrodes, *The 9th Annual Translational and Molecular Imaging Institute Symposium*, New York, NY, April 2019

C.8 Datta, A., Deng, Z.D., **Huang, Y.**, Thomas, C., Venkatasubramanian, G., Influence of the effect of race on cortical current flow due to ECT, *The 3rd International Brain Stimulation Conference*, Vancouver, BC, Canada, February 2019

C.9 Shereen D, **Huang, Y.**, Parra, L.C., Rapid measurement of electromagnetic fields induced from transcranial electric stimulation using magnetic resonance imaging, *The 3rd International Brain Stimulation Conference*, Vancouver, BC, Canada, February 2019

C.10 Thomas, C., **Huang, Y.**, Datta, A., Influence of model extent in forward simulations of tDCS: towards standardizing model extent, *2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series*, New York, NY, August 2018

C.11 **Huang, Y.**, Thomas, C., Datta, A., Parra, L.C., Inaccurate segmentation of lesioned brains can significantly affect targeted transcranial electrical stimulation on stroke patients, *2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series*, New York, NY, August 2018

C.12 Datta, A., **Huang, Y.**, Thomas, C., Dayan, M., Caparelli-Daquer, E., Improving penetration depth of transcranial electrical stimulation without compromising surface focality: A modeling analysis, *2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series*, New York, NY, August 2018

C.13 Datta, A., **Huang, Y.**, Thomas, C., Bikson, M., Shereen, A.D., Influence of incorporating electrode information from MR images: Towards building more realistic forward models, *2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series*, New York, NY, August 2018

C.14 Jiang, J., Truong, D.Q., **Huang, Y.**, Parra, L.C., Bikson, M., Transcranial electrical stimulation models using an emulated-CSF value approximate the meninges more accurately, *2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series*, New York, NY, August 2018

C.15 **Huang, Y.**, Parra, L.C., Transcranial electric stimulation with multiple electrodes can reach deep brain areas, *2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series*, New York, NY, August 2018

C.16 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., ROAST, a free, fully-automated pipeline for realistic TES simulation based on volumetric approach, *Organization for Human Brain Mapping Annual Meeting 2018*, Singapore, June 2018

C.17 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., ROAST: an open-source, fully-automated, Realistic vOlumetric-Approach-based Simulator for TES, *The 1st Carolina Neurostimulation Conference*, Chapel Hill, NC, May 2018

C.18 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., ROAST: an open-source, fully-automated, Realistic vOlumetric-Approach-based Simulator for TES, *The 8th Annual Translational and Molecular Imaging Institute Symposium*, New York, NY, April 2018

C.19 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., ROAST: an open-source, fully-automated, Realistic vOlumetric-Approach-based Simulator for TES, *Minnesota Neuromodulation Symposium*, Minneapolis, MN, April 2018

C.20 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., ROAST: a free, fully-automated, Realistic, vOlumetric-Approach-based Simulator for Transcranial electrical stimulation, *4th Annual New York Metro Imaging Research Symposium*, New York, NY, November, 2017

C.21 **Huang*, Y.**, Liu*, A.A., Lafon, B., Friedman, D., Dayan, M., Wang, X., Bikson, M., Devinsky, O., Parra, L.C., Measurements and models of electric fields in the *in vivo* human brain during TES, *Organization for Human Brain Mapping Annual Meeting 2017*, Vancouver, BC, Canada, June 2017

C.22 **Huang*, Y.**, Liu*, A.A., Lafon, B., Friedman, D., Dayan, M., Wang, X., Bikson, M., Doyle, W.K., Devinsky, O., Parra, L.C., Measurements and models of electric fields in the *in vivo* human brain during TES, *Minnesota Neuromodulation Symposium*, Minneapolis, MN, April 2017

C.23 **Huang*, Y.**, Liu*, A.A., Lafon, B., Friedman, D., Dayan, M., Wang, X., Bikson, M., Devinsky, O., Parra, L.C., Measurements and models of electric fields in the *in vivo* human brain during transcranial electric stimulation, *NYC Neuromodulation 2017*, New York, NY, January 2017

C.24 **Huang*, Y.**, Liu*, A.A., Lafon, B., Friedman, D., Dayan, M., Wang, X., Devinsky, O., Parra, L.C., Direct experimental validation of transcranial electric stimulation models with intracranial recordings in human, *Society for Neuroscience Annual Meeting 2016*, San Diego, CA, November 2016

C.25 Lafon*, B., **Huang*, Y.**, Henin, S., Friedman, D., Melloni, L., Thesen, T., Buzsáki, G., Devinsky, O., Parra†, L.C., Liu†, A.A., Assessment of transcranial electrical stimulation effects on brain rhythms measured by invasive electroencephalography, *Society for Neuroscience Annual Meeting 2016*, San Diego, CA, November 2016

C.26 **Huang*, Y.**, Liu*, A.A., Lafon, B., Friedman, D., Dayan, M., Wang, X., Bikson, M., Devinsky, O., Parra, L.C., Measurements and models of electric fields in the *in vivo* human brain during transcranial electric stimulation, *The 3rd Annual Brain Imaging Center (BIC) Symposium*, New York, NY, October 2016

C.27 **Huang, Y.**, Parra, L.C., Haufe, S., ICBM-NY: A highly detailed volume conductor model for EEG source localization and TCS targeting, *Society for Neuroscience Annual Meeting 2015*, Chicago, IL, October 2015

C.28 **Huang, Y.**, Su, Y., Datta, A., Jiang, Z., Dmochowski, J.P., Rorden, C., Parra, L.C., Automated modeling of targeted non-invasive electrical stimulation of the brain with multiple electrodes, *The 2nd Annual Translational and Molecular Imaging Institute Symposium*, New York, NY, May 2011

Conference Talks

*: authors contributed equally

T.1 **Huang, Y.**, Moreno, R., Swinburne, N., Malani, R., Choi, Y., Meng, A., Young, R., Parra, L.C., Radiologist-level performance of hydrocephalus detection from brain MRI using deep learning, *Society for Imaging Informatics in Medicine (SIIM)'s 5th Annual Scientific Conference on Machine Intelligence in Medical Imaging (CMIMI)*, September 2020

T.2 Comparison of HD-TES with interferential and intersectional-pulsed stimulation, *NYC Neuromodulation 2020 Online Conference*, April 2020

T.3 **Huang, Y.**, Parra, L.C., Deep brain areas can be reached by transcranial electric stimulation with multiple electrodes, *The 3rd International Brain Stimulation Conference*, Vancouver, BC, Canada, February 2019

T.4 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., ROAST: a fully-automated, open-source, Realistic vOlumetric-Approach-based Simulator for TES, *The 3rd International Brain Stimulation Conference*, Vancouver, BC, Canada, February 2019

T.5 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., Realistic vOlumetric-Approach to Simulate Transcranial Electric Stimulation – ROAST – a fully automated open-source pipeline, *The 21st International Conference on Biomagnetism*, Philadelphia, PA, August 2018

T.6 **Huang, Y.**, Thomas, C., Datta, A., Parra, L.C., Optimized tDCS for Targeting Multiple Brain Regions: An Integrated Implementation. *The 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Honolulu, HI, July 2018

T.7 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., ROAST: an open-source, fully-automated, Realistic vOlumetric-Approach-based Simulator for TES. *The 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Honolulu, HI, July 2018

T.8 **Huang*, Y.**, Liu*, A.A., Lafon, B., Friedman, D., Dayan, M., Wang, X., Bikson, M., Doyle, W.K., Devinsky, O., Parra, L.C., Measurements and models of electric fields in the *in vivo* human brain during transcranial electric stimulation, *The 7th Annual Translational and Molecular Imaging Institute Symposium*, New York, NY, April 2017

Invited Talks

I.1 TI stimulation - pros, cons, and future directions, Special Symposium at The 50th Annual Interdisciplinary Conference, Jackson Hole, WY, January 18, 2026

I.2 Personalization and Validation of Electric Field Models for Transcranial Electrical Stimulation, Pre-Conference Workshop of the 2024 NYC Neuromodulation Conference: Computational Neuromodulation Workshop: Modeling brain stimulation fundamental and applications, New York, NY, July 31, 2024

I.3 ROAST – An Open-Source Platform for Modeling Transcranial Electrical Stimulation & its Validation, ISMRM Workshop on MRI of Neuromodulation: Target Engagement, Neural Mechanism & Biomarker Development, Bethesda, MD, October 2022

I.4 Computational Models of Transcranial Electrical Stimulation: Methodology, Optimization and Validations, Society for Mathematical Biology 2021 Annual Meeting (Virtual), June 2021

I.5 ROAST: TES modeling made easy, NYC Neuromodulation 2020 Online Conference, April 2020

I.6 Department of Biomedical Engineering Spring 2020 Seminar Series, Computational Models of Transcranial Electrical Stimulation: Methodology, Optimization and Validations, The City College of New York, Feb 5, 2020

I.7 Transcranial electrical stimulation: modeling, validation and optimization, Training Course on Brain-Limb Cooperative Regulation and Rehabilitation Technology (the 4th session), Sun Yat-sen University, Guangzhou, China, November 2019

I.8 Computational models of transcranial electrical stimulation: methodology, optimization and validations, Neural Interface & Rehabilitation Engineering Workshop, Zhejiang University, Hangzhou, China, November 2019

I.9 Validation of electric field models with neuroimaging and *in vivo* recording, Pre-Conference Workshop of the 2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series: Computational Modeling in Neuromodulation: Tools for Engineers, Clinicians, and Researchers, New York, NY, August 23, 2018

I.10 Hands on with ROAST, Pre-Conference Workshop of the 2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series: Computational Modeling in Neuromodulation: Tools for Engineers, Clinicians, and Researchers, New York, NY, August 23, 2018

I.11 Department of Biomedical Engineering Fall 2016 Seminar Series, Measurements and models of electric fields in the *in vivo* human brain during transcranial electric stimulation, The City College of New York, Oct 26, 2016

I.12 Department of Biomedical Engineering Fall 2015 Seminar Series, Computational modeling techniques for transcranial direct current stimulation, and their validations, The City College of New York, Dec 2, 2015

I.13 Computer aided design of the body: An overview on using Simpleware to simulate and 3D print organs, The City College of New York, Oct 16, 2015