# **CURRICULUM VITAE**

#### **Personal data**

Name: Ana Solodkin

Present Address: Behavioral and Brain Sciences

**UT** Dallas

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Place of Birth: Mexico City, Mexico

Languages: Spanish, English, French, Italian

Citizenship: US Citizen

## **Education**

1978	B.Sc. Psychophysiology. Anahuac University, Mexico.
1982	M.Sc. Physiology and Biophysics. Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico.
1991	Ph.D. Physiology and Biophysics. Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico.

# **Employment and Teaching Experience**

1978	Lecturer in Physiology of emotion and motivation, Anahuac University, Mexico.
1978-1980 1978-1980 1979-1982 1981 1981-1982	Instructor in Neuroanatomy lab, Anahuac University, Mexico. Lecturer in Neuroanatomy, Anahuac University, Mexico. Master's Degree Fellowship, CONACyT, Mexico. Lecturer of Memory Physiology. Anahuac University, Mexico. Teaching assistant in "Reflex organization of the spinal cord", Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico.
1981-1985	Instructor of Neurophysiology, Anahuac University, Mexico.
1982-1985	Neurophysiology division coordinator, Anahuac University, Mexico.
1986	Teaching assistant in "intra and intercellular communication", Center
	for Research and Advanced Studies of the National Polytechnic
	Institute, Mexico
1986-1987	Pre doctoral fellowship, CONACyT, Mexico.
1987-1990	Guest Researcher, NAB, NIDR, NIH, Bethesda, MD.
1987-1990	Ph.D. candidate, Center for Research and Advanced Studies
	of the National Polytechnic Institute, Mexico
1988-1990	Part-time employee, Pain Clinic, Neurobiology and Anesthesiology Branch, National Institute of Dental Research, NIH, Bethesda, MD.
1988-1990	Graduate training grant, Organization of American States and Searle Co.
1990-1996	Postdoctoral Associate, Department of Anatomy, The University of Iowa, Advisor: Dr. G.W. Van Hoesen.
1990-1996	Division of Cognitive Neuroscience, Department of Neurology,
1000 1000	Neuroanatomy Division, Director: Dr. A.R. Damasio.
1991-1996	Teaching assistant of Medical Neuroscience Anatomy Lab,
	University of Iowa.
1992-1996	Lecturer in the Medical Neuroscience course, The University of Iowa.
1996-1997	Research Associate. Department of Anatomy and Neurobiology. The
1007 1000	University of Maryland, Baltimore
1997-1999	Medical Neuroscience Instructor
1998-1999	DANA 612. Human Neuroanatomy for graduate students Instructor
1999-2000	NACS 651. The Neuroscience of Cognition Instructor

1997-1999	Assistant Professor. Department of Neurology. University of
	Maryland, Baltimore.
1999-2010	Research Associate (Assistant Professor). Department of
	Neurology. The University of Chicago
2004-	Lecturer. Summer course Computational Neuroscience. University
	of Chicago.
	Lecturer. Limbic Anatomy. Psychiatry Residents. University of
	Chicago.
2010	Associate Professor. Department of Neurology. The University of
	Chicago.
2011	Associate Professor. Departments of Anatomy-Neurobiology and
	Neurology. University of California, Irvine School of Medicine.
2011	Lecturer: Medical Neuroscience. UC Irvine School of Medicine.
2013	Director: Medical Neuroscience. UC Irvine School of Medicine.
2017	Professor. Departments of Anatomy-Neurobiology and Neurology,
	UC Irvine Health School of Medicine.
2019	Professor. Behavioral and Brain Sciences. UT Dallas

# **Membership in Professional Organizations**

Sociedad Mexicana de Ciencias Fisologicas Society for Neuroscience International Brain Research Organization American Association for the Advancement of Science Organization for Human Brain Mapping

# **Honors and Other Scientific Recognition**

1978	Summa Cum Laude, B.Sc. Anahuac University, Mexico.
1979	Master's Degree Fellowship, CONACyT, Mexico.
1983	Special recognition for the best neurophysiology teaching lab practices. Sociedad Mexicana de Ciencias Fisiologicas, Mexico.
1988	Graduate training grant: Organization of American States.
1988	Graduate training grant: Searle Company.
2013	Distinguished Faculty Mentor Award, Institute for Clinical and Translational Sciences (ICTS), University of California, Irvine.
2014	Excellence in Teaching Award, UC Irvine School of Medicine.
2014	MVP Outstanding Service Award, Office of Educational Affairs, UC Irvine School of Medicine.
2014	Medalla Liderazgo (Leadership Medal), Anahuac, 50th year commemoration, Universidad Anahuac, Mexico.
2014	Theodore Von Karman Fellow, RWHT Aachen University, Germany.
2015	Member, Academy for Innovation in Medical Education (AIME), UC Irvine School of Medicine.

# **Scientific Reviewing**

1993-	Neuroscience Letters
1994-	Journal of Neuropathology and Experimental Neurology
1998-	Journal of Neurochemistry and Cytochemistry
1999	The Wellcome Trust
2000-	Annals of Neurology
2001-	Journal of Geriatric Psychiatry and Neurology
	Journal of Neuroscience
	Cerebral Cortex
2005-	Neurolmage
	Human Brain Mapping
	Brain and Language
	Journal of Clinical Neurophysiology
	IEEE EMBS

	Neuroscience and Biobehavioral Reviews
	Brain
	Neuroscience
2009-	Experimental Brain Research
	Brain Research
	Neurorehabilitation and Neural Repair
2010-	Neurology
2011	Neurotechnology (NT) Study Section: Emerging Technologies and Training in Neurosciences (ETTN) (ad hoc)
2013	Neuroscience and Ophthalmic Imaging Technologies (NOIT) Study Section (ad hoc)
2015-	eNeuro
2018	Belgium's Alzheimer's Research Foundation

#### **UCI Service**

Council on Education Policy (CEP) Committee (since October 2012); Vice-Chair (since October 2017-2019).

Department representative Senate Academy (September 2012-2014).

Medical Neuroscience Director (since August 2013-2019).

SOM Admissions Committee (since May 2014-2019).

Ad Hoc Legal Counsel Committee (1 year: 2016-2017).

Liaison Committee on Medical Education (LCME) Task Force (2015-2016).

#### **UT Dallas Service**

#### V. Professional service activities for 2020:

#### a. School committees

Department of Neuroscience PhD admissions committee Summer 2020-present

# b. University committees

International Oversite Committee (IOC). Summer 2020 – present UTD Committee on academic integrity October 2021- present

Promotion committee member on behalf of Greg Drussor PhD

Chair midprobationary review on behalf of Catherine Thorn PhD

## Bibliography

- a) Peer-reviewed Papers
- Cardona A. and Rudomin, P. (1983) Activation of brain-stem serotoninergic pathways decrease homosynaptic depression of monosynaptic responses of frog spinal motoneurons. Brain Res. 280:373-78.

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- Solodkin, M., Cardona, A., and Corsi-Cabrera, M. (1985) Paradoxical sleep augmentation after imprinting in the domestic chick. Physiol. Behav. 35:343-48. PMID: 4070406
- Traub, R.J., Solodkin, A. and Ruda, M.A. (1989) Calcitonin gene-related peptide immunoreactivity in the cat lumbosacral spinal cord and the effects of multiple dorsal rhizotomies. J. Comp. Neurol. 287: 225-37.

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- Noguchi, K., Kowalski, K., Traub, R.J., Solodkin, A., Iadarola, M.J. and Ruda, M.A. (1991) Dynorphin expression and Fos-like immunoreactivity following inflammation induced hyperalgesia are colocalized in spinal cord neurons. Mol. Brain Res. 10:227-33.

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- Van Hoesen G.W. and Solodkin A. (1993) Some modular features of temporal cortex in humans as revealed by pathological changes in Alzheimer's disease. Cerebral Cortex 3:465-75.

- http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt =Citation&list\_uids=7505138
- Traub, R.J., Solodkin, A. and Gebhart, G.F. (1994) NADPH-diaphorase histochemistry provides evidence for a bilateral, somatotopically inappropriate response to unilateral hindpaw inflammation in the rat. Brain Res. 647:113-23 http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt =Citation&list\_uids=8069693
- Van Hoesen G.W. and Solodkin A. (1994) Cellular and systems neuroanatomical changes in Alzheimer's disease. In: Calcium hypothesis of aging and dementia. Disterhoft J.F. and Khachaturian Z.S. (eds). Proc NY Acad Sci (USA) 747:12-35. http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list\_uids=7847666
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- Lidow MS and Solodkin A (1997) Use of the cyclone Storage Phosphor System for rapid development of a receptor autoradiographic assay. Tools and Techniques, 22: pp4.
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Analysis of longitudinal diffusion-weighted images in healthy and pathological aging: An ADNI study. J Neurosci Methods 278:101-115.

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Riley JD, Chen EE, Winsell J, Davis EP, Glynn LM, Baram TZ, Sandman CA, Small SL, Solodkin A. (2018). Network specialization during adolescence: Hippocampal effective connectivity in boys and girls. Neuroimage. 175: 402-412.

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Zimmermann J, Perry A, Breakspear M, Schirner M, Sachdev P, Wen W, Kochan NA, Mapstone M, Ritter P, McIntosh AR, Solodkin A. (2018). Differentiation of Alzheimer's disease based on local and global parameters in personalized Virtual Brain models. Neuroimage Clinical. 19: 240-251.

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Kruggel F, Solodkin A. (2019) Determinants of structural segregation and patterning in the human cortex. Neuroimage. 196:248-60.

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Stefanovski L, Triebkorn P, Spiegler A, Diaz-Cortes MA, Solodkin A, Jirsa V, et al. (2019) Linking Molecular Pathways and Large-Scale Computational Modeling to Assess Candidate Disease Mechanisms and Pharmacodynamics in Alzheimer's Disease. Frontiers in computational neuroscience. 13:54.

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- Editorial: Brian Modeling of Neurodegenerative Disorders. Gulín-González J, Bringas-Vega ML, Martínez-Montes E, Ritter P, Solodkin A, Valdes-Sosa MJ, Valdes-Sosa PA.Front Neuroinform. 2022 May 26;16:937790. doi: 10.3389/fninf.2022.937790. eCollection 2022. PMID: 35712675.
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- Bridging scales in Alzheimer's disease: Biological framework for brain simulation with The Virtual Brain. Stefanovski L, Meier JM, Pai RK, Triebkorn P, Lett T, Martin L, Bülau K, Hofmann-Apitius M, Solodkin A, McIntosh AR, Ritter P.Front Neuroinform. 2021 Apr 1;15:630172. doi: 10.3389/fninf.2021.630172. eCollection 2021. PMID: 33867964
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- Arbabyazd L, Petkoski S, Breakspear M, Solodkin A, Battaglia D, Jirsa V. State-switching and high-order spatiotemporal organization of dynamic functionalconnectivity are disrupted by Alzheimer's disease. Netw Neurosci. 2023 Dec 22;7(4):1420-1451. doi: 10.1162/netn\_a\_00332. PMID: 38144688; PMCID: PMC10727776.
- Kruggel F, Solodkin A. Analyzing the cortical fine structure as revealed by ex-vivo anatomical MRI. J Comp Neurol. 2023 Dec;531(18):2146-2161. doi: 10.1002/cne.25532. Epub 2023 Jul 31. PMID: 37522626.
- Obenaus A, Kinney-Lang E, Jullienne A, Haddad E, Wendel KM, Shereen AD, Solodkin A, Dunn JF, Baram TZ. Seeking the Amygdala: Novel Use of Diffusion Tensor Imaging to Delineate the Basolateral Amygdala. Biomedicines. 2023 Feb 13;11(2):535. doi: 10.3390/biomedicines11020535. PMID: 36831071; PMCID:PMC9953214.
- Sharma K, Deco G, Solodkin A. The localization of coma. Cogn Neuropsychol. 2024 Oct 29:1-20. doi: 10.1080/02643294.2024.2420406. Epub ahead of print. PMID: 39471280.
- Arbabyazd L, Petkoski S, Breakspear M, Solodkin A, Battaglia D, Jirsa V. State-switching and high-order spatiotemporal organization of dynamic functional connectivity are disrupted by Alzheimer's disease. Netw Neurosci. 2023 Dec22;7(4):1420-1451. doi: 10.1162/netn\_a\_00332. PMID: 38144688; PMCID: PMC10727776.

## b) Non-peer reviewed papers

- Van Hoesen G.W., Solodkin A. and Hyman B.T. (1995) Neuroanatomy of Alzheimer's disease: Hierarchical vulnerability and Neural Systems compromise. Neurobiol. Aging 16(3): 278-80.
- Small SL and Solodkin A (2001) What can Neurobiology tell us about the rehabilitation of Golfers with Central Nervous System disease? In J. Milton (Ed.), *Golf Neurology Course*, Philadelphia, PA: American Academy of Neurology.

- Hlustik P, Solodkin A and Small SL (2003). Organization of human motor and somatosensory areas in the control of movement [Review]Èeská a Slovenská Neurologie a Neurochirurgie; 66/69(2): 87-94.
- Milton, JG, Small, SL, Solodkin, A, (2004). Guest editorial. Journal of Clinical Neurophysiology 21, 133.

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt =Citation&list\_uids=15375343

Solodkin, A., Buccino, G., Small, S.L., 2006. The neurobiology of hand motor recovery after stroke. Cognitive and Behavioral Neurology 19, 175-176.

http://www.scopus.com/scopus/inward/record.url?eid=2-s2.0-33845771687&partnerID=40

#### c) Book chapters

#### Peer-Reviewed

- Solodkin A, Van Hoesen GW and Damasio A. (1997) Neuropathology and neurochemistry of Alzheimer's disease. In: Alzheimer's disease. Molecular aspects and Pharmacological treatments. (Brioni JD and Decker MW eds). John Wiley & Sons, Inc., NY. Pp: 151-178.
- Solodkin, A. and Van Hoesen, G.W. (1999) Entorhinal Cortex. In: Encyclopedia of Neurosciences. G. Adelman (ed.). Elsevier Science B.V. pp. 661-63.
- Van Hoesen, G.W. and Solodkin, A. (1999) Perirhinal cortex. In: Encyclopedia of Neurosciences. G. Adelman (ed.). Elsevier Science B.V. pp.1613-15.
- Van Hoesen, G.W., Solodkin, A. and Semendeferi, K. (1999) Neurochemistry of the temporal cortex in the primate brain. In: Neurochemical circuitry of the primate

- brain. Handbook of chemical Neuroanatomy. F.E. Bloom (ed.) Elsevier Science Publications, Amsterdam.
- Solodkin, A, Hlustik, P and Buccino G (2007) The Human Motor System. In: Handbook of Physiology. Ed. J Cacioppo, L Tassinary and G Bernston. Cambridge University Press. pp: 507-539.
- Solodkin, A (2007) Efferents. Oxford Companion to emotion and the affective sciences. Sander D and Scherer KR (ed). Oxford University Press. pp: 133.
- Solodkin, A (2007) The somatic Nervous System. Oxford Companion to emotion and the affective sciences. Sander D and Scherer KR (ed). Oxford University Press. pp: 380-381.
- Milton J, Small SL and Solodkin A (2008). Why did Casey strike out? The neuroscience of hitting. In: Your brain on Cubs. Inside the heads of players and fans. Dan Gordon (Ed). Dana Press. pp: 43-57.
- Solodkin, A and Gomez CM Gomez (2012). Spinocerebellar ataxia type 6, Chapter 29. In: Handbook of Clinical Neurology. Series Editors: MJ Aminoff, F Boller and DF Swaab. 3<sup>rd</sup> series: Ataxic Disorders. Edited by: SH Subramony and A Durr (pp. 461-473). Elsevier.
- Solodkin, A. J., Os, G., Gomez, C. (2014). Spinocerebellar atrophies. In L. Saba (Ed.), Solodkin, A. J., *Imaging in Neurodegenerative disorders.* (pp. 355-376). Oxford University Press.
- Solodkin A, Zimmermann J, McIntosh RA, Stefanovski L, Ritter P (2018). Neurological biomarkers and NeuroInformatics: The role of The Virtual Brain. In: Molecular-Genetic and Statistical Techniques for Behavioral and Neural Research. R. Gerlai Editor; (pp: 3-30), Elsevier.

#### Encyclopedia Articles

- Solodkin, A. J., Van Hoesen, G., Insausti, R. (2014). Entorhinal Cortex. In *Reference module in Biomedical Sciences* Elsevier.
- Insausti, R., Van Hoesen, G., Solodkin, A. J. (2014). Perirhinal Cortex. In *Reference module in Biomedical Sciences* Elsevier.
- d) Theses
- B.Sc. (1978) Imprinting and Paradoxical sleep. Anahuac University, Mexico. Advisor: Dr. M. Corsi-Cabrera.
- M.Sc. (1982) Possible role of descending serotoninergic pathways upon the habituation of monosynaptic responses in the isolated spinal cord of the frog. Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico. Advisor: Dr. Pablo Rudomin.
- Ph.D. (1991) Calcitonin gene related-peptide as a model of plasticity in primary afferents: Anatomical and Biochemical studies. Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico and National Institutes of Health, Bethesda, MD. Advisors: Dr. M.A. Ruda and Dr. Pablo Rudomin.

#### **Invited Lectures**

 Department of Physiology and Biophysics. Chicago Med. April 2002. "Functional Specialization within Primary Motor Cortex: Direct correlation between Functional MRI and Chemoarchitectonics".

- Department of Human Physiology, University of Parma. Parma, Italy. December 2002. Ipsilateral Control of Movement and its Role on Motor Recovery after Stroke: Myth or Reality?
- Department of Human Physiology. University of Parma. Parma Italy. December 2002.
   "Motor Imagery: A Novel Perspective on the Organization of the Motor System in the Human Brain".
- Rehabilitation Institute of Chicago. Northwestern University. September 2002. fMRI Studies of Normal and Impaired Language and Motor Function"
- Rehabilitation Institute of Chicago. Northwestern University. March 2003.
   "Introduction to the Functional Anatomy of the Human Cerebral Cortex"
- Functional MRI of the brain in health and disease symposium. Center for MRI research. University of Illinois at Chicago. April 2003. "Fine Modulation in Network Activation during Motor Execution and different types of Motor Imagery"
- Cincinnati Children's hospital. University of Cinncinati. Computational Neuromodeling seminar. November 2004. "Structural Equation Models of Hand Movement in Man Based on fMRI and EMG data."
- Imaging Recovery from Stroke. Hamburg Germany. Organized by C. Weiller, M.
   Rijntnjes and J. Liepert. May 2005. "Network Models of Bimanual Cooperation in Stroke Recovery"
- Meeting of the Cognitive Neuroscience Society. Stresa, Italy. June 2005. "Network Modeling applied to fMRI Analysis."

- Human Brain Mapping Meeting. Minneapolis, MN. June 2005. "How well do group structural equation models account for individual data? Application for Stroke Recovery"
- The Gonda Brain Research Center. Bar Ilan University. Tel-Aviv, Israel. Spring 2006.
   "Predictions of memories lost: Is the preclinical diagnosis of Alzheimer disease possible?"
- Department of Neurology, Palacky University, Olomuc, Czech Republic. May 2007.
   "Stroke recovery as described by network analysis using structural equation modeling".
- Neurology Grand Rounds. University of Illinois at Chicago. October, 2007. "Monkey see, Monkey do: A Novel Perspective on the Organization of the Motor System in the Human Brain".
- Department of Radiology. National Yang Ming University, Taipei, Taiwan. March 2008. "Is there plasticity of M1 after focal ischemic damage? Role of the normal hand"
- Department of Psychology. National Yang Ming University, Taipei, Taiwan March 2008. "Introduction to the Neurobiology And Neurology of Emotions"
- National Yang Ming University, Taipei, Taiwan. March 2008. "Neural Activation Patterns during Functional Recovery after Stroke".
- Department of Anatomy and Neurobiology. University of California at Irvine. Irvine,
   CA. June 2009. "Human Motor Function: A Connectivity Approach".

- Department of Human physiology. University of Ferrara. Ferrara, Italy. July 2009.
   "Modeling networks for motor function and its changes after stroke."
- Ataxia Association Meeting (AIM). Rosemond, IL. March 2010. "Imaging correlates of SCA1 pathogenesis: From biomarkers to bioexplanations".
- Center for Advanced Imaging. Department of Radiology. NorthShore University
  Health System. North Western University. Evanston, IL. July 2010. "Predictions of
  Memories lost. Is the preclinical diagnosis of Alzheimers's disease possible?"
- Orange County Stroke Rehab Network. Stroke Rehabilitation Continuing education workshop" Chapman University, Orange, CA. November, 2011. "A novel therapy for and motor recovery after stroke".
- NeuroMed: Instituto Neurologico Mediterraneo. Dai Neuroni specchio all'acction observation treatment: Un esempio di recerca traslazionale. Lecture: Mirror mirror on the wall: Imitation and motor rehabilitation. Pozzilli, Italy. May 2012.
- Human Brain Mapping Meeting Panel: Neural Repair as Changes in network Connectivity. Presentation: "Network recovery after stroke: building hand motor therapy on physiological data and anatomical connectivity", Beijing, China, June 2012.
- Brain Mapping Colloquium: *Elucidating plasticity of cerebellar white matter pathways in Spinocerebellar ataxia type 6.* ICTS, UC Irvine. January 18, 2013.
- Theodore von Kármán Fellowship visiting scholars programme for incoming international scientists. RWTH Aachen University. March, 2014.

- Julich Brain Imaging Center. Some thoughts on Modeling Brain dynamics. Julich,
   Germany, March 4<sup>th</sup>, 2014
- The Virtual Brain Training Workshop: *Modeling the Impact of Structural lesions*. OHBM, Hamburg, Germany, June 2014.
- Bernstein Conference. Bernstein Center for Computational Neuroscience. A clinical application of The Virtual Brain: Functional Mechanisms in Chronic Stroke. Gottingen, Germany, August 2<sup>nd</sup>, 2014
- Society for Neuroscience: Virtual Brain Node 2: *On the Neurophysiology of Recovery after stroke.* Washington, DC November, 2014.
- Epicenter Symposium. The Virtual Brain. UCI. March 3, 2015.
- International Symposium FRIAS (Freiburg Institute for Advanced Studies). The
   Virtual Brain: A Clinical Application. Freiburg, Germany. November 26-27, 2015
- The Royal Society. Applying computational modeling to clinical neuroscience. Theo
  Murphy Meeting. Using The Virtual Brain as an informatics microscope to uncover
  biophysical parameters of stroke recovery. April 6-7, 2016
- The Virtual Brain Dynamic Causal modelling workshop. University College London.
   "Modelling the impact of structural lesions". April 5-6, 2016
- 10<sup>th</sup> FENS (Federation of European Neurosciences Societies) forum of Neuroscience. "Exploring Models Associated with Recovery of Function after Stroke:

- Uncovering biophysical parameters with The Virtual Brain". Full brain network dynamics- modeling, analyses, experiments. Copenhagen, Denmark, July 2nd, 2016
- Neural Dynamics and Brain Health. "Multiscale Connectomics for Precision Cerebrovascular Neurology". Rotman Research Institute. Toronto. Canada. March 20-22, 201
- 5th HBP School. 27 November 3 December 2017 in Obergurgl, Austria
- 14<sup>th</sup> International Workshop on fMRI in the Neurosciences. Keynote: "*Precision Medicine: Uncovering Cellular Mechanisms of Alzheimer's disease with TheVirtualBrain*" Olomouc, Czech Republic, April 5-6, 2018
- 25 Jornadas Academicas. Instituto de Neurobiologia. Keynote: "Precision Medicine: Uncovering Cellular Mechanisms of Alzheimer's disease with TheVirtualBrain". UNAM. Sep. 24-28. Queretaro. Mexico.
- BrainModes. Computational modeling of neurodegeneration and the aging brain. Havana, Cuba Dec. 4-5, 2018. "Precision Medicine: Uncovering Cellular Mechanisms of Alzheimer's disease with TheVirtualBrain".
- Behavioral and Brain Sciences. UT Dallas, Jan 4, 2019. "Precision Medicine: Uncovering Cellular Mechanisms of Alzheimer's disease with TheVirtualBrain".
- Hobson Wildenthal College Round table, UT Dallas, September 13, 2019 "Uncharted territory: The role of Neuroinformatics for Precision Medicine in Alzheimer's disease. The Virtual Brain"
- BrainModes. Exploring Unified Principles of Connectivity and Dynamics. Pokhara, Nepal, December 11-13, 2019 "A mechanistic approach to Alzheimer's disease".

- Department Seminar. Anatomy and Neurobiology, Boston University School of Medicine. November 19, 2020. "A computational approach to Alzheimer's disease".
- Frontiers of BrainHealth Lecture Series. Center for Brain Health. BBS, UT Dallas. January 29, 2021. "The Virtual Brain: A Computational Microscope to Elucidate Brain Mechanisms from Health to Dementia"
- BrainModes. Brain Health and multiscale brain dynamics. Vina del Mar, Chile, December 4-6, 2022 "A mechanistic approach to Alzheimer's disease".
- BrainModes. Multiscale network dynamics: Analysis, modeling, modulation November 29-December 3, 2023, Hamburg Germany "Hyperexcitability in Alzheimer's disease: Friend or foe?".
- BrainModes. From physics to function and disorders, Bilbao November 18-21 "Deciphering disease progression in Alzheimer's disease"
- AD/ADRD seminar series UTSouthwestern July 17th 2024; "Virtual Brain Twins: A mechanstic approach to AD"

### **Active and Completed Grants**

#### **Active**

#### Active

"Neurovascular coupling and Disorders of Consciousness in Severe Traumatic Brain Injury" TRC4: TRAUMA RESEARCH AND COMBAT CASUALTY CARE. University of Texas System.

PI: K Sharma MD. UTSW

Role: Co-I

Goal: C) APPROACH

We propose to test the hypothesis that NVC impairment is associated with disturbance of consciousness in patients with severe TBI and that the strength of coupling in the acute period is associated with EEG dynamics associated with consciousness as well as functional outcome.

Adapting Successful Practices to foster an Inclusive, Respectful, and Equitable Environment (ASPIRE<sup>2</sup>) – (Adams S). NSF

Major Goals: The University of Texas at Dallas (UT Dallas) will be Adapting Successful Practices to foster an Inclusive, Respectful, and Equitable Environment (ASPIRE2) to significantly and systematically transform the campus in ways that will expand and enrich the diversity of its faculty in STEM fields and beyond. Through the ASPIRE2 Project, UT Dallas will adapt and implement successful activities to foster a more inclusive campus climate, recruit more women in STEM fields, (including women of color and women from underrepresented minority groups), and aid in the retention of all women faculty, in STEM and across campus.

The goal of the project is help UT Dallas, a major research university, better reflect and represent the world in terms of gender and racial diversity. By doing so, UT Dallas can better serve its community, state and country, helping solve the national crisis of the disproportionate lack of tenured-system women, especially in STEM fields.

Project Number: 2121648

Name of PD/PI: Stephanie Adams

Source of Support: NSF

Primary Place of Performance: UTD

Project/Proposal Start and End Date: 9/1/21-8/31/24 Total Award Amount (including Indirect Costs): \$1M

CNS Core: EAGER: Building Leadership Capacity and Support for Women of Color Faculty Major Goals: Engineering affects the health and vitality of a nation unlike any other profession, and the future of engineering is inextricably connected to broadening the participation of underrepresented groups at the highest levels of society. This project provides and promotes leadership development amongst the most underrepresented population of faculty and

administrators in higher education, Women of Color (blacks or African Americans, Hispanics or Latinos, and American Indians or Alaska Natives). Approximately 50 mid- to senior- level, women of color, computing and engineering faculty have been identified to participate in this project.

\*Status of Support: Active Project Number: 2037416

Name of PD/PI: Stephanie Adams

Source of Support: NSF

Primary Place of Performance: UTD

Project/Proposal Start and End Date:: 10/1/20-9/30/24 Total Award Amount (including Indirect Costs): \$299,173

NIH-NINDS-RO1 5K23NS124978 The structural underpinnings of disinhibition in dystonia PI: WAUGH, JEFFREY L.

Role: Consultant

PROJECT NARRATIVE Dystonia is a movement disorder in which muscles twist and contort, forcing patients into painful and disabling postures and abnormal positions. The brain changes that lead to dystonia are largely unknown, but may result from failure of inhibitory mechanisms to keep muscle activity in check. We will perform brain MRI scans to identify the structural changes associated with dystonia, which is an essential step to developing more and better treatments for this disabling movement disorder.

Dates: 08-2022 to 07-2027

#### Pending:

North Texas ADRC

Goals: The proposed North Texas Alzheimer's Disease Research Center (NT-ADRC) is a new center that will serve North Texas. It will join the National Networks of ADRC's and contribute unique research approaches by studying hypertension and other cardiometabolic features in AD pathogenesis and its role in developing new therapeutic targets. It will enhance the diversity of the research population, engage a multidisciplinary group of researchers and prepare the next generation of AD researchers and ADRC leaders.

\*Status of Support: Pending (**JIT**)
Project Number: 1P30AG092752-01

Name of PD/PI: Hajjar, Ihab

\*Source of Support: National Institute on Aging

\*Primary Place of Performance: UT Southwestern Medical Center

Project/Proposal Start and End Date: (MM/YYYY) (if available): 04/01/2025-03/31/2030.

\* Total Award Amount (including Indirect Costs): \$23,169,418.00

\* Person Months (Calendar/Academic/Summer) per budget period.

Completed

CC\* Team: Texas Research and Education Cyberinfrastructure Services (TRECIS). NSF award

#2019135(Simmons-UTDallas component). Goal: The Texas Research and Education Cyberinfrastructure Services (TRECIS) center was established as part of NSF Award #2019135.

Duration: 2020-2022 TRECIS establishes a regional hub that advances collaborative support

for research computing and expands the use of advanced cyberinfrastructure (CI) and expertise

throughout the University of Texas system.

Project 2. Brain dynamics in aging and dementia (PI: Ana Solodkin) Goal: Simulate biophysical

parameters of the brain to be used as biomarkers to identify disease progression and severity in dementia. CI needs and impact: Leverage research computing expertise to enable wide

international collaboration over a unique Neuroinformatics platform that is used by the science

team in both brain research and education.

Source of Support: NSF

Primary Place of Performance: UTD

Project/Proposal Start and End Date: 7/1/20-6/30/24 Total Award Amount (including Indirect Costs): \$1,399,502

BrightFocus Foundation (AR McIntosh). Building a Personalized Virtual Brain with

Alzheimer's Disease to Guide Clinical Decisions.

2017-2020

Goal: This research project is leading us towards a personalized medicine approach to

understanding, preventing and treating brain disorders, specifically commonalities

between Alzheimer's disease and Parkinson's disease, using a network dynamics

approach via TheVirtualBrain.

Role: Co-Investigator

Human Brain Project (HBP) (Ritter): Testing pathophysiological models of brain

diseases.

2019-2020

Goal: To develop a specific hypothesis-driven use case for neurodegenerative diseases

by testing the validity of elaborate pathophysiological models using Medical Informatics

Platform-driven analysis of large-scale clinical data.

Role: Co-Investigator

NIH/NICHD: 1P50MH096889-01 (Baram): Fragmented early life environmental and

06/17/2013-04/30/2018

emotional / cognitive vulnerabilities.

Goal: The major goal of this project is to understand the prenatal and early postnatal influences of consistent and inconsistent maternal care on cognitive and emotional outcomes, and to assess the neurobiology underlying these outcomes in human and relate them to the cellular biology in animal models.

Role: Principal Investigator Project 4 and Co-Investigator Imaging Core

NIH/NIDCD: 5R01DC03378-11A2 (Small): Functional Neuroanatomy of Normal and Impaired Language. 09/30/1996-08/31/20

Goal: The major goals of this project are to determine the functional neuroanatomy of normal language processing, primarily at the lexical and sentential levels, and in ecological context.

Role: Co-Investigator

James S McDonnell Foundation (McIntosh): *Network mechanisms underlying cognition* and recovery of function in the human brain. 11/01/2006 - 12/31/2014

Goal: The goal of this grant is to determine of plastic changes in brain networks after motor stroke and during stroke recovery.

Role: Co-Investigator

NIH/NINDS: 1RO1054942-01A1 (Solodkin): *Mirror imitation therapy for motor recovery after stroke*. 07/01/07-

06/31/13

Goal: The goal of this project is to assess the efficacy of a novel motor imitation therapy for the recovery of fine skill hand movement in chronic stroke.

Role: Principal Investigator

University of Chicago Institute of Translational Medicine: Collaborative / Translational Study Award (CTSA) with NorthShore University Health Systems (Mastrianni): *Validation of a cognitive screening assessment combined with functional brain imaging to predict Alzheimer's disease in African Americans.* 04/15/2010 – 04/14/2011

Role: Co-Investigator

NIH/NIDCD: 1R01DC007488-02 (Small): *Neurophysiological Measurement in Aphasia Treatment.* 04/01/2005 - 03/31/2010

Goal: The goal of the project is to facilitate the use of neurophysiological (functional imaging) measures in patients with aphasia.

Role: Co-Investigator

NIH/NIDCD: R21/R33 DC008638-01 (Small): *Bioinformatics Infrastructure for Large Scale Studies of Aphasia Recovery.* 12/1/2006 - 11/30/2011

Goal: This project proposes to build computational infrastructure to facilitate the prospective investigation of aphasia recovery in a large group of patients (R21 phase) and then to execute such a study (R33 phase).

Role: Co-Investigator

Center for Integrative Neuroscience and Neuroengineering Research (CINNR) (Solodkin): Detection of Neuropathological changes in Spinocerebellar ataxias by Diffusion Tensor Imaging.

07/01/2007 - 07/01/2010

Goal: The goal of this project is the characterization of progression of pathology in SCAs as assessed with a variety of MRI modalities.

Role: Principal Investigator

Brain Research Foundation (Solodkin): *Early diagnosis of Alzheimer's disease using Diffusion Tensor Imaging* 07/01/2003 - 07/01/2010

Goal: The major goal of this project is to use new radiological techniques to diagnose Alzheimer's disease in cases of mild cognitive impairment.

Role: Principal Investigator

Charles A. Dana Foundation (Alperin): Cerebral vascular compliance measurements by dynamic MRI: A potential new diagnostic test for mild traumatic brain injury and for

09/01/2003-

explaining fMRI related variability of hemodynamic response.

08/31/2005

Role: Principal Investigator (subcontract)

NIH/NIMH 5K01MH001916-05: Neurobiological basis of depression after focal brain 09/15/1999 - 08/31-2004

damage.

Goal: The goal of this research is to investigate the neuroanatomical and

neuropharmacological differences between depressed and non-depressed patients

following focal ischemic brain damage, and to correlate the findings from studies of

autopsy tissue with neuroimaging studies using fMRI.

Role: Principal Investigator

NIH/NIMH 1R01MH065134-01A1 (Robinson, R): Prevention of Post-stroke depression-

treatment strategy.

07/01/02-06/30/06

Goal: The goal of this study is to test the hypothesis that prophylactic antidepressant

treatment of individuals with post-stroke depression will enhance their recovery from

stroke by decreasing their likelihood of suffering the emotional, physical, cognitive and

mortality consequences of depression.

Role: Principal Investigator (Subcontract)

NIH/NIMH: 1RO1 MH57860-01A1 (Tamminga): Limbic cortex in schizophrenia.

07/01/2002 - 06/30/2007

Goal: The goal of this work is to identify and characterize the nature and localization of

anatomic and chemical abnormalities in the limbic cortex of schizophrenic

(hippocampus, entorhinal cortex, and anterior cingulate) contributing to the

pathophysiology of schizophrenia.

Role: Consultant

Mentoring

**Wanqiao Ding** 

Stage mentored: PhD candidate

Starting date: November 2022

Research topic: Brain dynamics of rare Spinocerebellar ataxias

## **Leah Mary Chandy**

Stage mentored: PhD candidate

Starting date: November 2020

Research topic: Predicting coma outcome with computational methods

Status: Withdraw from program 2023

## **Sathish Thoppay**

Stage mentored: PhD candidate

Starting/finish date: Summer 2020-Summer 2021

Research topic: Brain dynamics in the aging brain

## **Yile Wang**

Stage mentored: Master's in science candidate

Starting date: Fall 2019

Current Status: PhD candidate

Research topic: Brain dynamics in Alzheimer's disease

# Annette Glotfelty (Co-mentor with Dr. SL Small)

Stage mentored: PhD candidate

Starting date: December 2020

Research topic: Functional connectivity dynamics during naturalistic language

#### Joelle Zimmermann

Stage mentored: PhD student (Co-Mentor with AR McIntosh, U Toronto)

Starting date: September 15, 2016

Research topic: Modeling brain dynamics in Alzheimer's disease

#### Kevin Lee

Stage mentored: Summer research

Starting date: 03-08, 2016

Research topic: Graph analysis of structural connectivity during development

#### Avital Fischer

Stage mentored: MD-PhD student (Lab Rotation)

Date: September 1st, 2014

Research topic: Network assessment in development

#### Jordanna Monteiro

Stage mentored: BSc honor's thesis

Starting date: July 1st, 2013

Research Topic: Parameter exploration using The Virtual Brain

#### Yan Yan

Stage Mentored: Medical student independent research.

Starting date: September, 2013

Research Topic: Structural connectome in Stroke

#### Maria Inez Falcon

Stage mentored: PhD student (Primary Mentor)

Starting date: July 1st, 2012

Graduation: May 2016.

Research topic: Network assessment of recovery after stroke.

#### Duke Shereen, PhD

Stage mentored: Post-doctoral scholar

Training dates: December 2010-2014

Research topic: Network modulation in stroke

## Emily Nordhoff (Claremont College)

Stage mentored (Co-mentored with Dr. D. Reinkensmeyer): Summer research

Training dates: 6/15/2012 - 8/28/2012.

Research Topic: Vibration and balance control

## John Colburn (Claremont College)

Stage mentored: Summer research (Co-Mentor with D. Reinkensmeyer)

Training dates: 6/15/2012 - 8/28/2012.

Research Topic: Vibration and balance control

## Blanca Valdovinos (University of Rochester Medical student)

Stage mentored: Summer research

Training dates: 6/15/2012 - 7/30/2012

Research Topic: Translational study on cerebellar ataxia

## Kristian Coerper

Stage mentored: Thesis honors, BSc.

Training dates: March 2010-December 2010

Research topic: Assessment of motor recovery after mirror therapy.

Present location: MAT, UTEP at The University of Chicago

#### Eitan Peri, MSc

Stage mentored: Thesis for MSc degree in Bioengineering

Training dates and degree: November 2005-January 2008. Master in Science degree.

Research topic: Development of software application for network analysis in fMRI.

Present location: Tel-Aviv Israel. Director of Product Development at Check-Cap LLC.

#### Daniela Cardozo, MD

Stage mentored: Post-doctoral

Reseach topic: Mirror therapy for hand motor recovery after stroke.

Present Location: Private practice. Caracas, Venezuela.

### Ryan Walsh, MD PhD

Stage mentored: Neurology resident

Training dates and degree: July 2004-June 2005

Research topic: Study on fMRI network activation during bimanual movements.

Present location: Cleveland Clinic Lou Ruvo Center for Brain Health. Las Vegas NV.

#### Ashish Bhimani, MD

Stage mentored: Medical Student

Training dates and degree: March 2002-April 2003

Research topic: Validation of Luria motor testing by fMRI.

Present location: Cardiovascular Medicine. UH University Hospitals, Cleveland, OH.

## Kirti Kulkarni, MD

Stage mentored: Radiology intern

Training dates and degree: September 2002-August 2005 Research topic: Neuroanatomy applied to fMRI analysis

Present location: Faculty, Department of Radiology, University of Chicago

#### Peter Zhi

Stage mentored: Pre-med (undergraduate)

Training dates and degree: September 2005-May 2007

Research topic: Network modeling in fMRI. Stroke recovery.

Present location: Medical student at the New Jersey Medical School.

#### Natasha Sansone

Stage mentored: Undergraduate

Training dates and degree: September 2007 up to date.

Research topic: Structural equation modeling for motor control.

Present location: Graduate student at Loyola University.

### Leonardo Cerliani, PhD

Stage mentored: PhD Student

Training dates and degree: November 2004-November 2005

Research topic: Functional anatomy for fMRI analysis.

Present location: Post-doctoral candidate at University Medical Center Groningen,

Netherlands.

## **Sunday Francis**

Stage mentored: Rotation during PhD training.

Training dates and degree: September-November 2003.

Research topic: EMG assessment of handedness.

Present location: Post-Doctoral Research Associate. UIC.

## Stacy Veldhuizen

Stage mentored: Undergraduate

Training dates and degree: September 1994-August 1996. Research topic: Histochemistry techniques in human brain.

Present location: Family Practice, Queen Creek, AZ.

#### Bio 199 Students (UCI)

**Crystal Lavarias Llanes** 

**Gary Kirakos** 

Wei Wen Chen

Cassandra Marie Andreyka

#### Other Undergraduate Students (UCI)

Laura Ng

Pramuk Sanjeewa

Stanley Chen

# Ashwini Athreya

# **UTDallas Undergraduate Students**

Wesley Cha

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Amisha Baidya

Haadia Kuniyil

#### **International Student**

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# **UTSW** mentoring MDs

Dr K Sharma (Neurointensivist)

Dr J Waugh (Pediatric Neurologist)