

## **CURRICULUM VITAE**

### **I. PERSONAL INFORMATION**

Name: Xin Wang M.D., Ph.D.  
Professor, Vice Chair of Research  
Departments of Psychiatry, Radiology, and Neurosciences

### **EDUCATION AND TRAINING:**

Medical Bachelor Degree (M.D. equivalent)  
Department of Clinical Medicine, Tianjin Medical University  
Tianjin, China, 1995

Master of Science  
Medical Science, Tianjin Medical University, Tianjin, China, 2000

Ph.D. Neuroscience, University of Toledo, Toledo, Ohio, 2005

### **POSTGRADUATE MEDICAL EDUCATION (RESIDENCIES, FELLOWSHIPS):**

#### **Residency**

1995 - 2000 Tianjin Medical University General Hospital  
Tianjin, China  
Residency in Anesthesiology

### **PRE AND POST-DOCTORAL FELLOWSHIPS:**

8/2000 - Department of Neurosciences  
12/2005 University of Toledo, Toledo, Ohio  
Pre-doctoral Fellow

2/2006 - Department of Neurosciences,  
11/2007 University of Toledo, Toledo, Ohio  
Postdoctoral Research Associate

6/2006 - Department of Physiology  
07/2007 Northwestern University Feinberg School of Medicine, Chicago, Illinois  
Collaborator

11/2007 - Department of Psychiatry,  
11/2009 University of Toledo, Toledo, Ohio  
Postdoctoral Fellow

11/2007 - Department of Psychiatry,  
07/2010 University of Michigan, Ann Arbor, Michigan  
Visiting Research Investigator

## **EMPLOYMENT & APPOINTMENT:**

- 1995 - 2000      Tianjin Medical University General Hospital, Tianjin, China  
Department of Anesthesiology  
Anesthesiologist/Clinical Lecturer
- 2009 - present    University of Toledo, Toledo, Ohio  
Department of Psychiatry  
Assistant Professor (2009),  
Associate Professor (2017),  
Tenured (2018),  
Professor (2021),  
Vice Chair of Research (2022)

## **CERTIFICATIONS/LICENSURES:**

### Certification

Medicine/Junior Professional Rank Certificate  
Tianjin Municipal Personnel Bureau, China  
Certificate No.: 064142, 1996

Anesthesiology/People's Republic of China Qualification Certificate of Physician  
Tianjin Public Health Bureau, China,  
Certificate No.: 199812110120101710811201, 1999

## **AWARDS AND COMMENDATIONS:**

- 2000 International Travel Fellowship, The 12th World Congress of Anesthesiologists,  
Montreal, Québec, Canada
- 2003 Young Investigator Travel Award, 22nd Annual Scientific Meeting of American Pain  
Society, Chicago, Illinois
- 2012 Undergraduate Research Recognition Award, University of Toledo
- 2013 Inter-Professional Student Research Award, University of Toledo
- 2015 Provost's Office Support for Travel, University of Toledo
- 2019, 2021 President's Award for Excellence in Grantsmanship, University of Toledo
- 2021 Dean's Clinical Research Excellence Award, College of Medicine and Life Sciences,  
University of Toledo

## **II. SERVICE**

### **COMMITTEES. THE UNIVERSITY OF TOLEDO:**

#### University of Toledo:

Undergraduate Research Advisory Committee, 2015 - present, COMLS Representative  
College of Medicine and Life Sciences (COMLS):

Medical Student Research Committee, 2013 - present, Member  
Appointment, Promotion, and Tenure Committee, 2022 - present, Member  
Research Advisory Council, 2020- present, member

Department of Psychiatry:

Research Committee, 2012 - present, Member

**REGIONAL, NATIONAL AND INTERNATIONAL PROFESSIONAL SOCIETIES:**

Society for Neurosciences, 2001 - present, Member

American Pain Society, 2003 - 2007, Member

Sigma Xi: the Scientific Research Society, 2005 - 2006, Member

Organization of Human Brain Mapping, 2012 - present, Member

Society of Biological Psychiatry, 2015 - present, Member

International Society for Traumatic Stress Studies, 2016 - 2022, Member

Member of the Membership committee (2019-2022)

Member of the Membership Retention Subcommittee (2019)

Chair of Data Subcommittee (2021- 2022)

**III. EDUCATIONAL ACTIVITIES**

**TEACHING**

Physician Assistant (PA) Students:

Neuroscience (Lab.), 2011- 2016; Laboratory instructor

Neuroscience ANAT 5000, Basal Ganglia lecture, 2012-2017; Lecturer

Medical Students:

Neuroscience UT ANAT 680 (Lab.), 2013-2014; Laboratory instructor

Clinical Decision Making-I INDI 778, 2013-2017; Group discussion facilitator

Research in Biomedical Sciences INDI 726:021: PSCH750/PSCH751. 2013-2014;

Major Advisor

Graduate Students:

Neuroscience NND 581/781, Plastic changes in the structure of human brain lecture, 2013; Lecturer

Psychiatry Residents:

General Psychiatry Didactics: Neurochemistry Lecture, 2011-2017; Lecturer

General Psychiatry Didactics: Clinical research writing. 2013-2018; Lecturer

General Psychiatry Didactics: Statistics, 2014; Lecturer

Undergraduate Students:

Honors Research BIOL 4010, The College of Natural Sciences and Mathematics, 2014-2019; Major Advisor

INDI 4000-003 (CRN: 20585), Directed Research In Human Health Sciences, 2017, Major Advisor

Grand Rounds:

MRI Research on Emotion Deficits of PTSD Patients, Psychiatry Grand Rounds, University of Toledo, Toledo, OH, 2011.

Rapid dynamic changes in the adult human brain associated with improvement of mental health and academic performance; Neurosciences Grand Rounds, Department of Neurosciences, University of Toledo, Toledo, OH, 2012.

Dynamic Brain Changes Following a Motor Vehicle Collision: A Paradigm for the Study

of Neurophysiological Adaptations to Traumatic Stress; Psychiatry Grand Rounds, University of Toledo, Toledo, OH, 2014.

Early and Progressive Brain Alterations Contribute to PTSD Development. Psychiatry Grand Rounds, University of Toledo, Toledo, OH, 2015.

Clinical and Research Application of Transcranial Magnetic Stimulation. Psychiatry Grand Rounds, University of Toledo, Toledo, OH, 2018.

Mega-Analysis of Cortical Morphometric Differences Between PTSD Patients and Non-PTSD Patients. Psychiatry Grand Rounds, University of Toledo, Toledo, OH, 2021

Neurohormonal Changes In The Hair Samples From Psychiatric Patients. Psychiatry Grand Rounds. University of Toledo, Toledo, OH, 2023

## **MENTORING**

### Residents and Medical Graduates:

2012 Residency Program Applicants as Research Volunteers. 1 trainee, Major Advisor

2013-present Tutoring for Resident Research. Total 12 trainees. Major Advisor

2013 – 2018 ProMedica Trauma Research Internship. Total 7 trainees. Major Advisor

### Postdoctoral Fellows:

2013 Psychology postdoctoral fellows. 2 trainees

2014 Visiting Scholar. 1 trainee

2018 – 2020 NIH Diversity supplement. 1 trainee

2019-2021 Research postdoctoral fellows. 2 trainees

### Graduate Student Advisory Committees:

2017 – present Major Advisor: Nicole Harless, degree pursuing: MD/PhD of Neurosciences, current position: MD/PhD candidate, University of Toledo

2010 – 2013 Advisory Committee Member. Name: Andrew Cotton(Major Advisor: Michael Dennis) Degree awarded: Master of Medical Physics, current position: medical student, University of Toledo

2015 – 2018 Advisory Committee Member: James Montgomery (Major Advisor: Hassan HassabElnaby), degree pursuing: PhD of Accounting, current position: Assistant Professor, Troy University

2016 – 2018 Advisory Committee Member: Joshua Ricker (Major Advisor: Howard Cromwell), degree pursuing: PhD of Psychology, current position: Assistant Professor, University of Dayton

2017 – 2019 Advisory Committee Member: Brian O’Leary (Major Advisor: Kevin Xu), degree pursuing: Master of Computer Science, current position: Data scientist, University of Michigan.

2018 – 2020 Advisory Committee Member: Xin Lv (Major Advisor: Jon Elhai), degree pursuing: PhD of Clinical Psychology, current position: Psychologist, Aurora Community Mental Health Center (Aurora, CO)

2019 – 2021: Advisory Committee Member: Courtney Forbes (Major Advisor: Matthew Tull), degree pursuing: PhD of Clinical Psychology, current position: Psychologist, University of California, Los Angeles.

2019 – 2023: Advisory Committee Member: Erin O’Leary (Major Advisor: Kevin Xu), degree: PhD of Computer Science, current position: Specialist, University of Toledo.

2022 -2023: Advisory Committee Member: Caleb J Hallauer (Major Advisor: Jon E Elhai), degree: PhD of Clinical Psychology, current position: PhD candidate, University of Toledo

2023 – present: Advisory Committee Member: Hunter Eby (Major Advisor: Robert Smith), degree: MD-PhD of Neurosciences, current position: PhD student, University of Toledo

Mentoring Research/scholarly Projects of Graduate Students:

2010 – 2020 Master of Science Biomedical Science Program, University of Toledo. Degree awarded: Master of Medical Science. Total 12 students, Major Advisor

2010 - 2023 Graduate Student Research Assistants. Total 16 students, Advisor

2011 - 2012 Medical School Applicants as Research Volunteers. Total 3 students, Major Advisor

2014-2015 Physician Assistant Program, University of Toledo. PHYA6610:021 (Spring)/PHYA6620:021 (Summer). 1 student, Major Advisor

2017-2018 Internship of Master of Public Health Program, University of Toledo. 2 students. Major Advisor

2017-2018 Master of Science Biomedical Science Program, Boston University. 1 student, Major advisor

Mentoring Research/scholarly Projects of Medical Students:

2011 – present Medical Student Summer Research Program, University of Toledo. 33 students, Major Advisor

2010 – present Medical Student Research Assistant. 11 students, Major Advisor

2014 Global Health Program. 1 student, Major Advisor

Mentoring Research/scholarly Projects of Undergraduate Students:

2011 - 2013 Biomedical Research Summer Undergraduate Research Fellowship (SURF). 2 students, Co-Advisor

2012 University of Toledo Sullivan Honors Fellowship. Spring semester. 1 student, Co-major Advisor

2011- 2012 National Science Foundation Research Experiences for Undergraduates in Physics and Astronomy NSF-REU Grant. 2 students, Co-major Advisor

2013 - 2014 Doctor of Pharmacy Program Student Assistant, College of Pharmacy, University of Toledo. 2 students, Major Advisor

2013 - present Undergraduate Student Research Assistants. 7 students, Major Advisor

2013-present BS/MD and Baccalaureate/MD Program Student Assistants. 16 students, Major Advisor

Mentoring Research volunteer:

2016- 2019 University of Toledo Medical Center Volunteer Service Program. 6 Volunteers

## **IV. SCHOLARSHIP**

### **EDITORIAL BOARDS**

Translation: The University of Toledo Journal of Medical Sciences, 2013-2021. Editorial Board Member

## **JOURNAL PEER REVIEW**

1. Journal of Clinical Anesthesia, 2008
2. Anxiety, Stress, & Coping, 2013
3. Organization of Human Brain Mapping Annual Meeting Abstract Reviewer, 2014, 2015
4. Journal of Affective Disorders, 2014
5. PLOS ONE, 2015
6. Schizophrenia Research, 2019
7. Biological Psychiatry: Cognitive Neuroscience and Neuroimaging (CNCI), 2019
8. Psychiatry Research: Neuroimaging, 2019
9. Neuropsychopharmacology, 2020
10. NeuroImage, 2020
11. Translational Psychiatry, 2021, 2022
12. Brain Research, 2023
13. Journal of Psychosomatic Research, 2024

## **STUDY SECTIONS. REVIEW PANELS:**

1. Alliance for Human Effectiveness and Advancement (AHEAD), Biomarker Workgroup, Dayton, Ohio. Member, 12/12/2012.
2. Alliance for Human Effectiveness and Advancement (AHEAD), Neurosciences Workgroup, Dayton, Ohio. Member, 1/15/2013.
3. Alliance for Human Effectiveness and Advancement (AHEAD), Neurosciences 5 Year Planning Meeting, Dayton, Ohio, 4/8-10/2013.
4. 2016 Ohio National Guard Study scientific advisory committee meeting.
5. NIH Adult Psychopathology and Disorders of Aging (APDA) and Biobehavioral and Behavioral Processes IRG (BBBP), 10/2021, 10/2022

## **INVITED LECTURES. SEMINARS. SYMPOSIA. VISITING PROFESSORSHIPS:**

1. Influences of peripheral, cortical and intrinsic inhibitory inputs on receptive fields of dorsal column nuclei neurons; Department of Psychology, Vanderbilt University, Nashville, Tennessee, 2006.
2. Longitudinal MRI study of PTSD development within weeks after trauma; PanLab meeting, Department of Psychiatry, University of Michigan, Ann Arbor, MI, 2011.
3. Progressive brain changes from initial days to 12 weeks after motor vehicle accident; PanLab meeting, Department of Psychiatry, University of Michigan, Ann Arbor, MI, 2012.
4. Rapid dynamic changes in the adult human brain associated with improvement of mental health and academic performance; Neurosciences Workgroup, Alliance for Human Effectiveness and Advancement (AHEAD), Dayton, OH, 2013.
5. Cortical structural analysis. Enhancing Neuro Imaging Genetics Through Meta Analysis (ENIGMA) - Psychiatric Genomics Consortium (PGC) - PTSD Group Teleconference, 2016.
6. Early brain, symptom, and social measures associated with PTSD development after motor vehicle collision. Seminar. Department of Biology, University of Toledo, 2018
7. Mega-analysis of cortical volume differences between PTSD patients and non-PTSD controls. Enhancing Neuro Imaging Genetics Through Meta Analysis (ENIGMA) -

- Psychiatric Genomics Consortium (PGC) - PTSD Group Teleconference, 2019.
8. Early brain, symptom, and social measures associated with PTSD development after motor vehicle collision. Seminar. Department of Psychology, Bowling Green State University, March 2019
  9. Vertex-based analysis methods. The Enhancing Neuro Imaging Genetics Through Meta Analysis (ENIGMA) Consortium All-Hands Meeting at SOBP 2019. Clinical Working Group Updates pt II & Methods Used Across Working Groups. Chicago IL. 2019
  10. Vertex-based analysis methods. The Enhancing Neuro Imaging Genetics Through Meta Analysis (ENIGMA) Consortium All-Hands Chairs Meeting. Rome Italy. 2019
  11. Machine learning using Vertex-Based Data. The Enhancing Neuro Imaging Genetics Through Meta Analysis (ENIGMA) Consortium All-Hands Chairs Meeting. Virtual Meeting. 2020
  12. ENIGMA Brain Injury Group Brain Structural Analyses. Enhancing Neuro Imaging Genetics Through Meta Analysis (ENIGMA) – Military Brain Injury Subgroup Teleconference, 2021.

### **CONSULTING ACTIVITIES:**

1. The U-M Center for Computational Medicine and Bioinformatics (CCMB) Pilot Award, University of Michigan; Testing Models of Risk for PTSD: Gene x Environment Interaction in Emotional Neurocircuitry. PI: Anthony King PhD, Psychiatry, UM; Role: Consultant, 2008 - 2010.
2. National Center on Minority Health and Health Disparities 1RC2MD004767; Childhood Poverty and Brain Development: the Role of Chronic Stress and Parenting. PIs: Gray W. Evans PhD (Cornell University), Israel Liberzon MD and James Swain MD PhD (University of Michigan); Role: Consultant, 2009 - 2011.
3. DOD W81XWH-BAA10-1 Randomized controlled trial of sertraline, prolonged exposure therapy and their combination in OEF/OIF with PTSD” PI: Sheila Rauch, Emory University, Role: Consultant, 2017 – Present.
4. University of Michigan; Emotional Regulation and Fear Conditioning in Mild Traumatic Brain Injury. PI: Israel Liberzon MD; Psychiatry, UM; Role: Consultant, 9/2012 – 8/2018.
5. Neuroimaging research development. University of Texas A&M University, Department of Psychiatry. Chair Israel Liberzon. 2018-present

### **MAJOR RESEARCH INTERESTS:**

1. Development of post-traumatic psychiatric and neurological disorders, particularly PTSD and pain
2. Application of neuroplasticity concept to study the mechanisms of psychiatric and neurological disorders
3. Using functional and structural neuroimaging techniques to study human brain abnormalities underlying post-traumatic disorders and neurological disorders
4. The links between pre-traumatic factors (e.g., risky genotypes) and development of post-traumatic disorders
5. Application of functional neuroimaging techniques to study human brain responses to stress conditions.

6. Rapid functional and structural plastic changes in animal central nervous system after peripheral denervation.
7. Machine learning approaches to study relationships between MRI related brain and symptoms changes

### **PAST RESEARCH SUPPORT, TRAINING GRANTS:**

1. MRI of human cortex after limb loss 2008-2009.  
 Grantor: Translational Research Stimulation Award (TRSA), University of Toledo,  
 PI: John T. Wall, Department of Neuroscience, University of Toledo  
 Role: Co-Investigator
2. Research Fellowship of Ohio Army National Guard Mental Health Initiative - Risk and Resilience Factors for Combat-Related Posttraumatic Psychopathology and Post-Combat Adjustment, 2007-2009.  
 Grantor: Department of Defense Congressionally-Directed Medical Research  
 Program: W81XHW-07-1-0409  
 PIs: Joseph Calabrese, Department of Psychiatry, Case West Reserve University  
 Marijo Tamburrino, Department of Psychiatry, University of Toledo  
 Role: Postdoctoral Fellow
3. The neural activity underlying persistent fear responding in Post Traumatic Stress Disorder, 2010-2011.  
 Grantor: Michigan Institute for Clinical and Health Research (MICH-R) Pilot Grant of University of Michigan, UL1RR024986  
 PI: Sarah N. Garfinkel, Department of Psychiatry, University of Michigan  
 Role: Co-Principal Investigator
4. Response of neurotrophic factors and cerebral imaging to current exercise recommendations, 2011-2013.  
 Grantor: Interdisciplinary Research Initiation Award  
 PIs: Barry W. Scheuermann, Department of Kinesiology, University of Toledo  
 David L. Weldy, Department of Family Medicine, University of Toledo  
 Role: Co-Investigator
5. A preliminary neuroimaging study of the development of PTSD following a motor vehicle accident, 2011-2015.  
 Grantor: Translational Research Stimulation Award (TRSA), Grant NO: N-122930-01, ProMedica Health System  
 Role: PI
6. Longitudinal MRI study of PTSD development from days to weeks after trauma, 2013-2016  
 Grantor: NIMH: 1 R21 MH098198  
 Role: PI
7. Neuroimaging and Genetic Investigation of Resilience and Vulnerability to PTSD, 2013-2016  
 Grantor: Translational Research Stimulation Award (TRSA),  
 ProMedica Health System  
 PI: Marijo Tamburrino, Department of Psychiatry, University of Toledo  
 Role: Co-Investigator
8. The impact of managers' supervisory style on the relation between debt covenants and earnings management: a neuroscience imaging approach, 2014-2016  
 Grantor: The United Arab of Emirates University  
 PIs: Hassan HassabElnaby, Haitham Elsamaloty, and Xin Wang
9. Concussions, Cognition and Collegiate Athletics. 2016-2017  
 Grantor: Bowling Green State University



- PI: Howard Casey Cromwell  
 Role: UT Site-Principal Investigator
10. Pathophysiological mechanisms and functional consequences of early cortical thickness changes after mTBI, 2016  
 Grantor: UT Foundation Dick Bostleman Memorial Endowment Fund  
 Role: PI
  11. Study of early brain alterations that predict development of chronic PTSD  
 Grantor: NIMH, 1R01MH110483 2016 – 2021  
 Role: PI
  12. Diversity Supplement. 2018-2020  
 Grantor: NIH 3R01MH110483 - 03W1  
 Role: PI, Mentor
  13. Administrative Supplements COVID costs. 2021–2023  
 Grantor: NIH 3R01MH110483-05S1  
 Role: PI
  14. Neurobehavioral Moderators of Post-traumatic Disease Trajectories: Prospective MRI Study of Recent Trauma Survivors, 2014-2019.  
 Grantor: NIMH, R01MH103287  
 PI: Arie Shalev, Department of Psychiatry, New York University  
 Role: Co-investigator, UT Site-Principal Investigator
  15. CO<sub>2</sub> inhalation enhances the lability of fear memory. 2018-2022  
 Grantor: NIMH, R01MH113986  
 PI: Jianyang Du  
 Role: Co-Investigator

### **CURRENT RESEARCH SUPPORT:**

1. Using pre-pandemic baseline data in people with and without PTSD to study effects of the COVID-19 pandemic on mental health and brain emotion circuits  
 Grantor: R21MH126172-01A1 03/2022 – 02/2025 (NCE)  
 Multi-PI: Hong Xie, Xin Wang  
*This study examines the COVID-19 pandemic effects on the research participants of pre-pandemic studies by comparing the data collect before and during the pandemic.*
2. A large sample machine learning network analysis of vertex cortical thickness measures for high resolution definition of PTSD related cortical structure abnormalities.  
 Grantor: R21MH125277 01/2022 – 12/2024 (NCE)  
 PI: Xin Wang  
*This study is to develop a novel integrated analysis to identify regional and global abnormalities of brain cortical thickness in PTSD patients using a large dataset of more than ten thousand subjects in a global consortium.*
3. Community Project Funding/Congressionally Directed Spending (CPF/CDS)  
 Grantor: U. S. Department of Health and Human Services 1 CE1HS52617-01-00  
 PI: Xin Wang 9/2023-9/2026  
*This grant supports the advances in the MRI research capability at UToledo.*

#### 4. State of Ohio Adversity and Resilience (SOAR) Study

Grantor: Ohio State University Subaward

1/2024 – 6/2025

UToledo Site PI: Xin Wang

### **PUBLICATIONS**

#### **Articles published in peer-reviewed journals**

1. **Wang X**, Wang G. Application of propofol anesthesia in the operation of renal insufficiency patients. *Journal of Anesthesia and Relative Clinical Medicine*. 4(1):27-8 (Chinese); 1996.
2. Wang G, Xie H, **Wang X**, Yu Y. Reptilase enhances coagulation during anesthesia. *Chinese Pharmacy*. 8 (supplement):144-5 (Chinese); 1997.
3. Wall JT, Xu J, **Wang X**. Human brain plasticity: an emerging view of the multiple substrates and mechanisms that cause cortical changes and related sensory dysfunctions after injuries of sensory inputs from the body. *Brain Research Reviews*. 39(2-3):181-215; 2002.
4. Xie H, **Wang X**, Liu G, Wang GL. Analgesic effects and pharmacokinetics of a low dose of ketamine preoperatively administered epidurally or intravenously. *Clinical Journal of Pain*. 19(5):317-22; 2003.
5. **Wang X**, Wall JT. Cortical influences on sizes and rapid plasticity of tactile receptive fields in the dorsal column nuclei. *Journal of Comparative Neurology*. 489(2):241-8; 2005.
6. **Wang X**, Wall JT. Cortical influences on rapid brainstem plasticity. *Brain Research*. 1095:73-84; 2006.
7. **Wang X**, Xie H, Wang GL. Improved postoperative analgesia with coadministration of preoperative epidural ketamine and midazolam. *Journal of Clinical Anesthesia*. 18(8):563-9; 2006.
8. Xie H, Dong ZQ, Ma F, Bauer WR, **Wang X**, Wu GC. Involvement of serotonin 2A receptors in the analgesic effect of tramadol in mono-arthritic rats. *Brain Research*. 1210:76-83; 2008.
9. Geha PY, Baliki MN, **Wang X**, Harden RN, Paice JA, Apkarian AV. Brain dynamics for perception of tactile allodynia (touch-induced pain) in postherpetic neuralgia. *Pain*. 138(3):641-56; 2008.
10. **Wang X**, Bauer W, Chiaia N, Dennis M, Gerken M, Hummel J, Kane J, Kenmuir C, Khuder S, Lane R, Mooney R, Bazeley P, Apkarian V, Wall J. Longitudinal MRI evaluations of human global cortical thickness over minutes to weeks. *Neuroscience Letters*. 441(2):145-8; 2008.
11. **Wang X**, Gerken M, Dennis M, Mooney R, Kane J, Khuder S, Xie H, Bauer WR, Apkarian AV, Wall JT. Profiles of precentral and postcentral cortical mean thicknesses in individual subjects over acute and subacute time-scales. *Cerebral Cortex*. 20(7):1513-22; 2010.
12. **Wang X**, Garfinkel SN, King AP, Angstadt M, Dennis MJ, Xie H, Welsh RC, Tamburrino MB, Liberzon I. A multiple-plane approach to measure the structural properties of functionally active regions in the human cortex. *Neuroimage*. 49(4):3075-85; 2010.
13. Kim P, Leckman JF, Mayes LC, Feldman R, **Wang X**, James E. Swain. The plasticity of human maternal brain: longitudinal changes in brain anatomy during the early postpartum period. *Behavioral Neuroscience*. 124(5):695-700; 2010.

14. Sripada RK, King AP, Garfinkel SN, **Wang X**, Sripada C, Welsh RC, Liberzon I. Altered resting-state amygdala functional connectivity in PTSD. *Journal of Psychiatry Neuroscience* 37(4):241-9; 2012.
15. Sripada RK, King AP, Welsh RC, Garfinkel SN, **Wang X**, Sripada CS, Liberzon I. Neural dysregulation in posttraumatic stress disorder: evidence for disrupted equilibrium between salience and default mode brain networks. *Psychosomatic Medicine* 74(9):904-11; 2012.
16. Xie, H, Kane, J, Dennis, MJ, Mooney R, Bauer WR, **Wang X**, Wall JT. Case series evidence for changed interhemispheric relationships in cortical structure in some amputees. *Journal of Clinical Neuroscience*. 20(4):523-6; 2013.
17. Lubomirsky B, **Wang X**, Xie H, Smirnoff JB, Biehn TL, Contractor AA, Elhai JD, Sutu C, Brickman KR, Liberzon I, McLean SA, Tamburrino MB. Preliminary study on the relationship between visitation in the emergency department and post-traumatic mental health. *Social Work in Mental Health*. 12(1): 69-80; 2014.
18. Garfinkel SN, Abelson J, King AP, Sripada RK, **Wang X**, Gaines L, and Liberzon I. Impaired contextual modulation of memories in PTSD: An fMRI and psychophysiological study of extinction retention and fear renewal. *Journal of Neurosciences*: 34(40):13435-13443; 2014.
19. Contractor AA, Armour C, **Wang X**, Forbes D, and Elhai JD. The mediating role of anger in the relationship between PTSD symptoms and impulsivity. *Psychological Trauma: Theory, Research, Practice, and Policy*. Mar;7(2):138-45; 2015.
20. Xu J, Kober H, **Wang X**, DeVito EE, Carroll KM, Potenza MN. Hippocampal volume mediates the relationship between measures of pretreatment cocaine use and within-treatment cocaine abstinence. *Drug and Alcohol Dependence*. Oct 1;143:74-80; 2014.
21. **Wang X**, Xie H, Cotton AS, Tamburrino MB, Brickman KR, Lewis TL, McLean SA, Liberzon I. Early cortical thickness changes after mild traumatic brain injury following motor vehicle collision. *Journal of Neurotrauma*. Apr 1;32(7):455-63. PMID: PMC4376285; 2015.
22. Evans GW, Swain JE, King AP, **Wang X**, Javanbakht A, Ho SS, Angstadt M, Phan KL, Xie H, Liberzon I. Childhood Cumulative Risk Exposure and Adult Amygdala Volume and Function. *J Neurosci Res*. Jun;94(6):535-43. doi: 10.1002/jnr.23681; 2016.
23. **Wang X**, Xie H, Cotton AS, Duval ER, Tamburrino MB, Brickman KR, Elhai JD, Ho S, McLean SA, Ferguson EJ, Liberzon I. Preliminary study of acute changes in emotion processing in survivors with PTSD symptoms. *POLS ONE*, Jul 14;11(7): e0159065; 2016.
24. **Wang X**, Xie H, Cotton AS, Brickman KR, Lewis TL, Wall JT, Tamburrino MB, Bauer WR, Law K, McLean SA, Liberzon I. Early changes in emotion processing after mild traumatic brain injury following motor vehicle collision. *Journal of Neurotrauma*. Jan 15;34(2):273-280; 2017.
25. Byllesby BM, Charak R, Durham TA, **Wang X**, Elhai JD. The Underlying Role of Negative Affect in the Association Between PTSD, Major Depressive Disorder, and Generalized Anxiety Disorder. *Journal of Psychopathology and Behavioral Assessment*.38:655-665; 2017.
26. Logue MW, ..., **Wang X (32<sup>nd</sup>)**, ..., Thompson PM, Morey RA (54 coauthors). Smaller hippocampal and amygdala volume in posttraumatic stress disorder: a multi-site ENIGMA-PGC study. *Biological Psychiatry*. 83(3):244-253; 2018.
27. Wall JT, Xie H, **Wang X**. An Exploration Into Short-Interval Maintenance of Adult Hemispheric Cortical Thickness at an Individual Brain Level. *Journal of Experimental*

- Neuroscience. 11: 1–14; DOI: 10.1177/1179069517733453; 2017.
28. Xie H, Claycomb Erwin M, Elhai JD, Wall JT, Tamburrino MB, Brickman KR, Kaminski B, McLean SA, Liberzon I, **Wang X**. Relationship of hippocampal volumes and posttraumatic stress disorder symptoms over early post-trauma periods. *Biol Psychiatry Cogn Neurosci Neuroimaging*. 2018 Nov;3(11):968-975. PMCID: PMC6233727.
  29. Xie H, Wall JT, **Wang X**. Relationships in ongoing structural maintenances of the two cerebral cortices of an individual brain. *Journal of Experimental Neuroscience*. 12: 1-11, 2018.
  30. Forbes CN, Tull MT, Xie H, Christ NM, Brickman K, Mattin M, and **Wang X**. Emotional avoidance and social support interact to predict depression symptom severity one year after traumatic exposure. *Psychiatry Research*. 284, 112746. doi:10.1016/j.psychres.2020.112746; 2020
  31. Christ NM, Contractor AA, **Wang X**, and Elhai JD. The mediating effect of rumination between posttraumatic stress disorder symptoms and anger reactions. *Psychol Trauma* 12(6): 619-626; 2020
  32. Forbes C, Tull M, Rapport D, Xie H, Kaminski B, and **Wang X**. Emotion Dysregulation Prospectively Predicts PTSD Symptom Severity 3-Months After Traumatic Exposure. *Journal of Traumatic Stress*. 33(6), 1007-1016. doi:10.1002/jts.22551, 2020
  33. O'Leary B, Shih CH, Chen T, Xie H, Cotton AS, Xu K, Morey R, **Wang X**, and ENIGMA-PGC PTSD Workgroup. Classification of PTSD and Non-PTSD Using Cortical Structural Measures in Machine Learning Analyses—Preliminary Study of ENIGMA-Psychiatric Genomics Consortium PTSD Workgroup. In: Mahmud M., Vassanelli S., Kaiser M.S., Zhong N. (eds) *Brain Informatics*. BI 2020. Lecture Notes in Computer Science, vol 12241. Springer, Cham. [https://doi.org/10.1007/978-3-030-59277-6\\_11](https://doi.org/10.1007/978-3-030-59277-6_11); 2020
  34. Xie H, Wall JT, **Wang X**. Interaction of sleep and cortical structural maintenance from an individual person microlongitudinal perspective and implications for precision medicine research. *Frontiers Neuroscience*. DOI: 10.3389/fnins.2020.00769; 2020
  35. Shih C-H, Talla P R, Elhai JD, Mathews J, Brickman KR, Redfern RE, Xie H, and **Wang X**. Preliminary study examining the mediational link between mild traumatic brain injury, acute stress, and post-traumatic stress symptoms following trauma. *European Journal of Psychotramatology*. 11(1), 1815279. doi:10.1080/20008198.2020.1815279.; 2020
  36. **Wang X**, ..., Thompson PM, Morey RA, and Liberzon I (108 coauthors). Cortical volume abnormalities in posttraumatic stress disorder: An ENIGMA-Psychiatric Genomics Consortium PTSD work group mega-analysis. *Molecular Psychiatry*. doi:10.1038/s41380-020-00967-1; 2020
  37. Tate DF, ..., **Wang X (37<sup>th</sup>)**, Thompson PM, Wilde EA (43 coauthors). Coordinating Global Multi-Site Studies of Military-Relevant Traumatic Brain Injury: Opportunities, Challenges, and Harmonization Guidelines. *Brain imaging and behavior* doi:10.1007/s11682-020-00423-2; 2021
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56. Brickman KR, Blair AB, Tamburrino MB, Dzurik AD, Xie H, Smirnoff JB, **Wang X**. Quantitative Minor Injury Scale: pilot study of a scale to measure level of minor injury after motor vehicle collisions. Translation. *The University of Toledo Journal of Medical Sciences*. 1: 13–16; 2014.
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1. **Wang X**. Transfusion treatment of burns. In: Li. W, editor. *Transfusion Treatment*. Beijing, China: Chinese Medical Science Press. p232-40, (in Chinese); 1999.
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## **Abstracts and Presentations**

### **Oral Presentation**

1. Brickman KR, Blair AB, Tamburrino, Dzurik AD, Xie H, Smirnoff JB, **Wang X**. The Quantitative Minor Injury Scale: Pilot Study of a Scale to Measure Level of Minor Injury after Motor Vehicle Collisions. 16th Annual SAEM MidAtlantic Regional Research Forum. Georgetown University School of Medicine, Washington DC. Program No. 1136 2013. Presented by Blair AB and Dzurik AD.
2. Combining Acute Stress Symptoms and Hippocampal Volume in Machine Learning Prediction of PTSD. International Society for Traumatic Stress Studies (ISTSS) 32nd Annual Meeting. Abstract #133, Neuroimaging One Paper Session. Dallas, TX, 2016. Presented by **Xin Wang**.
3. Early Brain, Symptom, and Social Factors Associated with PTSD Development after Motor Vehicle Collision. International Society for Traumatic Stress Studies (ISTSS) 33rd Annual Meeting. Abstract #683, Symposium General Overview #97, Neural Circuits of Affect Regulation in PTSD: Symptom and Subtype Differentiation and Longitudinal Prediction of Risk. Chicago IL, 2017. Presented by **Xin Wang**.

### **Poster Presentations (Last 3 Years)** selected from total 84 presentations

1. Barbano AC, Tull MT, Christ N, Xie H, Kaminski B, and **Wang X**. Fear of Pain as a Predictor of Concurrent and Downstream PTSD Symptoms. 54th Annual Association for Behavioral and Cognitive Therapies (ABCT) conference. Philadelphia, PA. November 2020.
2. Christ N., Chen J., Shih C., Xie H., **Wang X.**, and Elhai J. The mediating role of dispositional optimism between childhood maltreatment and PTSD in an adult trauma-exposed sample. International Society for Traumatic Stress Studies (ISTSS) 35rd Annual Meeting. November 2020.
3. Raevskaya OY, Cotton AS, Mathew J, Boddapati R, Grau A, Gibson E, Grider S, Lewis T, Xie H, and **Wang X**. Sub-acute differences in right inferior frontal gyrus activation following a mild traumatic brain injury and correlations with sleep quality. 2021-S-2490-SfN, SfN Global Connectome, January 11-13, 2021.
4. Xie H, Shih C-H, Lughmani MB, Chaudhry HA, Mattin M, Naimy G, Rooney E, Wall JT, and **Wang X**. Thalamus volume in early weeks after adulthood trauma related to adverse childhood experiences and PTSD symptom development. The Society of Biological Psychiatry's 76th annual meeting. 2021
5. Xie H, Gao W, Wall JT, Patel PG, Grau A, Shih C-H, Brickman KR, Mccullumsmith R, Kirschbaum C, **Wang X**. Early post-trauma lateral orbitofrontal gyrus volume associated with hyperarousal symptoms and pre-trauma hair cortisol concentration. The Society of Biological Psychiatry's 76th annual meeting. 2021
6. Shih C-H, O'Leary E, Xu K, Xie H, Chen T, & **Wang X**. Predicting Posttraumatic Stress Disorder with Early Multimodal Information: A Machine Learning Study. International Society for Traumatic Stress Studies Annual Meeting, Virtual Meeting. 2021
7. Grau A, Xie H, Redfern R, Mohamad M, **Wang X**, & Shih C-H. Trauma-specific Opioids Effects on Posttraumatic Stress Symptoms in Early Aftermath of Trauma Exposure: A Preliminary Investigation. International Society for Traumatic Stress Studies Annual Meeting, Virtual Meeting. 2021
8. Rooney E, Hallauer C, Xie H, Shih C-H, Elhai J, & **Wang X**. Longitudinal PTSD Symptom Trajectories: Relative Contributions of State Anxiety, Depression, and Trauma Type. International Society for Traumatic Stress Studies Annual Meeting, Virtual Meeting. November, 2021.

9. Forbes CN, Tull MT, Cotton AS, Shih C-H, Grau AS & **Wang X**. Bilateral Caudate Activation During Effort-Based Decision-Making Predicts 3-Month MDD Status in a Recently Traumatized Sample. Association for Behavioral and Cognitive Therapies Annual Conference, New Orleans, LA. November, 2021.
10. Lughmani MB, Shih C-H, Kaminski B, Elsamaloty H, **Wang X**, Xie H. Lifetime trauma exposure related thicker cortical thickness in focal mOFC is associated with PTSD and depression symptoms after acute trauma. The Society of Biological Psychiatry's 77th annual meeting. New Orleans, LA. 2022.
11. Liu DS, Cotton A, Shih C-H, Evans JM, Xie H, Grider S, Redfern R, Elhai J, & **Wang X**. Early post-trauma brain emotion activation correlates with posttraumatic growth at one-year follow-up. Anxiety & Depression Association of America Annual Meeting, Denver, CO. March, 2022
12. Zhou A, Mohamed N, Aftab F, Xie H, **Wang X**, & Shih, C.-H. Early Post-Trauma Brain Activation during Fear Conditioning Task is Indicative of Posttraumatic Stress Disorder Development: A Preliminary Report. 38th International Society for Traumatic Stress Studies Annual Meeting, Atlanta, GA. 2022, November
13. Lughmani M, Shih C-H, Lewis T, **Wang X**, & Xie H. . Relationship of cortical thickness changes and PTSD symptom progression over 12 months after trauma. 38th International Society for Traumatic Stress Studies Annual Meeting, Atlanta, GA. November 2022
14. Shih C-H, Elhai JD, Grider SR, Xie H, & **Wang X**. A Latent Profile Analysis of Early Self-reported Posttraumatic Stress Symptoms After Trauma Exposure, and Associations with 3-month PTSD Diagnosis. 38th International Society for Traumatic Stress Studies Annual Meeting, Atlanta, GA. November, 2022
15. Antara Nigam, Adrian Zhou, Chia-Hao Shih, Hong Xie, Mark A. Buehler, and **Xin Wang**. Changes in implicit processing and modulation of fearful faces are associated with posttraumatic stress symptoms changes over a year after trauma. The Society of Biological Psychiatry's 78th annual meeting. San Diego, CA. 2023.
16. Atheer Amer, Chia-Hao Shih, Wei Gao, **Xin Wang**, and Hong Xie. Pre-Trauma Hair N-Arachidonylethanolamine Concentration Moderates the Association of Hippocampal Body Volume with Post-Trauma Stress Symptoms in Acute Trauma Survivors. The Society of Biological Psychiatry's 78th annual meeting. San Diego, CA. 2023.
17. Neejad Chidiac, Claire Popovich, Aaron S. Grau, Chiahao Shih, Adrian Zhou, **Xin Wang**, and Hong Xie. A longitudinal case-control analysis of changes in brain activation of fear associated learning from a baseline before COVID-19 Pandemic. The Society of Biological Psychiatry's 78th annual meeting. San Diego, CA. 2023.
18. Chia-Hao Shih, Adrian Zhou, Sulaiman Aldoohan, Hong Xie, **Xin Wang**. Post-Trauma Changes in Fear Associated Learning Function During Posttraumatic Stress Disorder Development. The Society of Biological Psychiatry's 78th annual meeting. San Diego, CA. 2023.
19. Hong Xie, Chia-Hao Shih, Sulaiman D. Aldoohan, John T. Wall, **Xin Wang**. Hypothalamus volume mediates the association between adverse childhood experience and PTSD development after adulthood trauma. The Society of Biological Psychiatry's 78th annual meeting. San Diego, CA. 2023.