

Curriculum Vitae for Mark V. Albert

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Mark V. Albert
Curriculum Vitae

Jan 31, 2024

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Computer Science & Engineering
Biomedical Engineering
University of North Texas
1155 Union Circle #311366
Denton, TX 76203-5017

Professional Experience

University of North Texas

Aug 2019 - current

Associate Chair of Graduate Studies (Sep 1, 2021 - current)
Associate Professor (Sep 2023 - current), Department of Computer Science & Engineering and
Joint with Department of Biomedical Engineering
Assistant Professor (Sep 2019 - Aug 2023)
Directing the Biomedical Artificial Intelligence Lab (Biomed-AI.com)

Loyola University Chicago

Aug 2013 - Aug 2019

Associate Professor of Computer Science (with tenure, awarded 2019)
Assistant Professor of Computer Science (Aug 2013 - Aug 2019)
Directed the Pervasive and Ambient Computing (PAC) Lab and the Theoretical Neuroscience Lab.
Aug 2010 - May 2013
Previously: Adjunct Faculty in Computer Science. Taught Computational Biology, Data Structures,
Intro to Comp, Open Source Software, and Human Computer Interaction.

Northwestern University & Shirley Ryan AbilityLab

Aug 2013 - Aug 2022

Adjunct Assistant Professor, Department of Physical Medicine and Rehabilitation
Dec 2009 - Aug 2013
Postdoctoral researcher in the Sensory Motor Performance Program (SMPP) with Konrad Kording
and the Center for Bionic Medicine (CBM) with Arun Jayaraman. Primary area: using mobile
device sensors to evaluate patient outcomes

Deloitte, Cognitive Analytics Group

Feb 2014 - Jan 2016

Part-time consultant with a focus on applied machine learning

Predict Systems (Instinctiv.com)

Aug 2008 – Apr 2009

Research scientist for local startup inferring user preferences based on statistical analysis of
behavior, 10 hrs/week. (May 2012, it was acquired by SoundCloud for \$10 million)

Cornell University, Public Service Center

Aug 2007 - Aug 2008

Compensated position during graduate school to facilitate two campus groups engaged in student
outreach projects: EYES (Encourage Young Engineers and Scientists) and GRASSHOPR (Graduate
Student School Outreach Program)

Carnegie Mellon University

Sep 2001 – Aug 2004

Research applying fMRI to the computational cognitive architecture ACT-R with John Anderson.
Primate neurophysiology interdisciplinary training directed by Tai Sing Lee.

**Institute for Medical Cybernetics and Artificial Intelligence, University of Vienna and
Austrian Research Institute for Artificial Intelligence**

Oct 2000 – July 2001

Fulbright research programming a simulated Kepera Robot to learn navigation through clustering of sensory information using artificial neural networks

Undergraduate research (theoretical/computational chemistry) Summers 1998, 1999

Simulated and analyzed reverse micellar molecular interactions. Computational chemistry research at Colorado State University. Developed a simulation model for Bismuth which could account for specific differences between experimental and earlier theoretical measurements of surface free energy. Also, computational chemistry research at the University of Kansas

Department funded tutor positions Jan 1997 – May 2000

Computer Science (Aug 1999 - May 2000), Chemistry (Jan 1997 – May 2000), Math (Jan 1997 – May 2000), Physics (Aug 1998 – May 2000), and German (Aug 1998 - Dec 1998)

Awards/Honors

Henry B Betts Innovation Award, first place award at the Rehabilitation Institute of Chicago for our patented outcomes dashboard project. I developed the software to analyze data from worn sensors and display the quality of patient movements to clinicians during their daily “huddle”. March 6, 2013

Baskin Award, postdoctoral research award at RIC for activity recognition using mobile phones in Parkinson’s patients. June 6, 2012

NSF Graduate Research Fellowship (Aug 2005 - July 2008) and an **NSF Nonlinear Systems IGERT Fellowship** (Aug 2004 - July 2005) funded my graduate research in the field of computational biology at Cornell University.

Fulbright Grant for research with the Department of Medical Cybernetics and Artificial Intelligence at the University of Vienna. Oct 2000 - June 2001

Goldwater Scholarship nationally awarding 300 undergraduates per year for outstanding achievement in science, technology, and mathematics. Aug 1999 - May 2000

Outstanding Senior Pittsburg State University (included commencement address). May 2000

Highest departmental awards for chemistry, math, and computer science; Pittsburg State University. Honorary Heckert, Mendenhall, and CS Outstanding Senior awards. May 2000

Presidential Scholarship, Pittsburg State University, fully funded my undergraduate experience. Aug 1996 - May 2000

Education

Cornell, Ph.D. in Computational Biology Aug 2004 - Dec 2009

Graduate research relating spontaneous neural activity during development, the statistics of natural vision, and visual cortical coding.

Thesis title: “Normative Visual Development: innate learning in the early visual system”

Advisor: David Field

Affiliated with the Field of Computational Biology, Department of Psychology, and the Program in Neuroscience. Also, a member of the NSF-funded nonlinear systems IGERT program

GPA: 4.0

Carnegie Mellon University and University of Pittsburgh

Aug 2001 – May 2004

Graduate level coursework related to computational neuroscience as a research assistant

Neuroscience: Cellular and Molecular Neurobiology, Systems Neuroscience, Cognitive Neuroscience

Computational: Computational Neuroscience Methods, Machine Learning, Computational Perception.

University of Vienna, Austria

Oct 2000 – June 2001

AI-related coursework during Fulbright fellowship year

Pittsburg State University

Aug 1996 – May 2000

BS in Computer Science, Chemistry, Physics, and Mathematics. GPA 4.0

Research

Grants, Fellowships, and other Funding

External

Over \$1M in external grants awarded to UNT as personal share since Aug 2019

1. ML in Materials Science grant from ARL (role: Co-PI) 12/1/2023 - 11/30/2024
Collaborative grant with PI Rajiv Mishra through U.S. Army Research Lab for “Hierarchically Structured Materials Systems for Enhanced Dynamic Performance” (\$5M grant with 4% attribution - \$200,000)
2. UNT Health Science Center (role: subaward from UNT HSC) 10/1/2023 - 9/30/2024
ML collaboration with Rita Patterson as the UNT HSC lead on “Predicting Fall Risk in Older Adults Using Machine Learning” awarded through the Johns Hopkins Artificial Intelligence and Technology Collaboratory (AITC) for Aging Research program (\$56,157 to UNT)
3. NIH R01 on detection of infection (role: Co-I, subaward from Lurie) 9/22/2023 - 6/30/2027
Co-investigator collaborating with Fizan Abdullah, MD at Lurie Children’s Hospital of Chicago “Using the Fitbit for early detection of Infection and reduction of healthcare utilization after Discharge in Pediatric Surgical Patients” (\$72,292 to UNT, through 1R01NR020918)
4. Shriners Hospitals for Children system grant (role: site PI) Jan 2023 - Dec 2025
“Improving Orthopaedic Outcomes through Machine Learning” (\$289,770 to UNT)
5. C-STAR Pilot Project (role: subcontract) Jan 2023 - Dec 2023
Center for Smart Use of Technologies to Assess Real-world Outcomes (C-STAR) award for “Pilot development and assessment of a precision gesture-to-speech system for speech-impaired individuals with limited mobility” (\$37,125 to UNT through competitively

- awarded subcontract from NIH grant #P2CHD101899)
6. NIH R01 on Toddler Activity Recognition (role: Co-I) Jan 2021 - Dec 2026
Co-investigator collaborating with Soyang Kwon at Lurie Children's Hospital using machine learning to track activities to relate to childhood obesity (\$70,808 share to UNT)
 7. NSF REU on Accelerated Deep Learning (role: Co-PI) Jan 2021 - Dec 2023
REU Site: Interdisciplinary Research Experience on Accelerated Deep Learning through a Hardware-Software Collaborative Approach (\$389,725 with 40% Attribution)
 8. AI4All College Pathways Program (role: Co-PI) Jan 2022 - May 2023
Assistance with administration of AI4All program to engage underrepresented undergraduates in a fully-funded 3-term part-time course sequence to prepare for careers leveraging artificial intelligence (\$10,000 + to UNT)
 9. Universities Research Association visiting scholars program Summer 2022
"Improved software distribution and decision process optimizations for resource provisioning in pilot-based workload management systems" \$3,000 Summer support for Namratha Urs summer project at Argonne National Labs
 10. Shriners Hospitals for Children system grant (role: site PI) Jan 2020 - Dec 2021
"Machine learning prediction using quantitative gait analysis data to suggest and support interventions for pediatric patients with movement disorders" (\$111,218 for UNT)
 11. Rehabilitation Engineering Research Center (role: subcontract) Oct 2018 - Sep 2023
RERC subcontract (\$97,000 to UNT) through the Shirley Ryan AbilityLab for 5-year ongoing consultation for "Fall Catcher: Wearable Airbag Technology to Mitigate Falls in Individuals with Stroke"
 12. Google Compute Platform research credit July 2018 - Jan 2019
\$5,000 to fund "Modeling aspects of early binocular visual development by optimizing depth perception" for a computational neuroscience development project using a Kubernetes cluster to explore normative modeling of visual development.
 13. NIH R01 EB019406-01A1 (role: subcontract) Jan 2017 - June 2017
Understanding Real-Life Falls in Amputees using Mobile Phone Technology.
The goal of the study is to identify and evaluate real-life falls in individuals with amputations using mobile phone technologies, to provide more accurate and timely data for fall prevention.
 14. Rehabilitation Institute of Chicago Student Fellowship June 2016 - Dec 2016
Research agreement for two \$12K fellowships in partnership between Loyola computer science, the Rehabilitation Technologies and Outcomes Lab, and the Bayesian Behavior lab at RIC.
 15. Computer Science Summer Research Program May 2016 - July 2015
\$65,000 grant from CAPES (Coordination for the Improvement of Higher Education Personnel) to fund 14 Brazilian Scientific Mobility Students as part of the CS Summer research program.
 16. Workshop organizer, University of Rome Sapienza May 11-15, 2015
From Machine Learning to Human Learning: leveraging applied computational strategies to understand human cognition. Funded through a grant with the social and cognitive neuroscience lab (agliotilab.org)
 17. NSF Graduate Research Fellowship Aug 2005 - May 2008
Fully funded 3 years of graduate school in Computational Biology at Cornell University
 18. Fulbright Grant Oct 2000 - June 2001
One year of funding for research with the Department of Medical Cybernetics and Artificial Intelligence at the University of Vienna

19. Goldwater Scholarship Aug 1999 - May 2000
Funded my senior year, nationally awarding 300 undergraduates per year for outstanding achievement in science, technology, and mathematics

Internal

20. Research Seed Grant, UNT Aug 2021 - May 2022
Characterizing the warm envelope surrounding the milky way disk with machine learning. \$10,000 (role: CoPI, with Yuan Li, PI)
21. Research Seed Grant, UNT Jan 2021 - Dec 2021
\$7880 (role: Co-I, with Huaxiao Yang, PI)
22. Loyola 2020 Health Disparities Strategic Initiative Aug 2017 - June 2018
Community Context of Elder Care: A culturally informed healthy aging community-university partnership. \$88,000 (role: CS support)
23. Loyola 2020 Health Disparities Strategic Initiative Apr 2017 - June 2017
Multidisciplinary and Community Collaboration to Address Health Disparities in the Edgewater Neighborhood. Community Context of Elder Care. \$20,224 (role: CS support)
24. Summer Research Stipend May 2017 - July 2017
For computational neuroscience research work on “Behaviorally-relevant scoring of binocular visual development models by depth perception”
25. Summer “SAGE days” Workshop June 2015
A workshop to expose students to the SAGE applied math environment, and organize more advanced students to directly contribute to the open source project directly, with coPIs Peter Tingley and Aaron Lauve
26. Loyola Hackathon and CS distinguished speaker series Aug 2014 - May 2015
CAS support to establish the current CS seminar series (now COMP 399) inviting speakers and supporting activities including a hackathon, a datafest, and competitive end-of-semester presentations in CS
27. NSF Nonlinear Systems IGERT Fellowship Aug 2004 - July 2005
Funded my first year of graduate school at Cornell before receiving the NSF Graduate Research Fellowship
28. Presidential Scholarship Aug 1996 - May 1999
Pittsburg State University, fully funded my undergraduate experience

Patents

1. Kording K, Albert MV, Levien A. Medical Evaluation System and Method using Sensors in Mobile Devices. U.S. Patent No. 10,750,977 (published Aug 25, 2020 - a continuation of US Patent 9,872,637)
2. Kording K, Albert MV, Levien A. Medical Evaluation System and Method using Sensors in Mobile Devices. US Patent No. 9,872,637 (published Jan 23, 2018)
3. Heinemann AW, Jerousek S, Sliwa J, French E, Garcia E, Thomas M, McKula T, Snyder T, Henry M, Kording K, Albert MV, inventors; Rehabilitation Institute of Chicago, assignee. Systems and Methods for a Rehabilitation Dashboard. U.S. Patent application #20150058043. (published Feb 26, 2015)

Peer-reviewed research papers

1766 total citations, 17 h-index - [google scholar](#)

The list below does not include abstracts, notes, posters, or presentations.

Accepted, submitted, or under revision:

1. Maramraju S, Kowalczewski A, Kaza A, Liu X, Singaraju JP, Albert MV, Ma Z, Yang H (accepted) AI-Organoid Integrated Systems for Biomedical Studies and Applications. Bioengineering & Translational Medicine.
2. Goel A, Joshi E, Kwee-Bintoro T, Gopal K, Chesky K, Champlin S, Albert MV, A Pilot Dashboard System to Track Cumulative Exposure to Sound Levels during Music Instruction: A Technical Report. J of American Academy of Audiology (accepted)
3. Tabashum T, Snyder RC, O'Brien MK, Albert ML (under revision) A Systematic Review of Machine Learning Models for Parkinson's Disease.
4. Wang SJ, Tabashum T, Kruger K, Krzak JJ, Graf A, Chafetz R, Linton J, Davids J, Bagley A, Bengani K, Albert ML (submitted) "Creating an Autoencoder Single Summary Metric to Assess Gait Quality to Compare Surgical Outcomes in Children with Cerebral Palsy: The Shriners Gait Index (SGI)" J Biomechanics
5. Yuan C, Al Forhad MA, Bansal R, Sidorova A, Albert MV (submitted) Multi-agent dual level reinforcement learning of strategy and tactics in competitive games. Results in Control and Optimization
6. Rafiq RB, Shi W, Albert MV (submitted) Wearable Sensor-Based Few-Shot Continual Learning on Hand Gestures for Motor-Impaired Individuals via Latent Embedding Exploitation. AAAI.

Published:

7. Caldwell J, Feng W, Byun M, Albert MV, Shu T, Ji Y. Exploring Power and Thermal Dynamics in the Summit Supercomputer: A Data Visualization Study. Annual Smoky Mountains Computational Sciences Data Challenge (SMCDC23)
8. Rafiq RB, Karim SA, Albert MV (2023) An LSTM-based Gesture-to-Speech Recognition System. IEEE International Conference on Healthcare Informatics (ICHI 2023)
9. Rafiq RB, Yount S, Jerousek S, Roth EJ, Cella D, Albert MV, Heinemann AW (2023) Feasibility of PROMIS using Computerized Adaptive Testing during Inpatient Rehabilitation. Journal of Patient-Reported Outcomes, May 10;7(1):44. doi: 10.1186/s41687-023-00567-x
10. Kota VD, Sharma H, Albert MV, Mahbub I, Mehta G, Namuduri K. (2023) A low-power wireless system for predicting early signs of sudden cardiac arrest incorporating an optimized CNN model implemented on NVIDIA Jetson. Sensors, 23(4), 2270; <https://doi.org/10.3390/s23042270> (Special Issue Wearable Sensors for Physical Activity and Healthcare Monitoring)
11. Tabashum T, Xiao T, Jayaraman C, Mummidisetty CK, Jayaraman A, Albert MV (2022) Autoencoder Composite Scoring to Evaluate Prosthetic Performance in Individuals with Lower Limb Amputation. Bioengineering, 9(10), 572. <https://doi.org/10.3390/bioengineering9100572>
12. Yi Z, Blanco E, Fan H, Albert MV "BAPO: A Large-Scale Multimodal Corpus for Ball Possession Prediction in American Football Games" 2022 IEEE 5th International Conference on Multimedia Information Processing and Retrieval (MIPR), 2022, pp. 391-394, doi: 10.1109/MIPR54900.2022.00077.
13. Liu Z, Exley T, Meek A, Yang R, Zhao H, Albert MV "Predicting GPU Performance and System Parameter Configuration Using Machine Learning" ISVLSI-2022 (IEEE Computer Society Annual

14. Exley T, Moudy S, Patterson R, Kim J, Albert MV. (2022) Predicting UPDRS Motor Symptoms in Individuals with Parkinson's Disease from Force Plates Using Machine Learning. *IEEE Journal of Biomedical and Health Informatics*, 26 (7), pg 3486-3494. doi: 10.1109/JBHI.2022.3157518
15. Botonis OK, Harari Y, Embry KR, Mummidisetty CK, Riopelle D, Giffhorn M, Albert MV, Heike V, Jayaraman A (2022) Wearable airbag technology and machine learned models to mitigate falls after stroke. *Journal of NeuroEngineering and Rehabilitation*, 19:60.
16. Ranasinghe I, Yuan C, Dantu R, and Albert MV. A Collaborative and Adaptive Feedback System for Physical Exercises. In 2021 The 7th IEEE International Conference on Collaboration and Internet Computing (IEEE CIC 2021), Atlanta, GA, p 11-15. doi: 10.1109/CIC52973.2021.00012
17. Urs N, Behpour S, Georgaras A, Albert MV (2021) Unsupervised learning in images and audio to produce neural receptive fields: a survey and accessible notebook. *Artificial Intelligence Review*, 55, pg 111-128. <https://doi.org/10.1007/s10462-021-10047-7>
18. Harari Y, Shawen N, Mummidisetty CK, Albert MV, Kording KP, Jayaraman A (2021) A smartphone-based online system for fall detection with alert notifications and contextual information of real-life falls. *Journal of NeuroEngineering and Rehabilitation*, 18 (1) 1-13. (IF 3.5, 13 pages)
19. Ranasinghe I, Dantu D, Albert MV, Watts S (2021) Cyber-Physiotherapy: Rehabilitation to training. 2021 IFIP / IEEE International Symposium on Integrated Network Management, pg 1054-1057
20. Xiao T, Greenberg R, Albert MV. "Design and assessment of a task-driven introductory data science course taught concurrently in multiple languages: Python, R, and MATLAB" (2021) *ACM Innovation and Technology in Computer Science Education (ITiCSE 2021)* (30.5% acceptance rate, 6 pages)
21. Jayaraman C, Mummidisetty CK, Albert MV, Lipschutz R, Hoppe-Ludwig S, Mathur G, Jayaraman A. (2021) Using a microprocessor knee (C-Leg) transitioned individuals with dysvascular transfemoral amputations to higher MFCL functional levels: A longitudinal randomized clinical trial. *Journal of NeuroEngineering and Rehabilitation*, 18, 88. <https://doi.org/10.1186/s12984-021-00879-3> (IF 3.5, 13 pages)
22. Tabashum T, Zaffer A, Yousefzai R, Colletta K, Jost MB, Park Y, Chawla J, Albert MV, Gaynes B, Xiao T (2021) Detection of Parkinson's Disease through Automated Pupil Tracking of the Post-illumination Pupillary Response. *Frontiers in Medicine*. 8:645293. doi: 10.3389/fmed.2021.645293 (IF 5.1, 9 pages)
23. Behpour S, Mohammadi M, Albert MV, Alam Z, Wang L, Xiao T (2021) Automatic Trend Detection: Time-Biased Document Clustering. *Knowledge-based Systems*, vol 220, 106907. doi:10.1016/j.knosys.2021.106907 (IF 8.0, 13 pages)
24. Gaynes B, Zaffer A, Yousefzai R, Chazaro-Cortes M, Colette K, Kletzel SL, Jost MB, Park Y, Chawla J, Albert MV, Xiao T (2021) Variable abnormality of the melanopsin-derived portion of the pupillary light reflex in patients with Parkinson's disease and parkinsonism features. *Neurological Sciences*, 1-8. DOI: 10.1007/s10072-021-05245-8 (8 pages)
25. Behpour S, Field DJ, Albert MV (2021) On the role of LGN/V1 spontaneous activity as an innate learning pattern for visual development. *Front. Physiol* 12. DOI=10.3389/fphys.2021.695431
26. Nacar E, Nanda D, Albert B, Panici C, Albert MV. Temporal Distance Map: A warped isochrone map depicting accurate travel times. *GEOProcessing 2020 - The Twelfth International Conference on Advanced Geographic Information Systems, Applications, and Services*. (5 pages)
27. Meyarian A, Namdari H, Yuan X, Roeske J, Albert MV. Phantom Tumor Tracking in Dual-Energy Fluoroscopy using a Kalman Filter. 2020 IEEE International Conference on Bioinformatics and

- Biomedicine (BIBM), Seoul, Korea, 2020, pp. 2023-2026, doi: 10.1109/BIBM49941.2020.9313322.
28. Wang SJ, Park JH, Park HS, Nanda D, Albert MV. Wearable spasticity estimation and validation using machine learning. 2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM). Seoul, Korea, 2020, pp. 2109-2112, doi: 10.1109/BIBM49941.2020.9313130.
 29. Zelman S, Dow M, Tabashum T, Xiao T, Albert MV (2020) Accelerometer-based automated counting of ten exercises without exercise-specific training or tuning. *Journal of Healthcare Engineering*, vol. 2020, Article ID 8869134, 6 pages, 2020. <https://doi.org/10.1155/2020/8869134>
 30. Rafiq RB, Modave F, Guha S, Albert MV (2020) Validation methods to promote real-world applicability of machine learning in medicine. *The 3rd International Conference on Digital Medicine and Image Processing (DMIP 2020)*. November 6-9, 2020 (7 pages)
 31. Albert MV, Sugiano A, Nিকে K, Zavos P, Sindu P, Ali M, Kwon S (2020) Hidden Markov Model-based Activity Recognition for Toddlers. *Physiological Measurement* 41 (2) 25003 (IF 2.8, 10 pages)
 32. Xiao T, Tabashum T, Jebamalaiddass R, Du A, Leal M, Oliviera E, Metwally B, Albert MV (2020) “Conversation Moderator: A mobile app for tracking individual speaking in group conversations”, 14th IEEE International Conference on Semantic Computing (ICSC 2020), San Diego, Feb 3-5, 2020.
 33. Kwon S, Zavos P, Nিকে K, Sugianto A, Albert MV (2019) Hip and Wrist-Worn Accelerometer Data Analysis for Toddler Activities. *International Journal of Environmental Research and Public Health* 16(14), 2598.
 34. Sok P, Xiao T, Azeze Y, Jayaraman A, Albert MV (2018) Activity Recognition for Incomplete Spinal Cord Injury Subjects using Hidden Markov Models. *IEEE Sensors* 18(15), 6369-6374.
 35. Shawen N, Lonini L, Mummidisetty CK, Shparii I, Albert MV, Kording K, Jayaraman A (2017) Fall Detection in Individuals With Lower Limb Amputations Using Mobile Phones: Machine Learning Enhances Robustness for Real-World Applications. *JMIR Mhealth Uhealth* 2017;5(10):e151 DOI: 10.2196/mhealth.8201
 36. Albert MV, Azeze Y, Courtois M, Jayaraman A (2017) In-lab versus at-home activity recognition in ambulatory subjects with incomplete spinal cord injury. *Journal of NeuroEngineering and Rehabilitation* 14:10. doi: 10.1186/s12984-017-0222-5
 37. Orendorff EE, Kalesinskas L, Palumbo RT and Albert MV (2016) Bayesian Analysis of Perceived Eye Level. *Front. Comput. Neurosci.* 10:135. doi:10.3389/fncom.2016.00135
 38. Deems-Dluhy SL, Jayaraman C, Green S, Albert MV, Jayaraman A (2016) Evaluating the functionality and usability of two novel wheelchair anti-rollback devices for ramp ascent in manual wheelchair users with spinal cord injury, *PM&R*, doi: 10.1016/j.pmrj.2016.09.007.
 39. Albert MV, Deeny S, McCarthy C, Valentin J, Jayaraman A. Monitoring Daily Function in Persons with Transfemoral Amputations using a Commercial Activity Monitor: A Feasibility Study (2014). *Physical Medicine and Rehabilitation* 6(12), 1120-1127.
 40. Antos S, Albert MV, Kording K (2014) Hand, belt, pocket, or bag: practical activity tracking with mobile phones. *Journal of Neuroscience Methods - Special issue on motion capture in animal models and humans* (231) 22-30
 41. Albert MV, McCarthy C, Valentin J, Herrmann M, Kording K, Jayaraman A (2013) Monitoring functional capability of individuals with lower limb amputations using mobile phones. *PLoS ONE* 8(6): e65340.
 42. Mhatre PV, Vilares I, Stibb SM, Albert MV, Pickering L, Marciniak C, Kording K, Toledo S (2013) Wii Fit Balance Board Playing Improves Balance and Gait in Parkinson Disease. *Physical Medicine*

and Rehabilitation 3 (10) S264

43. Albert MV, Catz N, Their P, Kording KP (2012) Saccadic gain adaptation is predicted by the statistics of natural fluctuation in oculomotor function. *Frontiers in Computational Neuroscience* 6:96
44. Albert MV, Toledo S, Shapiro M, Kording KP (2012) Using mobile phones for activity recognition in Parkinson's patients. *Frontiers in Neurology* 3:158
45. Albert MV, Kording KP, Herrmann M, Jayaraman A (2012) Fall classification by machine learning using mobile phones. *PLoS ONE* 7(5): e36556
46. Albert MV, Kording KP (2011) Determining posture from physiological tremor. *Experimental Brain Research*. 215 (3), 247-255
47. Fernandes HL*, Albert MV*, Kording KP (2011) (* contrib equally) Measuring generalization of visuomotor perturbations in wrist movements using mobile phones. *PLoS ONE* 6(5): e20290.
48. Albert MV, Schnabel A, Field DJ (2008) Innate Visual Learning through Spontaneous Activity Patterns. *PLoS Computational Biology* 4(8)
49. Sohn, M-H, Albert MV, Stenger VA, Jung K-J, Carter CS, & Anderson JR (2007) Anticipation of conflict monitoring in the anterior cingulate cortex and the prefrontal cortex. *Proceedings of National Academy of Science*, 104(25): 10330.
50. Anderson, JR, Albert MV, & Fincham JM (2005) Tracing Problem Solving in Real Time: fMRI Analysis of the Subject-Paced Tower of Hanoi. *Journal of Cognitive Neuroscience*, 17 1261-1274.
51. Faeder J, Albert MV, and Ladanyi BM (2003) Molecular dynamics simulations of the interior of aqueous reverse micelles. A comparison between sodium and potassium counterions. *Langmuir*, 19, 2514-2520.

Select additional manuscripts

52. **Book:** Bridging Human Intelligence and Artificial Intelligence (2022) **Editors: Mark V. Albert, Lin Lin, J. Michael Spector, Lemoyne Dunn.** Springer Publishing (60+ coauthors among all chapters)
53. Moye R, Liang C, Albert MV (2022) Early visual processing: a computational approach to understanding primary visual cortex. In *Bridging Human Intelligence and Artificial Intelligence* editors Albert MV, Lin L, Spector JM, Dunn L. Springer Publishing.
54. Rafiq RB, Albert MV. (2022) Transfer learning: leveraging trained models on novel tasks. In *Bridging Human Intelligence and Artificial Intelligence*, editors Albert MV, Lin L, Spector JM, Dunn L. Springer Publishing.
55. Xiao T, Albert MV (2021) "Big Data in Medical AI: how larger datasets lead to robust, automated learning for healthcare" in *Artificial Intelligence in Brain and Mental Health*. Editors: Marcello Ienca, Mingyu Liang, Fabrice Jotterand. Springer
56. Albert MV, Shparii I, Zhao X (2017) "The applicability of inertial sensors for locomotion and posture" in *Locomotion and Posture in Older Adults: The Role of Aging and Movement Disorders*. Editors: Fabio Augusto Barbieri and Rodrigo Vítório. Springer
57. Automated Discrimination: The Power and Peril of Big Data (2016). Successfully funded Kickstarter campaign (\$2,031 raised) to self-publish a book of the same title, available at <https://www.createspace.com/6384778>, and coauthored by all students in the Spring 2016 HONORS 204 course under the same name. Various on-campus activities and opportunities followed from this effort, including an on-campus fellowship offer and an analytics competition

applied to discrimination.

58. Albert MV (2015) The Brain Geography Mini-Course: a neuroscience outreach effort. Loyola University e-commons report.
59. Albert MV (2010) Normative Visual Development: innate learning in the early visual system, Ph.D. Thesis, Field of Computational Biology, Cornell University.
60. Albert MV, Field DJ (2009) Neural Representation and Coding. Encyclopedia of Perception, Ed. E.B. Goldstein et al., SAGE Press.
61. Touretzky DS, Ladsariya A, Albert MV, Johnson JW, Daw ND. (2004) HHSIM: An Open Source, Real-time, Graphical Hodgkin-Huxley Simulator. Neuroscience Abstracts 26
62. Albert MV, Laird B. Development of the Embedded Atom Model Interaction Potential for Rhombohedral Bismuth (1999) Presented at NCUR and published in the Proceedings (National Conference on Undergraduate Research; Rochester, NY)

Poster Presentations, external

63. Tabashum T., Albert MV. Autoencoder to Quantify Gait Quality using Ground Reaction Force for Musculoskeletal Impairment. 2023 CMD-IT/ACM richard Tapia Celebration of Diversity in Computing Conference, September 13, 2023
64. Jazi SY, Moore R, Albert MV. Replicating Neural Efficient Coding in the Brain using Independent components Analysis: An Update to a Jupyter Notebook. 2023 CMD-IT/ACM richard Tapia Celebration of Diversity in Computing Conference, September 13, 2023
65. Wang S-J, Tabashum T, Kruger K, Krzak J, Albert MV. Using a deep learning neural network to assess gait quality for children with cerebral palsy. Orthopaedic Research Society annual meeting (ORS 2022), February 4, 2022.
66. Tabashum, T. Wang S-J, Kruger K, Krzak J, Graf A, Albert MV. Autoencoder Single Summary Score Approach to Quantify Gait Quality. American Congress of Rehabilitation Medicine (ACRM) conference 2021
67. Rafiq RB, Karim SA, Liu A, Albert MV (submitted) Gesture recognition to enable communication for mobility impaired individuals American Congress of Rehabilitation Medicine (ACRM) conference 2021
68. Olness GS, Mahbub I, Albert MV, Berman D, Xiao T, Fletcher A. Development of a Wireless Smart System of Vocalization Sensors for Convergent Evidence of Post-discharge Communicative Participation in Everyday Life Contexts: A Status Report. 2021 Aphasia Access Leadership Summit. April 2021.
69. Goel A, Joshi E, Kwee-Bintoro T, Gopal K, Chesky K, Champlin S, Albert MV. Dashboard system to track cumulative exposure to dangerous sound levels during music instruction. *Acoustics Virtually Everywhere*, The 179th Meeting of the Acoustical Society of America, Dec 7-11, 2020
70. Nallapareddy H, Mummidisetty C, Bottonis O, Harari Y, Jayaraman A, Albert MV. Automated pre-fall detection for fall mitigation using a wearable airbag belt. Biomedical Engineering Society conference (BMES 2020) Oct 14-17, 2020.
71. Meyarian A, Namdari H, Yuan X, Roeske J, Albert MV. Phantom Tumor Tracking in Dual-energy Fluoroscopy using a Kalman Filter. Biomedical Engineering Society conference (BMES 2020) Oct 14-17, 2020.

72. Tabashum T, Xiao T, Gaynes B, Chawla J, Colleatta D, Albert MV. Automated Pupil Tracking For Parkinson's Disease Biomarker Detection by Integrating Kalman Filters in a Robust User Interface. Biomedical Engineering Society conference (BMES 2020) Oct 14-17, 2020.
73. Xiao T, Tabashum T, Olness G, Mahbub I, Berman D, Tasneem NT, Albert MV. "Mobile Diarization Dashboard Application and Remote Vocalization Sensor Prototype for Evaluating Communication Rehabilitation Effectiveness." American Congress of Rehabilitation Medicine (ACRM) conference 2020.
74. Ranasinghe I, Jayaraman A, Xiao T, Thompson M, Dantu R, Albert MV "Home Care Robotic Assistant Prototype for Remote Human Supervision: Development and Pilot Analysis of Exercise Repetition Counting over Multiple Viewing Angles" American Congress of Rehabilitation Medicine (ACRM) conference 2020.
75. Wang SJ, Park JH, Park HS, Albert MV "Wearable-based Spasticity Prediction and Validation Using Machine Learning" American Congress of Rehabilitation Medicine (ACRM) conference 2020. *****Winner for Best Early Career Poster in Technology*****
76. Namdari H, Comerica SS, Wang SJ, Lu X, Kalahe J, Du J, Albert MV. "Using machine learning for material properties prediction in glass production" ACM Tapia Conference, September 16-19, 2020
77. Yuan C, Bansal R, Nelson P, Akula K, Sidorova A, Narayanan A, Albert MV. "Multi-agent hierarchical reinforcement learning of strategy and tactics in competitive play." ACM Tapia Conference, September 16-19, 2020
78. Behpour S, Urs N, Albert MV. "Towards an 'innate learning' efficient coding model using spontaneous neural activity." ACM Tapia Conference, September 16-19, 2020
79. Rafiq RB, Modave F, Guha S, Albert MV "Validation methods to promote real-world applicability of machine learning in medicine." ACM Tapia Conference, September 16-19, 2020
80. Zelman S, Dow M, Tabashum T, Albert MV, Xiao T. "Automatic counting methods applied to unspecified repetitive physical activities." ACM Tapia Conference, September 16-19, 2020
81. Albert MV, Xiao T, Dantu M, Thompson M, Jayaraman A. "Physbot therapy: semi-autonomous visual observation and support for home-based physical therapy exercises." Advancing Health through Science: Smart and Connected Health (SCH) Principal Investigator Meeting, Jan 6-7, 2020 NSF Headquarters, Alexandria, VA
82. Mahbub I, Berman D, Albert MV, Xiao T, Olness G. "Wireless Smart Vocalization Sensors for Convergent Evidence of Rehabilitation Effectiveness." Advancing Health through Science: Smart and Connected Health (SCH) Principal Investigator Meeting, Jan 6-7, 2020 NSF Headquarters, Alexandria, VA
83. Albert MV, Mummidisetty CK, Tabashum T, Jayaraman A. "PCA Composite Evaluation of Outcomes for Microprocessor Knee versus Mechanical Knee in Individuals with Dysvascular Transfemoral Amputations" Biomedical Engineering Society conference (BMES 2019) Oct 18, 2019.
84. Georgaras AG, Urs N, Nolan P, Singh H, Albert MV. "Efficient visual neural coding tutorial for grayscale, color, binocular, and video to produce primary visual cortex neural receptive fields" Society for Neuroscience conference (SfN 2019) Oct 19, 2019.
85. Kwon S, Sindu P, Nিকে K, Zavos P, Sugianto A, Albert MV. "Accelerometer-Based Activity Classification Algorithm for Toddlers: Machine Learning Approach" American College of Sports Medicine (ACSM 2019)
86. Sendelbach S, Albert MV. "Deriving binocular spontaneous neural activity by optimizing depth perception in an innate learning model of visual development" Society for Neuroscience conference (SfN 2018)

87. Saffo D, Kilmarx J, Borhani S, Abiri R, Zhao X, Albert MV. "Convolutional Neural Networks for a Cursor Control Brain Computer Interface" Biomedical Engineering Society Meeting (BMES 2018)
88. Sendelbach S, Albert MV. "Binocular innate visual learning through spontaneous activity patterns" Chicago Society for Neuroscience regional conference (Chicago SfN 2018)
89. Yanar J, Dosamantes N, Kais L, Walker H, Albert MV, Morrison RG: "Age Related Changes in Neural Noise During Cognitive Control" Cognitive Neuroscience Society (CNS 2017)
90. Dosamantes N, Yanar J, Kais L, Walker H, Albert MV, Morrison RG: "Age Related Changes in Neural Noise in the Default Mode Network" Cognitive Neuroscience Society (CNS 2017)
91. Fernandes G, Linhares C, Seabra AL, Andaleon A, Wohler S, Gutierrez D, Putonti C, Albert MV. "Efficient probabilistic nucleotide sequence matching and aggregate analysis using k-mer feature vectors". Great Lakes Bioinformatics Conference (GLBIO 2017)
92. Adorno I, Kratz G, Oakey A, Albert MV: "Ecologically relevant scoring of binocular receptive field development by innate learning". Society for Neuroscience (SfN 2015)
93. Rabkina I, Nogueira L, Albert MV: "Real-time activity recognition graphical front-end display with semi-supervised labeling assistance". Society for Neuroscience (SfN 2015)
94. Makarious M, Moe G, Albert MV : "Mobile app for interactive demonstration of efficient visual and auditory neural codes". Society for Neuroscience (SfN 2015)
95. Orendorff E, Palumbo R, Albert MV: "Bayesian analysis of perceived eye level". Society for Neuroscience (SfN 2015)
96. Luebke H, Didorchuk V, Shanker RM, Albert MV, Laten HM (2015) Comparative analysis of transposon insertion-site polymorphisms in allotetraploid white clover and its putative diploid progenitors using transposon-anchored PCR and NGS. PGEV 2015
97. Sok P, Mehjabeen A, Albert MV (2015) Wearables in motion: the motivations, current trends, and future of activity recognition. STARS computing corp 2015
98. Albert MV, Gomez W, Miskovick A, Lopez-Ortiz C (2013) Mobility in Parkinson's disease is improved through classical ballet-based instruction. Society for Neuroscience Conference 2013
99. Antos S, Albert MV, Kording K (2013) Activity tracking with smartphones: phone location matters. Biomedical Engineering Society (BMES) annual meeting, Sept 25, 2013
100. Karvelas K, Murtaugh B, Albert MV, Marciniak C, Toledo S (2012) Does a Supervised Program in Physical and/or Occupational Therapy Improve Pain Scores in Patients with Parkinson Disease? American Academy of Physical Medicine and Rehabilitation
101. Moore AS, Albert MV, Kording KP (2012) Validating mobile phone accelerometer for measuring gait. Sensory Motor Performance Program intern poster presentation, Rehabilitation Institute of Chicago. Aug 3, 2012
102. McCarthy C, Valentin J, Albert MV, Kording K, Jayaraman A (2012) Activity monitoring in lower limb amputees: using portable accelerometers and mobile phones. Sensory Motor Performance Program intern poster presentation, Rehabilitation Institute of Chicago. Aug 3, 2012
103. Albert MV, Kording K (2011) Automated activity recognition and identification using mobile phone accelerometry. Neural Control of Movement 2011
104. Toledo S, Albert MV, Kording K, Marciniak CM, Mhatre PV, Pickering L, Stibb SM, Vilares I (2011) Wii video game balance-board training: does it improve balance and gait in adults with Parkinson disease? American Academy of Physical Medicine and Rehabilitation.
105. Albert MV, Field DJ (2010) Normative Visual Development: efficient coding principles for adult V1 predict properties of LGN waves prior to eye opening. Computational Neuroscience 2010
106. Albert MV, Field DJ (2009) Efficient coding of binocular spontaneous activity for innate

- learning in V1 development. Computational and Systems Neuroscience (COSYNE 2009)
107. Albert MV, Field DJ (2006) Problems in Nonlinear Efficient Coding: relating quadratic forms and spike-triggered covariance analysis. Computational and Systems Neuroscience (COSYNE 2006).
 108. Albert MV (2006) Innate visual learning through spontaneous activity patterns. Cornell Nonlinear Systems IGERT seminar. Aug 23, 2006.

Oral Presentations, select external

109. Wang SJ, Tabashum T, Krzak J, Kruger K, Chafetz R, Linton J, Davids J, Bagley A, Albert MV. The Shriners Gait Index (SGI): A Deep Autoencoder Summary Metric. GCMAS 2023 (June 2023) - Gait and Clinical Mobility Analysis 2023
110. Albert MV. Southern Society for Philosophy and Psychology (March 11, 2023) in “intelligence and Beyond” session “How Deep Learning is powering complex, human-like behavior and what is in store for the future”
111. Albert MV. Biomedical Data Science Seminar Series, University of Virginia (Jan 7, 2022) and New Mexico Tech (Oct 21, 2022) “Utilizing deep learning to create tailored summary outcome metrics for clinical populations”
112. Wang SJ, Tabashum T, Kruger K, Graf A, Chafetz R, Linton J, Davids J, Bagley A, Albert MV. Developing a Gait Summary Metric Using an Autoencoder. GCMAS 2022 (June 7, 2022) - Gait and Clinical Mobility Analysis 2022
113. Albert MV. Biology Seminar, Texas Woman’s University (Nov 12, 2021) “Understanding Sensory Neural Processing Through Efficient Coding Principles”.
114. Albert MV, Wheeler H “Artificial Intelligence and Application in Assessment of Mobility in Diverse Patient Populations” in TAGRI 2022 (Transdisciplinary Ancestral Genomics Research Investigations): Reducing Health Disparities. Nov 5, 2021.
115. Lin L, Albert MV, Spector JM. “Bridging Human and Artificial Intelligence” in “Book Shares - Culture and HCI” in AECT 2021 (Associate for Educational Communications & Technology 2021), Nov 4, 2021.
116. Albert MV “Using and developing tailored summary outcome metrics through deep autoencoders” Quarterly Research Meeting, Department of Physical Medicine and Rehabilitation, University of Texas Southwestern Medical Center, Sep 1, 2021.
117. Xiao T, Greenberg R, Albert MV “Design and assessment of a task-driven introductory data science course taught concurrently in multiple languages: Python, R, and MATLAB” ACM Innovation and Technology in Computer Science Education (ITiCSE 2021). July 1, 2021
118. Albert MV. “Gesture-to-Speech Recognition System in Children with Cerebral Palsy”. IdeaLab prototype presentation. C-STAR program (Center for Smart Use of Technologies to Assess Real World Outcomes). Shirley Ryan AbilityLab. April 6, 2021
119. Albert MV, Nichols J, Potter H, Kruger K. “Deep learning applied to gait data: better prediction of outcomes through reduced data representations” in *Applications of Machine Learning from diagnosis to prognosis*. Workshop in Orthopaedic Research Society Annual Meeting, Feb 16, 2021
120. Xiao T, Tabashum T, Behpour S, Urs N with Albert MV (moderator/organizer). What it’s like for the Humans behind Advanced in Artificial Intelligence. Digital Divas, CSTA Dallas Fort Worth, February 13, 2021
121. Albert MV “Reinforcement Learning: from Q-learning basics to neuroscience” Joint meeting of

- the IEEE Computational Intelligence Society and IEEE Computer Society - Fort Worth. Feb 11, 2021
122. Xiao T, Albert MV "On-ramp to AI: lessons from the introductory course Software Development for AI". Workshop in CCSC South Central Conference 2021. Friday, April 9, 2021
 123. Yuan C, Albert MV, McGartland D, Smith J, Solorio A. "Play with trained hierarchical reinforcement learning agents in two common games" Tutorial in CCSC South Central Conference 2021. Friday, April 9, 2021
 124. Albert MV "Deep Learning applied to Human Mobility" Toyota Analytics Summit 2020. August 25, 2020.
 125. Olness G, Mahbub I, Albert MV, Berman D, Xiao T, Fletcher A. Wireless Smart System of Vocalization Sensors for Convergent Evidence of Post-Discharge Communicative Participation in Everyday Life Contexts. Launchpad competition at American Congress of Rehabilitation Medicine (ACRM) conference 2020.
 126. O'Brien M, Rafiq RB, Moudy S, Albert MV (organizer). "Best Practices for Validating Machine Learning in Medicine" Panel in the ACM Tapia Conference, September 16-19, 2020.
 127. Kwon S, Sindu P, Nickle K, Zavos P, Sugianto S, Albert MV (2019) "Accelerometer-Based Activity Classification Algorithm for Toddlers: Machine Learning Approach" American College of Sports Medicine (ACSM 2019), Orlando, Florida, May 30, 2019
 128. Albert MV, Krzak J (2019) "Machine Learning Approaches to Augment Surgical Decisions in Clinical Gait Analysis" at State of Research Symposium: Muscle and Bone Health at Shriners Hospitals for Children - Chicago, March 1, 2019.
 129. Albert MV (2018) "Wearables in healthcare: sensors and analytics for wearable devices in research and clinical settings" (talk given twice on same day, coincidentally) CVS Health, Enterprise Analytics group (OUTLIERS). Oct 16, 2018
Chinese Ministry of Industry and Information Technology representatives visiting Loyola as part of the US-Chinese Exchange Council (22 professional participants & hired translator)
 130. Albert MV (2018) "Practical automatic fall detection using machine learning" Applied AI in Healthcare: A data discovery discussion. AI Days @ MATTER healthcare incubator. July 31, 2018 (invited).
 131. Albert MV (2017). Wearables in healthcare: sensors and analytics for wearable devices in research and clinical settings. DePaul University Physics Colloquium, Oct 9, 2017 (invited).
 132. Albert MV, Ramkumar P, Zhao A, Yanar J (2017) "Applications of Independent Components Analysis (ICA) in signal processing, engineering, and sensory neuroscience" ChiPy (Chicago Python group meeting) Feb 9, 2017. (organized session)
 133. Albert MV (2016). "Wearables overview: a practical guide to selecting the best activity recognition system for your research, clinical, or personal use." Clinical Research Grand Rounds, Department of Physical Medicine and Rehabilitation, Northwestern University Feinberg School of Medicine. Nov 14, 2016 (invited)
 134. Albert MV (2016). Monitoring Patient Mobility: improving outcomes with wearable technology. School of Electrical Engineering and Information Science, Dalian University of Technology, Dalian, China, Aug 4, 2016 (invited)
 135. Marcos Pedro Ferreira Leal Silva, Edgard Fonsêca de Oliveira (2016) Conversation Moderator: uma ferramenta automatizada para medir e incentivar conversação em grupo, XXIV Congresso Brasileiro de Fonoaudiologia - Avanços no Diagnóstico e Intervenção em Fonoaudiologia, São Paulo - SP, Brasil (non-authorship role as coordinator for pair of presenting research students).
 136. Albert MV (2015). Factor analysis: simplifying high dimensional datasets for visualization and

- machine learning. ChiPy (Chicago Python) invited presentation, Oct 8, 2015
137. Mehjabeen A, Albert MV (2014) Hidden Markov Models to improve activity recognition in patients with spinal cord injury. ChiPy (Chicago Python), Nov 13, 2014
 138. Adorno I, Albert MV (2014) Innate learning: training the brain before the eyes open. ChiPy (Chicago Python), Nov 13, 2014
 139. Albert MV. (2013) Panel member for Parkinson's Day Fair, Rehabilitation Institute of Chicago, Presented mobile phone-based research at RIC. April 23, 2013.
 140. Marciniak C, Albert MV, Vilares V (2013) Overview of Research: Exercise, Physical Activity, and Smartphone technology. Rehabilitation Institute of Chicago Symposium "Theory, evidence and innovation: interdisciplinary care for Parkinson's disease". (invited presentation) April 8, 2013
 141. Albert MV. (2012) Presentation for Parkinson's Research Day, Rehabilitation Institute of Chicago, Using mobile phones to evaluate and improve patient mobility. April 10, 2012.
 142. Albert MV, Miikkulainen R, Field DJ (2011) Using the statistics of binocular images to model spontaneous activity in the developing visual system. Society for Neuroscience 2011 (oral presentation)
 143. Albert MV (2011) Using mobile phones to evaluate and improve patient mobility. Regional ACM presentation. October 12, 2011 (invited)
 144. Albert MV, Catz N, Their P, Kording K (2010) Oculomotor adaptation matches natural changes in the body over time. Society for Neuroscience Conference 2010 (oral presentation)
 145. Albert MV (2005) An overcomplete sparse code to explain visual cortical nonlinearities. First year graduate students presentations. Cornell University psychology department. March 1, 2005
 146. Albert MV (2005) Nonlinearity in primary visual cortex. Nonlinear Systems IGERT program, Cornell University. Feb 4, 2005.
 147. Anderson JR. (2004) Plenary lecture at the Cognitive and Neural Systems Meeting, Focused exclusively on our fMRI work (first slide credits: Albert MV, Anderson JR, Fincham, Qin Y, Sohn M-H)
 148. Albert MV (2004) Geometric Clustering and the Information Bottleneck. a review of the NIPS Presentation by Still, Bialek, and Bottou. Carnegie Mellon University Machine Learning Lunch. Feb 2, 2004.
 149. Albert MV (1999) Molecular Dynamics Study of the Reverse Ionic Micelle Interior. Final summer research presentation at Colorado State University under James Faeder and Branka Ladanyi.
 150. Albert MV, Laird B. Development of the Embedded Atom Model Interaction Potential for Rhombohedral Bismuth (1999) Presented at NCUR and published in the Proceedings (National Conference on Undergraduate Research; Rochester, NY)

Oral Presentations, select university internal

151. Day of Data Science panel discussion "Real-World Impact of Ethics in AI" (March 22, 2023)
152. UNT AI Summer Research Program presentation (June 23, 2021) "Creating Serendipity in Science"
153. Biomedical Engineering Seminar (Nov 23, 2020) "Flexible gesture recognition to enhance communication for motor impaired individuals: impact of the UNT AI for Wearables course"
154. Information Science Department Brown Bag Lunch (Sep 30, 2020) "Understanding Sensory

- Neural Processing Through Efficient Coding Principles” along with Sahar Behpour.
155. Information Technology and Decision Sciences Research Forum (Apr 24, 2020) “Reinforcement learning with examples in strategic and tactical learning”
 156. Biomedical Engineering BMEN 5310 course (Apr 15, 2020) “AI applications in clinical instrumentation”
 157. Biomedical Engineering Seminar (Sep 15, 2019) and (Nov 25, 2019) “Clinical outcomes research: using wearables in health care”
 158. Neuroscience Seminar (Mar 12, 2019) “The power of computational principles: how the same efficient coding algorithm can derive early neural coding in audition as well as color, binocular, and spatiotemporal vision” Co-presenting students: Angie Georgaras, Patrick Nolan, Harmeet Singh
 159. Neuroscience Seminar (Sep 26, 2017) “The limits of correlations in neuroscience”
 160. Neuroscience Seminar (Oct 25, 2016) “In defense of modeling in neuroscience”
 161. Neuroscience Seminar (Nov 3, 2015) “Deep Learning: a modern, powerful convergence of machine learning and neural processing”
 162. CURL Seminar (Center for Urban Research and Planning - Jan 23, 2015) “Patient Tracking: How Machine Learning Can Provide Us with Convenient, Continuous, and Objective Information on Patients with Motor Disabilities after Therapy”
 163. Neuroscience Seminar (Sep 16, 2014) “Computational Neuroscience: why it is a necessary toolset for understanding the brain”
 164. Math Colloquium (April 14, 2014) “How to Derive a Brain: efficient coding in sensory neuroscience”
 165. Biology Seminar (Nov 6, 2013) “Innate learning models of LGN/V1 spontaneous activity”
 166. Neuroscience Seminar (Sep 3, 2013) “Innate learning in early visual development”

Dissertations and Theses, Directly Supervised

1. Sahar Behpour. Weight Initialization for Convolutional Neural Networks using Unsupervised Machine Learning (May 2022). Information Science PhD Dissertation (co-advisor: Ting Xiao)
2. Pinky Sindhu. Toddler Activity Recognition using Machine Learning (Aug 2018) Computer Science Master’s Thesis
3. Anne Zhao. A mobile app demonstrating sensory neural codes through an efficient coding of collected images and sounds (May 2017) Computer Science Master’s Thesis
4. Ilona Shparii. Real-time fall detection and response on mobile phones using machine learning (May 2017) Computer Science Master’s Thesis
5. Pichleap Sok. Activity Recognition for Incomplete Spinal Cord Injury Subjects using a Hidden Markov Model (May 2016) Computer Science Master’s Thesis
6. Uzzie Cannon, Ph.D. Novels of the African Diaspora Online Catalog (May 2015) Digital Humanities Master’s Thesis (co-advised along with James Knapp)

Dissertations and Theses, Committee Memberships

Ongoing

1. Omar Cavazos. Biomedical Engineering PhD (primary advisor, Vijay Vaidyanathan)
2. Abdullah Albanyan. Investigating the Relationships between Online Hate Speech and Counterhate Replies to Mitigate Hateful Content (anticipated March 2023). Computer Science and Engineering PhD (primary advisor, Eduardo Blanco - ASU)
3. William Zamudio. Computer Science and Philosophy BS Honors College Thesis (primary advisor, Michael Thompson).
4. Tam Doan. Computer Science and Engineering PhD (primary advisor, Paul Tarau)
5. Suleyman Olcay Polat. Computer Science and Engineering PhD (primary advisor, Rodney Nielsen)
6. Mica Haney. Computer Science and Engineering PhD (primary advisor, Rodney Nielsen)
7. Xiaoqiong Liu. Computer Science and Engineering PhD (primary advisor, Heng Fan)
8. Mohammad Al Olaimat. Computer Science and Engineering PhD (primary advisor, Serdar Bozdag)
9. Farhad Mokter. Computer Science and Engineering PhD (primary advisor, JungHwan Oh)
10. Craig Carlson. Computer Science and Engineering PhD (primary advisor: Krishna Kavi)
11. Md Marufi Rahman. Computer Science and Engineering PhD (primary advisor: JungHwan Oh)
12. George Mihaila. Computer Science and Engineering PhD (primary advisor: Rodney Nielsen)
13. Zhaomin Xiao. Computer Science and Engineering PhD (primary advisor: Yan Huang)
14. Ziyne Nesibe Kesimoglu. Computer Science and Engineering PhD (primary advisor: Serdar Bozdag)
15. Solomon Ubani. Computer Science and Engineering PhD (primary advisor: Rodney Nielsen)
16. Md Mosharaf Hossain. Computer Science and Engineering PhD. (primary advisor: Eduardo Blanco)
17. Constant Marks. Computer Science Ph.D. (primary advisor: Yan Huang)
18. Abolfazl Meyarian. Computer Science Ph.D. (primary advisor: Xiaohui Yuan)
19. Keye Hang. Computer Science Master's Thesis (primary advisor: Hyunsook Do)
20. Jubair Ibn Malik Rifat. Computer Science Ph.D. (primary advisor: Serdar Bozdag)

Completed

21. Venkata Deepa Kota. Intelligent ECG Acquisition and Processing System for Improved Sudden Cardiac Arrest Prediction (July 2022). Electrical Engineering Ph.D. (primary advisor: Ifana Mahbub)
22. Trevor Exley. Parkinson's Disease and UPDRS-III Prediction using Quiet Standing Data and Applied Machine Learning (May 2021) Biomedical Engineering Master's Thesis (primary advisor: Rita Patterson)
23. Angela Andaleon. Genetic Architecture of Lipid Traits in Diverse Populations (May 2019) Bioinformatics Master's Thesis (primary advisor: Heather Wheeler)
24. Brihat Sharma. Opioid Misuse Detection in Hospitalized Patients using Convolutional Neural Networks (April 2019) Computer Science Master's Thesis (primary advisor: Dmitriy Dligach)
25. Andrew Phillips. A Study into the Feasibility of using Natural Language Processing and Machine Learning for the Identification of Alcohol Misuse in Trauma Patients (June 2018) Computer Science Master's Thesis (primary advisor: Dmitriy Dligach)

Student funding and select awards directly to advisees

1. Ishan Ranasinghe Arachchilage (PhD - coadvised with Ram Dantu) and Kapil Panda (TAMS) won 2nd place in the USICOC Spirit of Innovation Competition. \$3000 prize.
2. Sahar Behpour, Golden Eagle Award (2021) “Golden Eagle Award is the most prestigious award that UNT bestows on a student leader”
3. Undergraduate Research Fellowship, University of North Texas (2021-2022): Austin Meek, Kelly Zhou, Stephanie Xia, and Andrew Zheng
4. Allen Chau (TAMS), Finalist in the Regeneron International Science and Engineering Fair (2021)
5. Brianna Chan (TAMS), Finalist in the Regeneron International Science and Engineering Fair (2021)
6. Sahar Behpour, Graduate Research Award, College of Information (2020)
7. Sahar Behpour, Mark E. Rorvig Endowed Graduate Fellowship, College of Information (2020)
8. ACM Tapia Conference Travel Scholarship (2020) for Sahar Behpour, Thasina Tabashum, Namratha Urs
9. Samuel Sendelbach, Pizzi award for travel funds to Society for Neuroscience conference (2018) for “Deriving binocular spontaneous neural activity by optimizing depth perception in an innate learning model of visual development”
10. Angela Andaleon, Carbon Scholarship for “*Genetic Mechanisms Underlying Cholesterol Traits in Diverse Populations*” (2017) co-advised with Heather Wheeler
11. Anne Xiaolu Zhao, Anita Borg Institution Scholarship for “*A mobile app illustrating efficient coding strategy of visual and auditory sensory system*” (2016)
12. Jorge Yanar, Carbon Scholarship for “*Development of a Neural Connectivity Toolbox for Human Scalp Electroencephalography Recordings and its application to the study of Cognitive Aging*” (2015) co-advised with Robert Morrison and Carolyn Martsberger
13. Gordon Kratz, Provost Fellowship for “*Automated depth perception as a behaviorally-relevant metric for the innate learning paradigm*” (2014)
14. Vlad Didorchuk, Carbon Scholarship for “*Impact of retrotransposons on plant evolution*” (2014) co-advised with Howard Laten.

News articles

1. Professor develops TalkMotion app for those unable to speak. [[North Texas Daily](#)] April 7, 2022
2. UNT professor works to improve communication for people unable to speak and with limited mobility. Mar 2022 [[UNT Research](#)]
3. Accelerated Deep Learning REU announcement. Mar 2021 [[UNT Research](#)]
4. Through Artificial Intelligence, real change emerges. Nov 2020 [[UNT Research](#)]
5. Experts weigh in on job market trends. Oct 2020 [[Zippia](#)]
6. UNT AI students work to predict spread of COVID-19 in global challenge. May 2020 [[EdScoop link](#)] [[UNT link](#)]
7. Masters of Science in Artificial Intelligence at University of North Texas. Dallas CBS News broadcast (student project highlighted). Feb 2020 [[CBS link](#)] [[Yahoo news](#)] [[UNT link](#)]
8. Perspective provided for “Electronic Activity Monitors Could be Helpful in Clinical, Public Health, Rehabilitation Settings”. O&P News, February 2015 [[link](#)]
9. Featured in “Use of Fitbit Activity Monitor Successfully Assessed Transfemoral Amputee Activity Levels”. O&P News, Fall 2014 [[link](#)]

Teaching and student advising

Courses Taught

Materials publicly available at <http://biomed-ai.com/class>

“*” for courses I have created

traditional courses (ordered chronologically)

1. *CSCE 5280: AI for Wearables and Healthcare (2020,2021,2022)
2. CSCE 5310: Methods in Empirical Analysis (2022)
3. *CSCE 5214: Software Development for AI (2020)
4. *CSCE 5218: Deep Learning (2020)
5. CSCE 5215: Machine Learning (2019)
6. COMP 460: Algorithms & Complexity (2019)
7. COMP 271: Data Structures (2010, 2017x2, 2018x2, 2019)
8. *COMP 386: Computational Neuroscience (2015, 2017,2018)
9. COMP 363: Algorithms (2013, 2014, 2015x2, 2016, 2017)
10. *COMP 379: Machine Learning (2015)
11. COMP 441: Human-Computer Interaction (2013, 2014)
12. COMP 424: Client-side Web Design (2013, 2014)
13. COMP 412: Open Source Software, graduate version (2011)
14. COMP 150: Intro to Computing (2011, 2018)
15. COMP 383: Computational Biology (2010)

independent study, interdisciplinary courses, and 1 credit courses (ordered by relevance)

16. *HONORS 204: Science and Society: Automated Discrimination (2016)
17. *HONORS 204: Science and Society: Discrimination and Data Science (2015)
18. *HONORS 204: Science and Society: Network science (2014)
19. *COMP 397: Research Method Seminar in Computer Science (2015, 2016, 2017,2018, 2019)
20. COMP 490: Independent Study, Grad (2014+)
21. *COMP 399: Computer Science Seminar (2015, 2016, 2017,2018)
22. COMP 398: Independent Study, Undergrad (2010+)
23. BIOI 399: Independent Study, Bioinformatics research (2014)

external courses, tutorials, and workshops aimed at education

24. Created and coordinated the UNT AI Summer Research Program. Summer 2020 - Summer 2022 (and ongoing) engaging 130+ students in 40 projects total (so far) with approximately 10 faculty advisors each year across multiple departments.
25. Co-organizer for Chicago’s ASA-sponsored DataFest 2016 - 2019
26. Group session leader: Medical Decision Making: Block 1 (stats emphasis) for Northwestern

- University Feinberg School of Medicine (2015, 2016)
27. Lecture series: Machine Learning to Human Learning: leveraging applied computational strategies to understand human cognition. *20 hour lecture series designed for University of Rome Sapienza researchers* (2015)
 28. Co-organizer for MEMS Analytics workshop: Python and Data Visualization for Northwestern University's Master of Engineering Management program (2014)
 29. Extensive MS grad and undergrad research mentoring with 39 for-credit or paid research students (17 MS graduate and 22 undergraduate)
 30. Created and coordinated the Loyola Computer Science Summer Research Program with 104 students engaging in 34 projects over summer 2015 - 2019

Research students, graduate

Last updated Summer 2019

1. Albert Sugianto (Summer 2018 - Spring 2019) Computer Science grad student → **Python developer at Navarc**
2. Rejoice Jabamalaiddass (Fall 2018 - Spring 2019) Computer Science thesis grad student → **Enterprise Architect at Loyola University Chicago**
3. Pinky Sindhu (Fall 2017- Summer 2018) Computer Science thesis grad student → **Tata Consultancy Services**
4. Elizabeth Sink (Summer 2017 - Fall 2017) Information Technology independent study student
5. Xiaolu ("Anne") Zhao (Fall 2016 - Summer 2017) Computer Science thesis grad student → **Associate Software Engineer at Panasonic**
6. Ilona Shparii (2016 - Summer 2017) Computer Science thesis grad student → **Google, Software Engineer**
7. Anadi Misra (Spring - Summer 2017) Computer Science grad student
8. Pichleap ("Jessie") Sok (2015-2016) Computer Science thesis grad student → **Amazon, Senior Software Development Engineer**
9. Irina Rabkina (Spring - Summer 2015) Computer Science → **Ph.D. at Northwestern University Computer Science**
10. Lailson Nogueira (2014-2015), Computer Science → **Quality Assurance Manager, C6 Bank**
11. Nicholas Giranda (Summer 2015), Information Technology grad student → **Soar Technology, Software Engineer**
12. C. Bryce Etheridge (Spring 2015), Computer Science
13. Christopher Robertson (Spring 2015), Computer Science grad student → **Willis Towers Watson, Senior Associate Developer**
14. Asma Mehjabeen (Fall 2014), Computer Science grad student → **Software developer at Procured Health**
15. Daneih Ismail (Spring 2014) Software Engineering → **PhD Candidate DePaul University**
16. Ranulfo Neto (Spring 2014) Visiting CS grad
17. Alex Thornberg (Spring 2014) Computer Science
18. Carol Klann (Spring 2014) Computer Science
19. Steve Antos (Summer - Fall 2012) PT/PhD student in biomedical engineering at Northwestern

University with Konrad Kording → **Data Engineer, Northwestern Memorial Hospital**

Research students, undergraduate

Last updated Summer 2019

1. Lucas (Diego) Perez, CS undergraduate independent study with Denise Davidson
2. Zhihao Zhou (Fall 2018), CS undergrad independent study → **MS program at Carnegie Mellon University, Silicon Valley campus**
3. Sam Sendelbach (Fall 2017 - Spring 2018), neuroscience undergrad → **Founder, TensorTask**
4. Arjele Bureros (Summer 2018), CS undergrad independent study
5. Vaibhav Thakkar (Summer 2018), CS undergrad independent study
6. David Saffo (Summer 2016 - Spring 2018), CS undergrad (Ph.D. at Northeastern University) → **PhD program at Northeastern University**
7. Jack Blandin (advised post graduation in 2017/18, CS undergrad → **GoHealth, then Ph.D. Program at University of Illinois Chicago**
8. Anirruddh Krishnan (Spring 2018), Dual degree CS/Physics independent study student → **Quansight**
9. Spencer Christensen (Spring 2018), Computer science independent study student
10. Tom Biju (Fall 2017), Physics and Computer Science/Mathematics independent study student
11. Chris Huang (Fall 2017), Software Engineering independent study student
12. Katie Tanaka (Fall 2017), Software Engineering independent study student
13. Katelyn Schoenberger (Summer 2017), Software Engineering independent study student
14. Mary Makarious (Spring 2015 - Fall 2016) Bioinformatics and Biology → **NIH Intramural Research Program and UCL Doctoral Student**
15. Antony Oakey (Fall 2015), CS/Physics undergrad
16. Joao Mendes (summer 2015) Biomedical Engineering, University of Lisbon
17. Nema Nemati (Spring 2015) Computer Science
18. Gordon Kratz (Spring - Summer 2014) → **Group One Trading**
19. Neil Rao (Spring - Fall 2014) Biology undergrad → **Co-founder REPRIMX**
20. Tara Raj (Spring - Fall 2014) Software Engineering
21. Michael Courtois (Spring 2014), Bioinformatics and Software Engineering
22. Yohannes Azeze (summer 2013), RIC summer intern, Biomedical Engineering, Illinois Institute of Technology
23. Amberlace Moore (summer 2012) RIC summer intern
24. Kevin Greene (summer 2011) Computer Science independent study at RIC

Research students, on rotation or year-long advised high school students

Last updated Fall 2019

1. Munazza Ali (Summer 2019), MS in Computer Science
2. Thirteen Summer 2016 research students from the Brazilian Scientific Mobility Program (as program coordinator)

- a. Anna Gabriella Breganholi de Almeida, Marcos Pedro Ferreira Leal Silva, Cauanne Linhares Pinheiro, Matheus Eduardo Rodrigues Freitag, Diego Tavares Pereira, Vinicius de Figueiredo Marques, Alana Laryssa Seabra A Santos, Lucas Martins Ribeiro, Talles Oliveira de Souza Alves, Geysa Carolina De Souza Fernandes, Edgard Oliveira, Marcos Mota, Arnaldo Sales de Lima Filho
3. Mark Rogers (Fall 2015 - Spring 2016), IMSA student
4. Cameron Hudgins (Fall 2015 - Spring 2016), IMSA student
5. Sam Zelman (Fall 2015 - Spring 2016), IMSA student
6. Michael Dow (Fall 2015 - Spring 2016), IMSA student
7. Five Summer 2015 research students from the Brazilian Scientific Mobility Program (as program coordinator)
 - a. Lucas Borges Fernandes, Ana Beatrice, Jose Herick Melo da Silva, Wanderson Modesto, Joao Paulo Rubio, Gabriela Furlan
8. Isaac Adorno (Fall 2014 - Spring 2015), IMSA student
9. Arun Arjunakani (Fall 2014 - Spring 2015), IMSA student
10. Petra Conaway (Fall 2012) PT/Clinical coordinator for mobile phone project at RIC
11. Mayowa Agbaje-Williams (summer 2012) Pharm.D student/Clinical coordinator for mobile phone project at RIC
12. Connor Champion (summer 2012) MD extern on research rotation at Northwestern University School of Medicine
13. Andrew Cichowski (summer 2011) MD extern on research rotation at Northwestern University School of Medicine

Service

Academic Reviewer

(ordered by year of most recent review)

1. JMIR Cardio, 2023
2. BioMedical Engineering OnLine, 2023
3. Information, 2023
4. IEEE Journal of Translational Engineering in Health & Medicine, 2022
5. JMIR Bioinformatics and Biotechnology, 2022
6. JMIR Formative Research, 2022
7. BIBM Program Committee member, 2021
8. IEEE Transactions on Biomedical Engineering, 2021
9. Computer Methods in Biomechanics and Biomedical Engineering, 2020
10. Biomedical Signal Processing and Control, 2020
11. JMIR Rehabilitation and Assistive Technologies, 2020
12. IEEE Transactions on Neural Networks and Learning Systems, 2020
13. Patterns, 2020
14. IEEE Sensors, 2020
15. Current Pharmaceutical Design, 2020
16. Artificial Intelligence Review, 2019

17. J Applied Computing and Informatics, 2019
18. Transactions on Neural Systems and Rehabilitation Engineering, 2018
19. JMIR mHealth and uHealth, 2018
20. Journal of Neuroengineering and Rehab, 2018
21. Information Fusion, 2018
22. IEEE Access, 2018
23. PeerJ, 2018
24. Sensors, 2017
25. Measurement, 2017
26. Journal of Medical Internet Research, 2017
27. ACS Nano, 2016
28. Computer Methods and Programs in Biomedicine, 2016
29. IEEE Transactions of Human-Machine Systems, 2016
30. PLoS ONE, 2016
31. Pervasive and Mobile Computing, 2015
32. IEEE Journal of Biomedical and Health Informatics, 2015
33. Biomedical Engineering Online, 2014
34. Big Data and Cloud Computing (BDCloud 2014)
35. Journal of Applied Gerontology, 2014
36. PLoS Computational Biology, 2013
37. Artificial Intelligence in Medicine, 2012
38. Annals of Biomedical Engineering, 2012
39. Brain Research, 2009

Review Panels

- BIBM 2021 Program Committee
- **NSF grant review panels:** 2020, 2021
- Invited Reviewer for AAAS Research Competitiveness Program, Maine Technology Board, March 2014
- Invited Reviewer for the Rolex Awards for Enterprise (rolexawards.com), Sep 2013

Adjunct Affiliations and professional memberships

- ACM lifetime membership
- IEEE-HKN (Eta Kappa Nu)
- Center for Bionic Medicine, Shirley Ryan AbilityLab (formerly the Rehabilitation Institute of Chicago), 2010 - 2019
- Department of Physical Medicine and Rehabilitation, Northwestern University Feinberg School of Medicine, 2010 - 2022
- Society for Neuroscience
- Bioinformatics program, Loyola University Chicago, 2013-2019
- Neuroscience program, Loyola University Chicago, 2013-2019
- CHOIR - Loyola University Chicago Center for Health Outcomes and Informatics Research,

Faculty Committees

- **Associate Chair of Graduate Studies, Computer Science and Engineering**
 - Coordinate with graduate committee for admit decisions for 6000+ applicants each year
 - < 400 CSE graduate students in Spring 2021 to 2700+ CSE graduate students (Fall 2023)
 - Match our 240+ TAs/graders to 300 courses each long semester
 - CSE Executive Committee, non-voting member
- Graduate Curriculum Committee, 2019 - current
- Computer Science and Engineering Search Committees (for over 20 hired in FY 2021 and 2022):
 - T/TT Search Committee, FY 2022 (3 hires, +1 opportunity hire)
 - CSE Clinical Faculty and visiting faculty search committees, FY 2022 (5+ hires)
 - 3 Staff positions (2 CSE, 1 Dean's office working with CSE, FY 2022)
 - **Chair, CSE TT Faculty Search Committee, 2020-2021 (3 hires)**
 - CSE Clinical Faculty and visiting faculty search committees, FY 2021 (5+ hires)
- CSE Grade Appeals Committee Chair, FY 2022 +
- Department resources committee chair (space, lab fees, etc), 2018-2019
- CS Program Advisory Council (PAC) Committee, 2018-2019
- Computer Science curriculum committees
 - grad & undergrad curriculum committee, 2018-2019
 - undergraduate curriculum committee, 2013 - 2018
- Additional Faculty Search Committees:
 - Computer Science & Engineering / Math - Life Sciences hire for Biodiscovery Institute, 2019-2020
 - Data Science / Statistics 2018-2019
 - Bioinformatics, 2015
 - Biomedical Engineering Science, 2014 & 2015
 - Computer science, lecturer track, 2013

Science Outreach / Community Efforts / Misc Service

1. Albert MV. What does a Biomedical AI lab actually do? UNT OLLI lifelong learning, The Grove at Frisco. Oct 27, 2023
2. Albert MV. AI's Explosive Decade: How Neural Networks are Taking Over. UNT OLLI lifelong learning, The Grove at Frisco, Oct 6, 2023
3. Albert MV. A dialogue about AI and its recent advances. UNT Retiree Association. Oct 20, 2022.
4. Moderator for panel discussion on Advancing Healthcare through Analytics and AI for the UNT AI & Data Science Summit Oct 11, 2019 (Lindsey Philpot from the Mayo Clinic, Sophia Ulman from Texas Scottish Rite Hospital, and Steven Wessling from United Healthcare)
5. AI roundtable discussion with Representative Raja Krishnamoorthi (US House of Rep, IL 8th), who introduced the AI Jobs Act of 2018. May 1, 2018
6. Albert MV, Zhao X, Shparii I, Makarious M, Greenwood S. Brain Geography demo representing computational neuroscience at Loyola, Science Works, Museum of Science and Industry. Oct 15, 2016

7. Arranged the student affiliation agreement between Loyola University Chicago Computer Science Department and Rehabilitation Institute of Chicago, January 2015
8. Albert MV, Orton K. Biotech 101 for Biotech Launch Symposium. Short course aimed at exposing high school biology teachers to advanced methods in biology research. June 19, 2012
9. Public Service Center, Cornell University, paid position Aug 2007 - May 2009
 - a. EYES (Encourage Young Engineers and Scientists), Graduate Advisor
 - b. GRASSHOPR (GRAduate Student ScHool Outreach PRogram), Coordinator
10. Brain Geography mini-course - varied between one day and 8-week versions. 465 students total
 - 2006, 2008, 2009: Cornell Bring a Child to Work Day
 - 2008 (2), 2009 (2): Encourage Young Engineers and Scientists
 - 2006, 2007, 2008: Graduate Student School Outreach Program
 - 2006, 2009: Expand your horizons
 - 2009: Cornell Institute for Biology Teachers
 - 2016: Museum of Science and Industry: Science Works event
 - 2017: Loyola University Chicago Neuroscience Society