Yu (Andy) Huang

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Current Position

- Postdoctoral Research Fellow, Department of Radiology, Memorial Sloan Kettering Cancer Center

Education

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

Research Experience

Department of Radiology, Memorial Sloan Kettering Cancer Center, New York, NY, 2019–present

- Sep 2019–present, 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–present, Automatic detection of breast cancers from human breast MRIs using deep learning
  - • Organized, cleaned, pre-processed 25 TB breast MRI data
  - • Worked with data scientists and radiologists to design and train a deep neural network to segment breast tumors
  - • Achieved radiologist-level performance in breast tumor segmentation

Parra Lab, Department of Biomedical Engineering, CCNY; Soterix Medical Inc., New York, NY, 2017–2019

- Nov 2018–Sep 2019, optimization of interferential stimulation (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

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

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 Experience

- 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

Research Advising

PhD students

- Nelson Jaimes, Aug 2016–May 2017

Master students

- Kofi Agyeman, Oct 2015–May 2017
- Bhoomika Joyappa, Mar 2015–Jul 2015, now SAS programmer consultant at Janssen Pharmaceuticals
- René Kempe, Sep 2012–Jul 2013, now project manager in medical devices department at Sanofi

Undergraduate students

- Ramon C. Jimenez, June 2020
- Taner Avci, Jan 2020
- Chris Thomas, Feb 2015–May 2016, now software engineer at Soterix Medical Inc.
- Jakov Kendes, Aug 2016, now undergraduate student at Boston University
- Hetince Zhao, May 2015–Aug 2015, now undergraduate student at University of Rochester
- Ahmed Kayal, Jun 2014–Nov 2014, now master student at Boston University and intern at Boston Children's Hospital

High school students

- Shaqib Alam, Jul 2019

Professional Society Membership

- 2017–2018, Organization for Human Brain Mapping, member
- 2015–2017, Society for Neuroscience, student member

Awards

- Outstanding Presentation, NYC Neuromodulation 2020 Online Conference
- Young Investigator Award, The 2018 Joint Meeting of NYC Neuromodulation Conference & NANS Summer Series

Academic Services

- Creator, maintainer and admin for the open-source software ROAST, the github repository, and the users' mailing list
- Reviewers for Journals: *Brain Stimulation*, *PloS One*, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, *Journal of Neural Engineering*, *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*
- 2019 Top 1 reviewer of *Brain Stimulation*
- Reviewers for Conferences: *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*

Services

- Assistant in the printer room, Dept. of Biomedical Engineering, CCNY, 2010–2016
- Admin of computing cluster Edison and other servers, CCNY Neural Engineering Lab, 2014–2019
- Panel member, Graduate Students Chat with BMES Undergraduate Student Chapter, Nov 6, 2014

Publications

Journal Articles

*†: authors contributed equally

J.1 Jog, M.A., Jann, K., Yan, L., **Huang, Y.**, Parra, L.C., Narr, K., Bikson, M., Danny, W., Concurrent imaging of markers of current flow and neurophysiological changes during tDCS, *Frontiers in Neuroscience, Brain Imaging Methods*, doi: 10.3389/fnins.2020.00374

J.2 **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

J.3 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*

J.4 Hirsch, L., **Huang, Y.**, Parra, L.C., Segmentation of lesioned brain anatomy with deep volumetric neural networks and multiple spatial priors achieves human-level performance, *arXiv:1905.10010*

J.5 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., Combined behavioral and electrophysiological evidence for a direct cortical effect of prefrontal tDCS on disorders of consciousness, *Scientific Reports*, 10, 4323, 2020

J.6 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

J.7 **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

J.8 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

J.9 **Huang, Y.**, Parra, L.C., 2018. Can transcranial electric stimulation with multiple electrodes reach deep targets? *Brain Stimulation*, 12 (1), 30–40

J.10 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

J.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

J.12 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

J.13 **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

J.14 **Huang, Y.**, Parra, L.C., 2015. Fully Automated Whole-Head Segmentation with Improved Smoothness and Continuity, with Theory Reviewed. *PLOS ONE*, 10, e0125477

J.15 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

J.16 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

J.17 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

J.18 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

J.19 **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

J.20 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

J.21 **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

J.22 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 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.2 **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.3 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.4 **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.5 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.6 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.7 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.8 **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.9 **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.10 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.11 Haufe, S., **Huang, Y.**, Parra, L.C., 2015. A highly detailed FEM volume conductor model based on the ICBM152 average head template for EEG source imaging and TCS targeting. *Proceedings of the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Milan, Italy, August 2015, 5744-5747

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 **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.2 **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.3 **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.4 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.5 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.6 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.7 **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.8 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.9 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.10 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.11 **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.12 **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.13 **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.14 **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.15 **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.16 **Huang, Y.**, Datta, A., Bikson, M., Parra, L.C., ROAST: a free, fully-automated, Realistic, vOlumetric-Approach-based Simulator for Transcranial electrical stimulation, *The 4th Annual BRAIN Initiative Investigators Meeting*, Rockville, MD, April 2018

C.17 **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.18 **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.19 **Huang, Y.**, Thomas, C., Datta, A., Parra, L.C., Optimized tDCS for targeting multiple brain regions: an integrated implementation, *Noninvasive Brain Stimulation pre-conference at the International Neuromodulation Society's 13th World Congress*, Edinburgh, Scotland, UK, May 2017

C.20 **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.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 transcranial electric stimulation, *NYC Neuromodulation 2017*, New York, NY, January 2017

C.22 **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.23 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.24 **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.25 Haufe, S., **Huang, Y.**, Parra, L.C., The New York Head - A precise standardized volume conductor model for EEG source localization and tES targeting, *The 20th International Conference on Biomagnetism*, Seoul, Korea, October 2016

C.26 Thomas, C., Kempe, R., **Huang, Y.**, Parra, L.C., Bikson, M., Datta, A., High-Definition Explore (HDExplore): Towards making individualized modeling accessible to clinical users, *The 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Orlando, FL, August 2016

C.27 Haufe, S., **Huang, Y.**, Parra, L.C., The NY Head - A highly detailed volume conductor model for EEG source localization and tES targeting, *Organization for Human Brain Mapping Annual Meeting 2016*, Geneva, Switzerland, June 2016

C.28 **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.29 Lafon, B., Liu, A.A., **Huang, Y.**, Minhas, P., Kar, K., Bikson, M., Friedman, D., Krekelberg, B., Parra, L.C., Direct experimental validation of computational current-flow models with intracranial recordings in human and non-human primates, *NYC Neuromodulation 2015*, New York, NY, January 2015

C.30 **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 Comparison of HD-TES with interferential and intersectional-pulsed stimulation, NYC Neuromodulation 2020 Online Conference, April 2020

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

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

T.4 Datta, A., Thomas, C., **Huang, Y.**, Inter-Individual Variation from MRI Derived Computational Models: Comparison across Pediatric, Adults, Elderly, Ethnic and Gender Factors. *Minisymposia in the 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Berlin, Germany, July 2019

T.5 **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.6 **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.7 **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.8 **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.9 **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.10 **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 Seminar Talks

I.1 ROAST: TES modeling made easy, NYC Neuromodulation 2020 Online Conference, April 2020

I.2 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.3 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.4 Computational models of transcranial electrical stimulation: methodology, optimization and validations, Neural Interface & Rehabilitation Engineering Workshop, Zhejiang University, Hangzhou, China, November 2019

I.5 Progress in realistic simulation models of transcranial electrical stimulation generated electric fields using electrophysiological recordings *in vivo*, Pre-Conference Symposium of the 3rd International Brain Stimulation Conference, Vancouver, BC, Canada, February 2019

I.6 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.7 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.8 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.9 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.10 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