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EDUCATION

City University of New York, NY

Ph.D. in Biophysics, June 2001

Dissertation title: “The hydrolysis of phosphates in *ras* bound nucleotides and model systems - an FTIR study”

Advisor: Robert Callender

Nankai University, Tianjin, China

M.S. in Theoretical Physics, 1995

Dissertation title: “Dynamics of Two-Level Systems in External Fields”

Advisor: Mo-Lin Ge

University of Science and Technology of China, Hefei, China

B.S. in Space Physics, June 1992

Dissertation title: “Numeric Simulation of the Magnetic Reconnection in Solar Space”

BOARD CERTIFICATION

Certification in Magnetic Resonance Imaging Physics by American Board of Medical Physics (2013).

EXPERIENCE

Indiana University, Imaging Research Facility, Department of Psychological and Brain Sciences, Bloomington, IN

2019-Present Technical director, Imaging Research Facility

2013–Present MRI Physicist, Associate Research Scientist

2006–2013 MRI Physicist, Assistant Research Scientist

Overseeing QA and QC of the MRI scanner, optimizing research protocols, developing novel imaging techniques and analysis methods.

Indiana University, Department of Physics, Bloomington, IN

2014-2017 Adjunct Professor of medical physics program
Instructing course “introduction to medical diagnostic imaging”.

Invivo Corporation (Subsidiary of Philips), Gainesville, FL

2003–2005 Research Scientist
Developing phantom that simulates BOLD imaging, RF simulation, functional MRI data analysis.

Mount Sinai School of Medicine, Department of Psychiatry, New York, NY.

Bronx VA Medical Center, Bronx, NY

2001-2003 Post-doctoral Fellow
Functional MRI studies on Alzheimer’s Diseases and aging, developing arterial spin labeling techniques.

Yale Medical School, Department of Diagnostic Radiology, New Haven, CT

2001-2002 Post-doctoral Fellow
MRI physics, arterial spin labeling techniques.

Albert Einstein College of Medicine, Department of Biochemistry, Bronx, NY

1999-2001 Research Assistant
Conducting studies on the mechanism of intrinsic hydrolysis of *ras* protein, investigating the relationship between bond order/bond length and hydrolysis rate for phosphate esters.

City College of New York, Department of Physics, New York, NY

1996-1999 Teaching Assistant/ Research Assistant
Teaching several courses in general physics, holding office hours, grading homework. Assisting in FTIR and Raman spectroscopy experiments.

Nankai Institute of Mathematics, Tianjin, China

1992-1996 Research Assistant
Studying dynamics of two-level model systems in external fields, and statistics of quantum integral models.

HONORS AND GRANT AWARDS

R01NS113950-01A1 (Kawata)

Source: National Institutes of Health: NINDS

Title of Project: Subconcussive neurodegenerative progression in adolescent athletes

Funding period: 12/1/2020 – 11/30/2025

Amount funded: \$3,575,954

Role: co-I, 2.5 PM

R01NS112367 (Block)

Source: National Institutes of Health: NINDS

Title of Project: Neural basis of sensory and motor learning

Funding period: 8/1/2020 – 7/31/2025

Amount funded: \$1,904,690

Role: co-I, 1.0 PM

R21NS116548-01A1 (Kawata and Newman)

Source: National Institutes of Health: NINDS

Title of Project: Neuroimaging and blood biomarkers for subconcussive neural stress on ADHD

Funding period: 10/1/2020 – 09/30/2022

Amount funded: \$435,875

Role: co-I, 2.2 PM

R01AG070931 (Krendl & Perry)

Source: National Institutes of Health: NIA

Title: Understanding how social connectedness protects older adults' cognitive health: the role of social cognition

Funding period: 9/30/20-8/31/25

Amount funded: \$3,593,148

Role: co-I, 1.2 PM

Title: Detecting glutamate signal change associated with alcohol use disorder using magnetic resonance spectroscopy.

Agency: Indiana Clinical and Translational Sciences Institute (PDT project)

PI: Hu Cheng

Collaborators: Sharlene Newman, Peter Finn, George Rebec

Funding period: 2015.1-2015.12

Amount funded: \$14,000.

Title: Assessing Deficits in Structural and Functional Hippocampal Connectivity

Agency: Indiana Clinical and Translational Sciences Institute
PI: Yang Wang (IUPUI) and Hu Cheng (IUB)
Collaborators: Andrew Saykin (IUPUI), Olaf Sporns (IUB)
Funding period: 2010.5 – 2011.5
Amount funded: \$67,500

Title: Applying MRI in Verifying Dose Distribution of Proton Radiotherapy
Agency: Indiana University Faculty Research Support Program
PI: Hu Cheng
Co-PI: Wen-Chien His
Funding period: 2007 – 2008
Amount funded: \$46,000

Title: Novel methods of brain data analysis: Quantitative and multivariate techniques applied to neuroimaging
Agency: Indiana University Faculty Research Support Program
PI: Luiz Pessoa
Co-PI: Richard Shiffrin, Olaf Sporns, Hu Cheng
Funding period: 2007 – 2008
Amount funded: \$50,000

Title: Functional brain connectivity in schizophrenia: A cortico-cerebellar approach
Agency: Indiana University Faculty Research Support Program
PI: William Hetrick
Consultant: Hu Cheng
Funding period: 2011 – 2012

Title: Human Brain Connectivity Analysis: Application to Clinical Populations
Agency: Indiana University Faculty Research Support Program
PI: Brian O'Donnell
Consultant: Hu Cheng
Funding period: 2010 – 2011

Fisher Travel grant from Mount Sinai School of Medicine (2002)

Educational Stipend from International Society of Magnetic Resonance in Medicine (2002)

PEER-REVIEWED MANUSCRIPTS

1. M.E. Huibregtse, S.H. Sweeney, M.R. Stephens, **H. Cheng**, Z. Chen, H.J. Block, S.D. Newman, Keisuke Kawata. 2022. Association between Serum Neurofilament Light and Glial Fibrillary Acidic Protein Levels and Head Impact Burden in Women's Collegiate Water Polo. *J. Neurotrauma*. <https://doi.org/10.1089/neu.2022.0300>.
2. **H Cheng**, S Vinci-Booher, J Wang, B Caron, Q Wen, S Newman, F Pestilli. 2022. Denoising diffusion weighted imaging data using convolutional neural networks. *PLOS ONE* doi: 10.1371/journal.pone.0274396.
3. S.D. Newman, A.M. Schnakenberg Martin, D. Raymond, **H. Cheng**, L. Wilson, S. Barnes, B.F. O'Donnell. 2022. The relationship between cannabis use and taurine: A MRS and metabolomics study, *PLOS ONE*, e0269280. Doi: 10.1371/journal.pone.0269280.
4. K. Prena, D. Molina, V. Waller, **H. Cheng**, S. D. Newman. 2022. Using neuroimaging techniques to link game rewards to memory through activity in the hippocampus. *Journal of Media Psychology: Theories, Methods, and Applications*. Doi: 10.1027/1864-1105/a000343.
5. L. Byrge, D. Kliemann, Y. He, **H. Cheng**, J. M. Tyszka, R. Adolphs, D.P. Kennedy. 2022. Video - evoked fMRI BOLD responses are highly consistent across different data acquisition sites. *Human Brain Mapping*. 43:2972. Doi:10.1002/hbm.25830.
6. J Sheng, L Wang, **H Cheng**, Q Zhang, R Zhou, Y Shi. 2021. Strategies for Multivariate Analyses of Imaging Genetics Study in Alzheimer's disease. *Neurosci Lett*, 762:136147. doi: 10.1016/j.neulet.2021.136147.
7. G. Grecco, E. Chumin, M. Dziedzic, **H. Cheng**, P. Finn, S. Newman, U. Dydak, K. Yoder. 2021. Anterior cingulate cortex metabolites and white matter microstructure: a multimodal study of emergent alcohol use disorder. *Brain Imaging Behav*. Published online, DOI: 10.1007/s11682-020-00443-y.
8. A. M. Schnakenberg Martin, D.-J. Kim, S. D. Newman, **H. Cheng**, W. P. Hetrick, K. Mackie, B. F. O'Donnell. 2021. Altered cerebellar-cortical resting-state functional connectivity in cannabis users. *J Psychopharmacol*, 35:823-832. DOI: 10.1177/02698811211019291.
9. A.M. Alvar, R.E. Hahn Arkenberg, B.S. McGowan, **H. Cheng**, G.A. Malandraki. 2021. White matter is critical in the neural control of swallowing: results from a systematic review. *Front. Hum. Neurosci*, provisionally accepted, available online. DOI: 10.3389/fnhum.2021.628424.
10. S. Gregory, **H. Cheng**, S. Newman, Y. Gan. 2021. HydraNet: a multi-branch convolutional neural network architecture for MRI denoising. *Proc. SPIE 11596, Medical Imaging 2021: Image Processing*, 1159638. DOI: 10.1117/12.2582286.
11. M. Afzali, T. Pieciak, S. Newman, E. Garyfallidis, E. Özarlan, **H. Cheng**, D. K Jones. 2020. The sensitivity of diffusion MRI to microstructural properties and experimental factors. *Journal of Neuroscience Methods*. 347:108951. DOI: 10.1016/j.jneumeth.2020.108951.
12. A. B. Moussa-Tooks, L. P. Burroughs, A. C. Rejimon, **H. Cheng**, W. P. Hetrick. 2020. Cerebellar tDCS consistency and metabolite changes: A recommendation to decrease barriers to replicability. *Brain Stimul*. 13:1521-1523. DOI: 10.1016/j.brs.2020.08.005.
13. **H. Cheng**, A. Wang, S. Newman, U. Dydak. 2020. An investigation of glutamate quantification with PRESS and MEGA-PRESS. *NMR Biomed*. DOI: 10.1002/nbm.4453.

14. K. Kawata, J. Steinfeldt, M. Huibregtse, M. Nowak, J. Macy, A. Shin, Z. Chen, K. Ejima, K. Kercher, S. Newman, and **H. Cheng**. 2020. Association between proteomic blood biomarkers and DTI/NODDI metrics in adolescent football players. *Frontier of Neurology*. 11:581781. DOI: 10.3389/fneur.2020.581781.
15. J. Wang, **H. Cheng***, S. Newman. 2020. Sparse coding of DWI images for brain segmentation. *Journal of Neuroscience Methods*; 343:108828. DOI: 10.1016/j.jneumeth.2020.108828. (* corresponding author)
16. **H. Cheng**, S. Newman, M. Afzali, S. Fadnavis, E. Garyfallidis. 2020. Segmentation of the Brain using Direction-averaged Signal of DWI images. *Magnetic Resonance Imaging*, 69:1-7. DOI: 10.1016/j.mri.2020.02.010.
17. B. Caron, R. Stuck, B. McPherson, D. Bullock, L. Kitchell, J. Faskowitz, D. Kellar, **H. Cheng**, S. Newman, N. Port, F. Pestilli. 2020. Collegiate athlete brain data for white matter mapping and network neuroscience. *Sci Data*. 8:56. DOI: 10.1038/s41597-021-00823-z.
18. K. Prena, **H. Cheng**, S. Newman, 2020. Hippocampal Neurotransmitter Inhibition Suppressed During Gaming Explained by Skill Rather Than Gamer Status. *Frontier in Human Neuroscience*. 14:585764. DOI: 10.3389/fnhum.2020.585764.
19. S. Newman, **H. Cheng**, A. Schnakenberg-Martin, U. Dydak, S. Dharmadhikari, W. Hetrick, B. O'Donnell. 2019. An investigation of neurochemistry changes in chronic cannabis users. *Frontier in Human Neuroscience*, 13:318.
20. C. Sophia-Rammell, **H. Cheng**, D.B. Pisoni, S.D. Newman. 2019. L2 speech perception in noise: An fMRI study of advanced Spanish learners. 2019. *Brain Research*, 1720:146316.
21. E. Chumin, G. Grecco, M. Dziedzic, **H. Cheng**, P. Finn, O. Sporns, S. Newman, K. Yoder. 2019. Alterations in White Matter Microstructure and Connectivity in Young Adults with Alcohol Use Disorder. *Alcoholism: Clinical and Experimental Research*. 43:1170-79.
22. S. D. Newman, **H. Cheng**, D.-J. Kim, A. Schnakenberg-Martin, U. Dydak, S. Dharmadhikari, W. Hetrick, B. O'Donnell. 2020. An investigation of the relationship between glutamate and resting state connectivity in chronic cannabis users. *Brain Imaging Behav*, 14:2062-2071.
23. P. M. Price J. W. Dittmar, K. Carlson, B. P. Lawson, A. K. Reilly, B. D. Stein, **H. Cheng**, O. Zholobko, A. Kohut, A. Voronov, L. M. Bronstein. 2019. Clustering of Iron Oxide Nanoparticles with Amphiphilic Invertible Polymer Enhances Uptake and Release of Drugs and MRI Properties. *Particle and Particle Systems Characterization*. 1900112.
24. T. K. Lorenz, **H. Cheng**, J. Heiman. 2019. Neural correlates of emotion processing comparing antidepressants and exogenous oxytocin in postpartum depressed women: An exploratory study. *PLoS ONE* 14(5):e0217764.
25. S. Vinci-Booher, **H. Cheng**, K. James. 2018. An Analysis of the Brain Systems Involved with Producing Letters by Hand. *J Cogn Neurosci*. 21:1-18.
26. D.-J. Kim, A. M. Schnakenberg-Martin, Y. W. Shin, H. J. Jo, **H. Cheng**, S. D. Newman, O. Sporns, W. P. Hetrick, E. Calkins, B. F. O'Donnell. 2018. Aberrant structural-functional coupling in adult cannabis users. *Human Brain Mapping*, 40:252-261.

27. D. Kellar, S. Newman, F. Pestilli, **H. Cheng**, N. L. Port. 2018. Comparing fMRI activation during smooth pursuit eye movements among contact sport athletes, non-contact sport athletes, and non-athletes. *NeuroImage: Clinical*, 18:413-424.
28. **H. Cheng**, D. Kellar, A. Lake, P. Finn, G. V. Rebec, S. Dharmadhikari, U. Dydak, S. Newman. 2018. Effects of alcohol cues on MRS glutamate levels in the anterior cingulate. *Alcohol and Alcoholism*, 53:209-215.
29. E. Rossi, **H. Cheng**, J. F. Kroll, M. T. Diaz, and S. D. Newman. 2017. Changes in White-Matter Connectivity in Late Second Language Learners: Evidence from Diffusion Tensor Imaging. *Frontier of Psychology*, 8:2040.
30. **H. Cheng**, A. Li, A. Avena-Koenigsberger, C. Huang, Y. Wang, J. Sheng, S. Newman. 2017. Pseudo-bootstrap network analysis - an Application in Functional Connectivity Fingerprinting. *Frontiers in Human Neuroscience*, 11:351.
31. R. Yang, C. Gao, X. Wu, J. Yang, S. Li, **H. Cheng***. 2016. Decreased functional connectivity to posterior cingulate cortex in major depressive disorder. *Psychiatry Res*, 255:15-23. (* corresponding author)
32. **H. Cheng**, S. Newman, J. S. Kent, J. Howell, A. Bolbecker, A. Puce, B. F. O'Donnell, W. P. Hetrick. 2015. Nodal centrality of functional network in the differentiation of schizophrenia. *Schizophrenia Research*, 168:345-52.
33. A. Malyutin, **H. Cheng**, O. Sanchez-Felix, K. Carlson, B. Stein, P. Konarev, D. Svergun, B. Dragnea, L. Bronstein. 2015. Coat protein-dependent behavior of poly(ethylene glycol) tails in iron oxide core virus-like nanoparticles. *ACS Appl. Mater. Interfaces*, 7:12089–12098.
34. R. Gregory, **H. Cheng**, H. A. Rupp, D. Sengelaub, J. R. Heiman. 2014. Oxytocin increases VTA activation to infant and sexual stimuli in nulliparous and postpartum women. *Hormones and Behavior*, 69:82-8.
35. A. Malyutin, R. Easterday, Y. Losovyj, A. Spilotros, **H. Cheng**, O. Sanchez-Felix, B. Stein, D. Morgan, D. Svergun, B. Dragnea, L. Bronstein. 2015. Virus-like nanoparticles with maghemite cores allow for enhanced MRI contrast agents. *Chemistry of Materials*, 27:327–335.
36. **H. Cheng**, S. D. Newman, J. S. Kent, A. Bolbecker, M. J. Klaunig, B. F. O'Donnell, A. Puce, W. P. Hetrick. 2015. White Matter Abnormalities of Microstructure and Physiological Noise in Schizophrenia. *Brian Imaging and Behavior*, 9:868-877.
37. **H. Cheng**, P. D. Skosnik, B. J. Pruce, M. S. Brumbaugh, J. M. Vollmer, D. J. Fridberg, B. F. O'Donnell, W. P. Hetrick, and S. D. Newman. 2014. Resting state functional MRI reveals distinct brain activity in heavy cannabis users – a multi-voxel pattern analysis. *Journal of Psychopharmacology*, 28:1030-40.
38. D.-J. Kim, J. Kent, A. R. Bolbecker, O. Sporns, **H. Cheng**, S. D. Newman, A. Puce, B. F. O'Donnell, W. P. Hetrick. 2014. Disrupted Modular Architecture of Cerebellum in Schizophrenia: A Graph Theoretic Analysis. *Schizophrenia Bulletin*, 40:1216-26.
39. **H. Cheng** and A. Puce. 2014. Reducing respiratory effect in motion correction for EPI images with sequential slice acquisition order. *Journal of Neuroscience Methods*, 227:83-9.

40. J. Goni, O. Sporns, **H. Cheng**, M. Aznárez-Sanado, Y. Wang, S. Josa, G. Arrondo, V. P. Mathews, T. A. Hummer, W. G. Kronenberger, A. Avena-Koenigsberger, A. J. Saykin, M. A. Pastor. 2013. Robust estimation of fractal measures for characterizing the structural complexity of the human brain: optimization and reproducibility. *NeuroImage*, 83:646-57.
41. S. D. Newman, E. Malaia, R. Seo, **H. Cheng**. 2013. The effect of individual differences in working memory capacity on sentence comprehension: an fMRI study. *Brain Topography*, 26:458-467.
42. **H. Cheng**, Y. Wang, J. Sheng, W. G. Kronenberger, V. P. Mathews, T. Hummer, A. J. Saykin. 2012. Characteristics and variability of structural network derived from diffusion tensor imaging. *Neuroimage*, 61:1153-64.
43. D.-J. Kim, D. S. Patrick, **H. Cheng**, B. J. Pruce, M. S. Braumbaugh, J. M. Vollmer, W. P. Hetrick, B. F. O'Donnell, O. Sporns, A. Puce, S. D. Newman, 2011. Structural Network Topology Revealed by White Matter Tractography in Cannabis Users: A Graph Theoretical Analysis, *Brain Connectivity*. 1:473-83.
44. **H. Cheng**, Y. Wang, J. Sheng, O. Sporns, W. G. Kronenberger, V. P. Mathews, T. Hummer, A. J. Saykin. 2012. Optimization of seed density in DTI tractography for structural networks. *Journal of Neuroscience Methods*, 203:264-72.
45. **H. Cheng**. 2012. Variation of Noise in multi-run fMRI using GRAPPA. *Journal of Magnetic Resonance imaging*, 35:462-70.
46. X. Huang, B. Stein, **H. Cheng**, A. Malyutin, I. Tsvetkova, D. Baxter, N. Remmes, J. Verchot, C. Kao, L. Bronstein, B. Dragnea. 2011. Magnetic Virus-Like Nanoparticles in *N. Benthamiana* Plants – a New Paradigm for Environmental and Agronomic Biotechnological Research. *ACS Nano* 5:4037-45.
47. M. S. Beeri, H. Lee, **H. Cheng**, D. Wollman, J. M. Silverman, I. Prohovnik. 2011. Memory activation in healthy nonagenarians. *Neurobiol Aging*, 32:515-523.
48. **H. Cheng**, L. Yu. 2010. Respiratory Noise Correction Using Phase Information. *Magnetic Resonance imaging*, 28:574-582.
49. H. W. Koenigsberg, L. J. Siever, H. Lee, S. Pizzarello, A. S. New, M. Goodman, **H. Cheng**, J. Flory, I. Prohovnik. 2009. Neural correlates of emotion processing in borderline personality disorder. *Psychiatry Res*. 172:192-9.
50. **H. Cheng**, F. Huang. 2006. MRI Image Intensity Correction with Extrapolation and Adaptive Smoothing. *Magnetic Resonance in Medicine*, 55:959-966.
51. **H. Cheng**, Q. Zhao, G. R. Duensing, W. Edelstein, D. Spencer, N. Browne, C. Saylor, M. Limkeman. 2006. SMARTPHANTOM™ – an fMRI Informatics Tool. *Magnetic Resonance imaging*, 24:301-313.
52. D. E. Wollman, M. Beeri, M. Weinberger, **H. Cheng**, J. Silverman, I. Prohovnik. 2004. Tolerance of MRI procedures by the oldest old. *Magnetic Resonance Imaging*, 22:1299-1304.
53. **H. Cheng**, I. Nikolic-Hughes, J. H. Wang, H. Deng, L. Wu, Z.-Y. Zhang, P. J. O'Brien, D. Herschlag and R. Callender. 2002. Environmental Effects on Phosphoryl Group Bonding

Probed by Vibrational Spectroscopy: Implications for Understanding Phosphoryl Transfer and Enzymatic Catalysis. *Journal of the American Chemical Society*, 124:11295-11306.

54. R. Z. B. Desamero, **H. Cheng**, S. Cahill, M. Girvin, H. Deng, R. Callender, P. Rath, B. Variano and J. E. Smart. 2002. Physical Properties of Compounds Promoting Oral Delivery of Macromolecular Drugs. *Biopolymers*, 67:24-40.
55. R. Z. B. Desamero, **H. Cheng**, S. Cahill, M. Girvin, H. Deng, R. Callender, P. Rath, B. Variano and J. E. Smart. 2002. Interactions of Amidated Acids with Heparin. *Biopolymers*, 67:41-48.
56. **H. Cheng**, S. Sukal, R. Callender and T. S. Leyh. 2001. γ -Phosphate Protonation and pH-Dependent Unfolding of the ras•GTP•Mg²⁺ Complex: An FTIR Study. *Journal of Biological Chemistry*, 276: 9931-9935.
57. **H. Cheng**, S. Sukal, H. Deng, T. S. Leyh and R. Callender. 2001. The Vibrational Structure of GDP and GTP Bound to Ras: A Study Using Isotope Edited FTIR Difference Spectroscopy. *Biochemistry*, 40:4035-4043.
58. J. Shao, M.-L. Ge and **H. Cheng**. 1996. Decoherence of Quantum-Nondemolition Systems. *Physical Review E* 53:1243-1245.
59. **H. Cheng**, M.-L. Ge and J. Shao. 1994. Localization conditions for Two-Level Systems. *Physics Letters A*, 191:1-6.

NON REFERRED MANUSCRIPT

H. Cheng, S. Padmala and R. Fukunaga. Comparison of volume selective z-shim and normal EPI in fMRI studies using face stimuli. <http://arxiv.org/abs/1307.4045>.

REFEREED CONFERENCE PROCEEDINGS

H. Cheng, 2021. Evaluation of noise/signal leaking in PCA-based DWI denoising methods. *Proceedings of the ISMRM 29th Annual Meeting*, P1727.

S. Gregory, **H. Cheng**, S. Newman, Y. Gan. 2020. HydraNet: a multi-branch Convolutional Neural Network architecture for MRI denoising. SPIE 11596-113.

H. Cheng, J. Wang, S.S. Fadnavis, E. Garyfallidis, and S. Newman. 2020. Denoising of DWI signal using deep learning. *Proceedings of the ISMRM 28th Annual Meeting*, P967.

H. Cheng, J. Wang, and S. Newman. 2020. Sparse Representation of DWI Images for Fully Automated Brain Tissue Segmentation. *Proceedings of the ISMRM 28th Annual Meeting*, P4387.

H. Cheng, S. Newman. 2019. Quantification of Glutamate/Glutamine using LCMoDel for MEGA-PRESS sequence at 3 T. *Proceedings of the ISMRM 27th Annual Meeting, Montréal*, P2240.

M. Afzali, S. Newman, E Garyfallidis, **H. Cheng**. 2018. Fitting MAP-MRI in 2 shell DWI Datasets using Model-based Extrapolation. *Proceedings of the ISMRM 26th Annual Meeting, Paris*. P1688.

H. Cheng, S. Newman, M. Afzali. 2018. Segmentation of the brain using direction averaged signal in DWI images. *Proceedings of the ISMRM 26th Annual Meeting, Paris*. P0462.

H. Cheng, A. Li, A. Avena-Koenigsberger, C. Huang, and S. Newman. 2017. Pseudo-bootstrap network analysis - an application in functional connectivity fingerprinting. *Proceedings of the ISMRM 25th Annual Meeting, Honolulu*. P5379.

M. Afzali, **H. Cheng** and S. Newman. 2017. Shall we use denoising in the preprocessing of diffusion weighted imaging? *Proceedings of the ISMRM 25th Annual Meeting, Honolulu*. P3370.

H. Cheng, A. Koenigsberger, S. D. Newman, and O. Sporns. 2016. An algorithm for generating uniform random parcellations. *Proceedings of the ISMRM 24th Annual Meeting, Singapore*. P1661.

H. Cheng, A. Abdulrahman M Alhulail, and S. D. Newman. 2016. Evaluation of tractography using Fiberfox for whole brain connectome analysis. *Proceedings of the ISMRM 24th Annual Meeting, Singapore*. P3057.

H. Cheng, D. Kellar, U. Dydak, P. Finn, A. Lake, S. Dharmadhikari, G. Rebec, and S. D. Newman. 2016. Glutamate level change in anterior cingulate elicited by alcohol cues in alcohol use disorder. *Proceedings of the ISMRM 24th Annual Meeting, Singapore*. P4149.

H. Cheng, R. Yang, H. Zhang, X. Wu, J. Yang, M. Ma, Y. Gao, H. Liu, and S. Li. 2015. Decreased posterior default mode network for depression patients. *Proceedings of the ISMRM 23rd Annual Meeting, Toronto, Canada*. P1353.

H. Cheng, S. D. Newman, J. Goni Cortes, J. S. kent, J. Howell, A. Bolbecker, A. Puce, B. F. O'Donnell, and W. P. Hetrick. 2014. Less dynamic functional brain network in schizophrenia. *Proceedings of the ISMRM 22nd Annual Meeting, Milan, Italy*. P1991.

H. Cheng, S. D. Newman, J. Goni Cortes, J. S. kent, J. Howell, A. Bolbecker, A. Puce, B. F. O'Donnell, and W. P. Hetrick. 2014. Nodal centrality of the resting state functional network in the differentiation of schizophrenia using a support vector machine. *Proceedings of the ISMRM 22nd Annual Meeting, Milan, Italy*. P837.

H. Cheng, P. Skosnik, D.-J. Kim, B. Pruce, W. Hetrick, B. O'Donnell1, A. Puce, S. Newman. 2013. Alteration of resting state functional connectivity for cannabis users. In 19th Annual Meeting of Human Brain Mapping, Seattle, #3767.

H. Cheng and A. Puce. Effect of Respiration on Motion Correction in fMRI. 2013. *Proceedings of the ISMRM 21st Annual Meeting, Salt Lake City*, P3249.

H. Cheng. Feasibility of ultra-short EPI navigator for DTI motion detection. 2013. *Proceedings of the ISMRM 21st Annual Meeting, Salt Lake City*, P3208.

H. Cheng, R. Wang, and A. Puce. Variance of structural network for different fiber tracking schemes. 2012, *Proceedings of the ISMRM 20th Annual Meeting, Melbourne*, P3615.

H. Cheng and A. Puce. Noise-related variance of functional networks. 2012, *Proceedings of the ISMRM 20th Annual Meeting, Melbourne*, P2821.

H. Cheng, J. Kent, M. Klaunig, D. Kim, B. O'donnell, W. Hetrick, and A. Puce. Abnormality of variance of resting state fMRI signal in white matter for schizophrenia. 2012, *Proceedings of the ISMRM 20th Annual Meeting, Melbourne*, P2877.

H. Cheng, J. Sheng, Y. Wang, O. Sporns, A. Saykin, W. Kronenberger, V. Mathews and T. Hummer. Inter-subject variability of structural network: a DTI study, 2011, *Proceedings of the ISMRM 19th Annual Meeting, Montreal*, P675.

Y. Li and **H. Cheng**. Characterization of spatial variation of BOLD-associated neuronal activity in fMRI, 2011, *Proceedings of the ISMRM 18th Annual Meeting, Montreal*, P3547.

H. Cheng, D. Kim, O. Sporns, Y. Wang, J. Sheng, and A. Saykin. Effect of SNR of DTI on the structural network, 2011, *Proceedings of the ISMRM 19th Annual Meeting, Montreal*, P3896.

H. Cheng, J. Kirsch, R. Ward, T. Atwood, A. Ashourvan, and Y. Wang. Temporal noise change of EPI with GRAPPA in multiple runs. *Proceedings of the ISMRM 18th Annual Meeting, Stockholm*, P3433.

H. Cheng, W. Lin, F. Huang. 2010. Noise-Facilitated GRAPPA Reconstruction for FMRI. *Proceedings of the ISMRM 18th Annual Meeting, Stockholm*, P4895.

H. Cheng, Y. Li. 2010. Respiratory Noise Correction Using Linear Phase Regression (RCP). 2010. *Proceedings of the ISMRM 18th Annual Meeting, Stockholm*, P3432.

H. Cheng. On the Application of TGRAPPA in Functional MRI. 2010. *Proceedings of the ISMRM 18th Annual Meeting, Stockholm*, P3063.

W. Lin, F. Huang, **H. Cheng**, Y. Li, A. Reykowski. 2010. Optimally Regularized GRAPPA/GROWL with Experimental Verifications. *Proceedings of the ISMRM 18th Annual Meeting, Stockholm*, P2874.

H. Cheng and Yu Li. 2008. Respiratory Noise Correction Using Phase Information. *International Conference on BioMedical Engineering and Informatics, Sanya*, P733–736.

H. Cheng, S. Padmala, R. Fukunawa. 2009. Comparison of Volume-Selective Z-Shim and EPI with Face Tasks. *Proceedings of the ISMRM 17th Annual Meeting, Honolulu*, P1543.

W. Guo, **H. Cheng** and F. Huang. 2009. Combine Reconstructions Using Non-local Operator and Its Application in PPI. *Proceedings of the ISMRM 17th Annual Meeting, Honolulu*, P4642.

H. Cheng and Y. Li. 2008. Respiratory Noise Correction Using Phase Information. *Proceedings of the ISMRM 16th Annual Meeting, Toronto*, P2449.

F. Huang, **H. Cheng**, Y. Li. 2008. Highly accelerated fMRI: a feasibility test of image support reduction technique. *Proceedings of the ISMRM 16th Annual Meeting, Toronto*, P3563.

H. Cheng, S. Brandfon. 2007. Effect of Scanner Signal Drift on Evaluation of Baseline Connectivity. *Proceedings of the ISMRM 15th Annual Meeting, Berlin*, P3178.

H. Cheng, F. Huang. MRI Image Intensity Correction with Extrapolation and Smoothing. 2005. In 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Shanghai, China, P642-645.

H. Cheng, Q. Zhao, G. R. Duensing, W. Edelstein, D. Spencer, N. Browne, C. Saylor, M. Limkeman. 2005. SMARTPHANTOMTM – an fMRI simulator. In 11th Annual Meeting of Human Brain Mapping, Toronto, Canada, #55.

H. Cheng, F. Huang, Q. Zhao, M. Limkeman, 2005. Intensity Correction Using Image Extrapolation and Multi-Resolution Analysis. *Proceedings of the ISMRM 13th Annual Meeting, Miami*, P2755.

L. Friedman, Q. Zhao, **H. Cheng**, R. Duensing, D. N. Greve, G. H. Glover, fBIRN. 2005. Multi-center fMRI Calibration with SMARTPHANTOM. *Proceedings of the ISMRM 13th Annual Meeting, Miami*, P1529.

F. Huang, **H. Cheng**, 2004. *k-t* GRAPPA, *Second International Workshop on Parallel MRI, Zurich, Switzerland*.

F. Huang, **H. Cheng**, A. Rubin, J. Akao, R. Duensing, 2004. Linear Interpolation in K-space. *Proceedings of the ISMRM 12th Annual Meeting, Kyoto*, P2139.

H. Cheng, Q. Zhao, D. Spencer, G. R. Duensing, W. A. Edelstein, 2004. An fMRI Study of the SMARTPHANTOM. *Proceedings of the ISMRM 12th Annual Meeting, Kyoto*, P1041.

F. Huang, **H. Cheng**, A. Rubin, J. Akao, R. Duensing, 2004. Reconstruction with Prior Information for Dynamic MRI. *Proceedings of the ISMRM 12th Annual Meeting, Kyoto*, P2680.

Hu Cheng, M. Beerli, D. Wollman, M. Weinberger, I. Prohovnik, 2003. Functional MRI of Nonagenarians during a visual cognition task. *Proceedings of the ISMRM 11th Annual Meeting, Toronto*, P2612.

I. Prohovnik, E. Scanley, M. Does, J. Gore, **H. Cheng**, J. Chow, 2003. Fuzzy Cluster Analysis of Galantamine Effects on fMRI. *Proceedings of the ISMRM 11th Annual Meeting, Toronto*, P392.

H. Cheng, A. Anderson, J. Gore, I. Prohovnik, 2002. Effect of Inversion Slab Width on FAIR Results. *Proceedings of the ISMRM 10th Annual Meeting, Honolulu*.

H. Cheng, A. Anderson, J. Gore, I. Prohovnik. 2002. Sources of Overestimation of CBF by FAIR. *Proceedings of the ISMRM 10th Annual Meeting, Honolulu*.

PROFFERED PRESENTATIONS

Data Analysis workshop on structural network. 2010. Indiana Neuroimaging Symposium, Bloomington, IN, USA.

Slice-selective z-shimming EPI. 2008. 3rd IDEA users group meeting. Memphis, TN, USA.

The Vibrational Studies of RAS Protein Bound with GDP and GTP: Structure and pH-dependent Unfolding. 2001. 45th Annual Meeting of Biophysical Society. Boston, MA, USA.

PATENTS

Title: Phantom for production of controllable fMRI signal.

Inventors: Qun Zhao, George Duensing, **Hu Cheng**, William Edelstein.

Owner: Invivo Corporation.

US Patent number: 7215122.

PROFESSIONAL MEMBERSHIP

American Physics Society (1996 – 1998)
Biophysical Society (1999 – 2001)
Organization of Human Brain Mapping (2006 – 07, 2008 - 09, 2011-12)
International Society of Magnetic Resonance in Medicine (2002 –)

PROFESSIONAL SERVICE

BMC Medical Imaging: Editorial board (2021 –)
Journal of Neuroscience Methods: guest editor (2020)
Examiner of oral test for accreditation of certification in MRI physics by American Board of Medical Physics (Toronto, 2015).

REVIEWING EXPERIENCE

Journal of Neurotrauma (2021)
Brain and Behavior (2018, 2019, 2022)
Physica Scripta (2021)
Drug and Alcohol Dependence (2020, 2021)
Physics in Medicine and Biology (2020)
Human Brain Mapping (2017-2018, 2021)
Computer Methods and Programs in Biomedicine (2020)
Magnetic Resonance in Medicine (2013, 2014, 2016, 2018)
NeuroImage (2009 – 2013, 2018)
NeuroImage Clinical (2019, 2020)
Journal of Magnetic Resonance in Medicine (2008 – 2021)
Journal of Neuroscience Research (2019)
Journal of Neuroscience Methods (2018 - 2021)
PLoS One (2013, 2021)
Psychiatry Research: Neuroimaging (2019)
Schizophrenia Research (2019)
BMC Medical Imaging (2015-2021)
Transactions on Biomedical Engineering (2016)
Brain Imaging and Behavior (2010 – 2013, 2015, 2019-2021)
Scientific Report (2016, 2020, 2021)
Alcohol and Alcoholism (2018, 2019)
Psychopharmacology (2018)
Brain and Behavior (2018)
Medical & Biological Engineering & Computing (2019)

Annual meeting of OHBM (2012)
Annual Meeting of ISMRM (2010, 2012)
Indiana University Faculty Research Support Program (2011, 2012)
Indiana CTSI (2017, 2018)

TEACHING AND MENTORING

Teaching

Indiana University, Imaging Research Facility:

MRI safety training (2009 -, twice every semester, summer session)
Workshop on fMRI data analysis using SPM. (Feb 27, 2016)
DTI data analysis and structural network (8 weeks, 2014)
fMRI Data analysis workshop (one day, 2013)

Indiana University, Physics Department:

Practicum in Diagnostic Imaging: MRI, 3 credit hour
PHYS-P683 (summer, 2015) sole instructor
Introduction to Medical Diagnostic Imaging, 3 credit hour
HSCI-570 (Spring, 2014) assistant, proctor

Mentoring

Jian Wang, post-doc (co-advise with S. Newman)	2018-2020
Maryam Afzali, post-doc (co-advise with S. Newman)	2017-2018
Daniel Levitas, graduate student in cognitive neuroscience	2019-2020
Yanyu Xiong, graduate student in cognitive neuroscience	2017-2019
Ao Li, graduate student in statistics (co-advise with C. Huang)	2016-2017
Andrea Avena Koenigsberger, graduate student in computational neuroscience	2014-2016
Zhida Zheng, graduate student in statistics	2013-2014
Maxim Bushmakin, graduate student in cognitive neuroscience	2013-2014
Lindsay Arcurio, graduate student in cognitive neuroscience	2012-2013
Bethany Sussman, graduate student in cognitive neuroscience	2011-2012
Andrew Jahn, graduate student in cognitive neuroscience	2010-2011
Arian Ashourvan, graduate student in cognitive neuroscience	2009-2010
Rena Fukunaga, graduate student in cognitive neuroscience	2008-2009
Seung Lark Lim, graduate student in cognitive neuroscience	2007-2008
Sunah Kim, graduate student in cognitive neuroscience	2006-2007
Ryan A Stevenson, graduate student in cognitive neuroscience	2006-2007

Ph.D. Thesis Committee Member

Megan Huibregtse (Kinesiology, Advisor: Kawata)	2020-present
Maddie Nowak (Kinesiology, Advisor: Kawata)	2020-present

Master Thesis advisor

Ahmad Abdurahman m Alhulail (medical physics)

2015-2016

Safa Almohsen (medical physics, co-advise with A. Puce)

2012-2013