Curriculum Vitae for Mark V. Albert

Mark V. Albert   Jul 27, 2025
Curriculum Vitae

Mark.Albert@unt.edu   Information Science
(940) 268-3648   University of North Texas
http://www.biomed-AI.com   1155 Union Circle #311366
                                                                        Denton, TX 76203-5017

Professional experience

University of North Texas   Aug 2019 - current
> Chair (Sep 2025 - current), Information Science
> Associate Chair of Graduate Studies (Sep 2021 - Aug 2025), Computer Science & Engineering
> 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 micellular 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)

Leadership experience

Academic leadership

Department Chair, Information Science, Fall 2025+
- Improved department in-person culture, physical space, and engagement; departmental seminar attendance; and developed sponsorship for food and drink for events to continue such engagement.
- Developed InfoHub to improve transparency, accountability, information access, and fairness with shared data for Faculty, PhD students, Employees, Programs, Courses, Schedules with a year-round calendar and standard-operating-procedures for staff that did not exist prior.

Associate Chair for Graduate Studies, Computer Science and Engineering, Fall 2021 - Summer 2025
- Through three department chair transitions in a department of 70+ full-time faculty.
- Managed growth of graduate program from fewer than 400 grad students in Spring 2021 when I began to over 2,500 students in Fall 2023 (over 6 x growth), including nearly double the growth of the PhD program (~100 to ~200 PhD students over the same time frame)
- Managed the allocation, training, and discipline of 250 TAs/IAs each semester directly from Fall 2021 to Fall 2024, then distributed among Grad program directors
- Managed 10 graduate program co-directors, graduate curriculum committee meetings and management, advising support, admissions.
- Created the PhD admissions committee process, spun off a new PhD program director position in Fall 2023 from my responsibilities for 2 years prior.
- CSE Seminar creator and lead each semester from Spring 2022 to current semester. Large enrollments with, for example, 110 students enrolled in Fall 2024.
- Projects open house coordinator connecting research labs with interested students at the start of each semester, regularly bringing in 15+ research labs pitching to 90+ student applying each semester

AI Summer Research Program co-director, UNT, continuously from 2015 to current year
- Created and co-coordinated an artificial intelligence-oriented summer research program from 2020 to 2024 at University of North Texas (239 students total, 75 projects - counting continuation

projects) with an average 9 faculty advisors each summer
- Created and coordinated a computer science summer research program at Loyola University Chicago (2015-2019, 104 students, 34 projects total)

UNT AI and Data Engineering program director, UNT, 2020-2021
- Ran MS in AI information sessions each semester, the program's regular AI "tea times", regular AI seminars, open house events, and project presentation competitions. He is the primary person behind "ai.unt.edu" which is a portal to organize these varied efforts.

Created the Data Science undergraduate program, Loyola University Chicago, 2018-2019
- Wrote, coordinated, and received approval for the Data Science undergraduate program at Loyola University Chicago. Was slated to be program co-director prior to leaving to UNT in Fall 2019.

Professional organization leadership

Shriners Children's Hospital System, Advisor, Gait Analysis Analytics, 2021 - current
- Created and Implemented holistic summary metric, Shriners Gait Index, for comparison of gait therapy interventions.
- Shriners State of Science meeting team presentations for machine learning
- Weekly, biweekly, and monthly meetings integrating ML and analytics into gait clinical research outcomes across projects

Northwestern Feinberg School of Medicine, Adjunct Professor in Physical Medicine and Rehabilitation, 2013 - 2022
- Master of Engineering Management Analytics Workshop co-led with Plamen Petrov, CTO - Cognitive Analytics at Deloitte
- Taught Medical Decision Making - Stats section for MD students, 2 years

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

Awards/Honors

Outstanding Research Mentor of the Year - University-wide award provided by the honors college for mentorship of research students. Spring 2025

Department awards "quadruple threat" out of 60+ faculty in CSE - Department mentorship award (2025, among T/TT faculty), department teaching award (2024, among T/TT faculty), service award (2023), and research award (2022, junior research award, among assistant professors).

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

Research

Grants, fellowships, and other funding

External

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

1. NIH R25 Summer Research Education Experience Program (role Co-PI) 12/1/2025 - 11/30/2030
   "Advancing Digital Health Technology: A Summer Research Program for High School and Community College Educators" ($646,655 total with 30% attribution share of $193,996)
2. Shriners Children's Hospitals System grant (role: site PI)   Jan 2026 - Dec 2027
   "Predicting and Optimizing Long-Term Outcomes in Pediatric-Onset SCI: A Machine Learning Approach" ($114,363 to UNT)
3. NSF REU on Responsible Generative AI (role: Co-PI)   6/15/2025 - 5/31/2028
   Undergraduate Research Experience "REU Site: Making Generative Artificial Intelligence Responsible" NSF/CCF division. ($463,434 total with 40% attribution share of $185,373)
4. 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)
5. 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)
6. 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" ($56,967 to UNT, through 1R01NR020918)
7. Shriners Hospitals for Children system grant (role: site PI)   Jan 2023 - Dec 2026
   "Improving Orthopaedic Outcomes through Machine Learning" ($289,770 to UNT)
8. C-STAR Pilot Project (role: subcontract)   Jan 2024 - Dec 2024
   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)
9. 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 "Physical Activity Measurement in Toddlers" ($70,808 share to UNT)
10. 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)
11. 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)
12. 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

13. 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)

14. 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"

15. 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.

16. 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.

17. 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.

18. 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.

19. 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)

20. NSF Graduate Research Fellowship   Aug 2005 - May 2008

Fully funded 3 years of graduate school in Computational Biology at Cornell University

21. 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

22. 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

23. 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)

24. Research Seed Grant, UNT   Jan 2021 - Dec 2021

$7880 (role: Co-I, with Huaxiao Yang, PI)

25. 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)

26. 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)
27. Summer Research Stipend   May 2017 - July 2017
    For computational neuroscience research work on "Behaviorally-relevant scoring of
    binocular visual development models by depth perception"
28. 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
29. 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
30. 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
31. 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
    2375 total citations, 24 h-index - google scholar
    The list below does not include abstracts, notes, posters, or presentations.
    * Students are marked with a '*'

In preparation or resubmission in progress:
1. Hasan MZ, Honegger K, Welch SB, Albert MV, Kwon S. Toddler Physical Activity Recognition
   Using Machine Learning.
2. Nemkova AP, Albert MV. Prompting Across Languages: Investigating LLM Bias in Human Rights
   Classification with Russian, Ukrainian, and English Instructions.
3. Pookulangara R*, Yousefian Jazi S*, Moye R*, Zhao A*, Albert MV. Neurosense: A Mobile App
   Exploring Efficient Coding Principles for Sensory Neuroscience in Images and Audio. J
   Computational Neuroscience.

Accepted, submitted, or under revision:

1. Nemkova P, Albert MV. Metacognitive Agentic AI for Social Good: Designing Uncertainty-Aware Decision Systems (submitted) IJCAI 2026

2. Mihaila G, Polat SO, Nemkova P, Sharma H, Urs NV, Albert MV (submitted) LIME-LLM: Probing Models with Fluent Counterfactuals, Not Broken Text. ACL 2026

3. Yi Z, Liu J, Albert MV, Xiao T. (accepted) A Multi-Agent System for Complex Reasoning in Radiology Visual Question Answering. ACM/IEEE Joint Conference on Digital Libraries (JCDL 2025).

4. Nemkova P, Polat SO, Ray Choudhury S, Lee S-J, Jahan RI, Sarkar S, Albert MV. (submitted) Towards Automated Situation Awareness: A RAG-Based Framework for Peacebuilding Reports. ARR 2025.

5. Tabashum T, Rifat FY, Wang S-J, Krzak JJ, Kruger KM, Graf A, Chafetz RS, Davids JR, Bagley A, Woloff J, Sienko SE, Bauer J, Albert MV (under revision) Instruction Fine-Tuned Language Model for Pediatric Fall Risk Assessment via Iterative Training using Generated Clinical Texts. IEEE ICHI 2026

6. Rafiq RB*, Shi W, Albert MV (submitted) KARL: Knowledge-Attentive Representation Learning for Wearable Hand Gesture Recognition in Motor-Impaired Individuals. AISI 2026

Published:

7. Ahmed SI, Hasan MZ, Niloy AJ, Monsur SM, Albert MV. Scaling Down, Powering Up: A Survey on the Advancements of Small Vision-Language Models. Information Fusion. 2026; 127 (B), 103805. https://doi.org/10.1016/j.inffus.2025.103805.

8. Yi Z, Liu J, Xiao T, Albert MV. A Multimodal Multi-Agent Framework for Radiology Report Generation. ICAI '25 (27th International Conference on Artificial Intelligence)

9. Dibbern KN, Krzak MG, Olivas A, Albert MV, Krzak JJ, Kruger KM. Scoping Review of Machine Learning Techniques in Marker-Based Clinical Gait Analysis. Bioengineering. 2025; 12(6):591. https://doi.org/10.3390/bioengineering12060591

10. Wang S-J*, Tabashum T*, Krzak J, Kruger K, Graf A, Chafetz R, Davids J, Bagley A, Sienko S, Bauer J, Albert MV. Cross-site model development and validation of the Shriners Gait Index. IEEE ICHI 2025

11. Nemkova P*, Polat SO*, Albert MV. Comparing LLM Text annotation Skills: A Study on Human Rights Violations in Social Media Data. AAAI workshop AI for Social Impact: Bridging Innovations in Finance, Social Media, and Crime Prevention, 2025

12. Yi Z*, Xiao T, Albert MV. A Survey on Multimodal Large Language Models in Radiology for Report Generation and Visual Question Answering. Information 2025, 16, 136. https://doi.org/10.3390/info16020136

13. Goel A*, Joshi E*, Kwee-Bintoro T*, Gopal K, Chesky K, Champlin S, Albert MV (2024) A Pilot Dashboard System to Track Cumulative Exposure to Sound Levels during Music Instruction: A Technical Report. J of American Academy of Audiology. 35(9-10):217-225. doi: 10.1055/s-0044-1791210.

14. Yuan C*, Al Forhad MAA*, Bansal R*, Sidorova A, Albert MV (2024) Multi-agent dual level reinforcement learning of strategy and tactics in competitive games. Results in Control and Optimization Vol 16, 2024, doi: https://doi.org/10.1016/j.rico.2024.100471.

15. Tabashum T*, Wang S-J*, Krzak JJ, Kruger KM, Graf A, Chafetz RS, Davids JR, Bagley A, Woloff

J, Sienka SE, Bauer J, Albert MV (2024) Language Models for Fall Risk Assessment in Children with Cerebral Palsy using Electronic Medical Records. IEEE International Conference on Biomedical and Health Informatics (IEEE BHI 2024)

16. Rafiq RB*, Shi W, Albert MV (2024) Wearable Sensor-Based Few-Shot Continual Learning on Hand Gestures for Motor-Impaired Individuals via Latent Embedding Exploitation. IJCAI 2024

17. Wang SJ*, Tabashum T*, Kruger K, Krzak JJ, Graf A, Chafetz R, Linton J, Davids J, Bagley A, Bengani K, Albert MV (2024) "Creating an Autoencoder Single Summary Metric to Assess Gait Quality to Compare Surgical Outcomes in Children with Cerebral Palsy: The Shriners Gait Index (SGI)" Journal of Biomechanics, 168, 112092. https://doi.org/10.1016/j.jbiomech.2024.112092.

18. Maramraju S*, Kowalczewski A*, Kaza A*, Liu X*, Singaraju JP*, Albert MV, Ma Z, Yang H. (2024) AI-Organoid Integrated Systems for Biomedical Studies and Applications. Bioengineering & Translational Medicine. 9(2). https://doi.org/10.1002/btm2.10641

19. Tabashum T*, Snyder RC*, O'Brien MK, Albert MV (2024) Machine Learning Models for Parkinson Disease: Systematic Review. JMIR Med Inform 12:e50117. doi: 10.2196/50117

20. 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)

21. Rafiq RB*, Karim SA*, Albert MV (2023) An LSTM-based Gesture-to-Speech Recognition System. 2023 IEEE 11th International Conference on Healthcare Informatics (ICHI). 430-438. doi: 10.1109/ICHI57859.2023.00062.

22. 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

23. 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)

24. 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

25. 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.

26. 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 Symposium on VLSI)

27. 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

28. 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.

29. 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

30. 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

31. 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)

32. 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

33. 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)

34. 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)

35. 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)

36. 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)

37. 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)

38. 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

39. 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)

40. 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.

41. 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.

42. 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

43. 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)

44. Albert MV, Sugiano A*, Nickele 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)

45. Xiao T, Tabashum T*, Jebamalaidass 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.

46. Kwon S, Zavos P, Nickele 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.

47. 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.

48. 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

49. 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

50. Orendorff EE*, Kalesinskas L*, Palumbo RT*, Albert MV (2016) Bayesian Analysis of Perceived Eye Level. *Front. Comput. Neurosci.* **10**:135. doi:10.3389/fncom.2016.00135

51. 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.

52. 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.

53. 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

54. 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.

55. 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

56. 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

57. Albert MV, Toledo S, Shapiro M, Kording KP (2012) Using mobile phones for activity recognition in Parkinson's patients. Frontiers in Neurology 3:158

58. Albert MV, Kording KP, Herrmann M, Jayaraman A (2012) Fall classification by machine learning using mobile phones. PLoS ONE 7(5): e36556

59. Albert MV, Kording KP (2011) Determining posture from physiological tremor. Experimental

Brain Research. 215 (3), 247-255

60. 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.

61. Albert MV*, Schnabel A*, Field DJ (2008) Innate Visual Learning through Spontaneous Activity Patterns. PLoS Computational Biology 4(8)

62. 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.

63. 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.

64. 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

65. **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)

66. 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.

67. 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.

68. 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

69. 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 Vitório. Springer

70. 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.

71. Albert MV (2015) The Brain Geography Mini-Course: a neuroscience outreach effort. Loyola University e-commons report.

72. Albert MV* (2010) Normative Visual Development: innate learning in the early visual system, Ph.D. Thesis, Field of Computational Biology, Cornell University.

73. Albert MV*, Field DJ (2009) Neural Representation and Coding. Encyclopedia of Perception, Ed. E.B. Goldstein et al., SAGE Press.

74. Touretzky DS, Ladsariya A*, Albert MV*, Johnson JW, Daw ND. (2004) HHSIM: An Open Source, Real-time, Graphical Hodgkin-Huxley Simulator. Neuroscience Abstracts 26

75. 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

76. Marella A, Tamma I, Dahan-Oliel Noemi, Zhang Y, Wagner LV, Albert MV, Artificial Intelligence in Motion: Revolutionizing Arm Function Assessment in Children with Arthrogryposis Multiplex Congenita Using SHAPE-UP. Shriners Children's State of Science Meeting: Focus on AI and Orthopedics 2026 *BEST POSTER AWARD WINNER out of 19 presented posters*

77. Rifat FY, Wang SJ, Krzak J, Kurger K, Graf A, Chafetz R, Davids J, Bagley A, Sienko S, Bauer J, Albert MV, Pain Severity Estimation from Electronic Health Records in Children with Cerebral Palsy. Shriners Children's State of Science: Focus on AI and Orthopedics 2026

78. Wang SJ, Tabashum T, Krzak J, Kurger K, Graf A, Chafetz R, Davids J, Bagley A, Sienko S, Bauer J, Albert MV, Transforming the Shriners Gait Index: Utilizing Attention-based Networks to Better Assess Gait Quality. Shriners Children's State of Science: Focus on AI and Orthopedics 2026

79. Nemkova P, Albert MV (accepted poster) Agentic Multilingual NLP for Conflict Forecasting from Open-Source Text Streams. NeurIPS 2025 Workshop WiML.

80. Patterson RM, Camp K, Bond E, Dashner Z, Lovien A, Fulda K, Espinosa A, Kennedy S, Siripurapu GS, Zhang H, Xiao T, Albert MV. Utilizing Technology and AI Approaches to Facilitate Independence and Resilience in Older Adults. 2025 Summer Bioengineering Conference (ASME SBC 2025). June 2025

81. Tabashum T, Wang SJ, Krzak J, Kruger K, Graf A, Chafetz R, Davids JR, Bagley A, Woloff J, Sienko S, Bauer J, Albert MV. Improving pain assessment by fine-tuning a language model to a specific hospital system. American Congress of Rehabilitation Medicine (ACRM) conference 2024

82. 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

83. 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

84. 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.

85. 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

86. Rafiq RB, Karim SA, Liu A, Albert MV. Gesture recognition to enable communication for mobility impaired individuals. American Congress of Rehabilitation Medicine (ACRM) conference 2021

87. 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.

88. 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

89. Nallapareddy H, Mummidisetty C, Botonis 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.

90. 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.

91. 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.

92. 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.

93. 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.

94. 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*****

95. 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

96. 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

97. Behpour S, Urs N, Albert MV. "Towards an 'innate learning' efficient coding model using spontaneous neural activity." ACM Tapia Conference, September 16-19, 2020

98. 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

99. 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

100. 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

101. 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

102. 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.

103.   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.

104.   Kwon S, Sindu P, Nickele K, Zavos P, Sugianto A, Albert MV. "Accelerometer-Based Activity Classification Algorithm for Toddlers: Machine Learning Approach" American College of Sports Medicine (ACSM 2019)

105.   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)

106.   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)

107.   Sendelbach S, Albert MV. "Binocular innate visual learning through spontaneous activity patterns" Chicago Society for Neuroscience regional conference (Chicago SfN 2018)

108.   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)

109.   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)

110.   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)

111.   Adorno I, Kratz G, Oakey A, Albert MV: "Ecologically relevant scoring of binocular receptive field development by innate learning". Society for Neuroscience (SfN 2015)

112.   Rabkina I, Nogueira L, Albert MV: "Real-time activity recognition graphical front-end display with semi-supervised labeling assistance". Society for Neuroscience (SfN 2015)

113.   Makarious M, Moe G, Albert MV : "Mobile app for interactive demonstration of efficient visual and auditory neural codes". Society for Neuroscience (SfN 2015)

114.   Orendorff E, Palumbo R, Albert MV: "Bayesian analysis of perceived eye level". Society for Neuroscience (SfN 2015)

115.   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

116.   Sok P, Mehjabeen A, Albert MV (2015) Wearables in motion: the motivations, current trends, and future of activity recognition. STARS computing corp 2015

117.   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

118.   Antos S, Albert MV, Kording K (2013) Activity tracking with smartphones: phone location matters. Biomedical Engineering Society (BMES) annual meeting, Sept 25, 2013

119.   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

120.   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

121.   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

122.   Albert MV, Kording K (2011) Automated activity recognition and identification using mobile phone accelerometry. Neural Control of Movement 2011

123.   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.

124.   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

125.   Albert MV, Field DJ (2009) Efficient coding of binocular spontaneous activity for innate learning in V1 development. Computational and Systems Neuroscience (COSYNE 2009)

126.   Albert MV, Field DJ (2006) Problems in Nonlinear Efficient Coding: relating quadratic forms and spike-triggered covariance analysis. Computational and Systems Neuroscience (COSYNE 2006).

127.   Albert MV (2006) Innate visual learning through spontaneous activity patterns. Cornell Nonlinear Systems IGERT seminar. Aug 23, 2006.

Oral presentations, select external

128.   Kyle Deane, Mark V. Albert. Applying Artificial Intelligence to Improve Lifelong Psychosocial and Health Outcomes Following Pediatric-Onset Spinal Cord Injury. 2026 Annual State of the Science Meeting: AI and Orthopaedics, Shriners Children's Research Institute, Atlanta, GA, January 9, 2026.

129.   Tabashum T, Rifat FY, Wang SJ, Krzak J, Kruger K, Graf A, Chafetz R, Davids J, Bagley A, Woloff J, Sienko S, Bauer J, Albert MV. Enhancing Fall Risk Assessment in Children with Cerebral Palsy via Instruction-Tuned Large Language Model. 2026 Annual State of the Science Meeting: AI and Orthopaedics, Shriners Children's Research Institute, Atlanta, GA, January 9, 2026.

130.   Academic Integrity 101: Professionalism to open doors and opportunities. Education USA. June 18, 2025

131.   Krupinky T., Sivaprakasam R., Balaji L., Krzak J., Graf A., Bagley A., Bauer J., Davids J., Sienko S., Altiok H., Albert M., Kruger K., Dibbern K.: Explainable Deep Clustering Of Instrumented Gait Data From Children With Unilateral Cerebral Palsy Compared To Clinical Classification. Paper No. 265, Proceedings of the Orthopaedic Research Society (ORS), Feb. 7-11, 2025, Phoenix, AZ.

132.   Wang S-J. Albert MV. Uncertainty estimation and individualized feature impact on a holistic summary measure of gait quality – the Shriners Gait Index. 2025 Annual State of the Science Meeting-Special Emphasis on Muscle and Bone Health. February 28, 2025

133.   Rifat FY. Tabashum T, Albert MV. Leveraging Unstructured Electronic Medical Records and Machine Learning to Predict Functional Independence Measure in Children with Cerebral Palsy. Annual State of the Science Meeting-Special Emphasis on Muscle and Bone Health. February 28, 2025.

134.   Albert MV. Deep learning strategies to best utilize [un-]structured medical data: from clinical notes to holistic measures. SMU Technology-Enhanced Immersive Learning (TEIL) seminar series. March 8, 2024. [SMU blog post]

135.   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

136. 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"

137. 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"

138. 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

139. Albert MV. Biology Seminar, Texas Woman's University (Nov 12, 2021) "Understanding Sensory Neural Processing Through Efficient Coding Principles".

140. 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.

141. 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.

142. 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.

143. 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

144. 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

145. 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

146. 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

147. 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

148. 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

149. 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

150. Albert MV "Deep Learning applied to Human Mobility" Toyota Analytics Summit 2020. August 25, 2020.

151. 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.

152. 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.

153. Kwon S, Sindu P, Nickele 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

154. 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.

155. 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)

156. 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).

157. 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).

158. 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)

159. 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)

160. 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)

161. 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).

162. Albert MV (2015). Factor analysis: simplifying high dimensional datasets for visualization and machine learning. ChiPy (Chicago Python) invited presentation, Oct 8, 2015

163. Mehjabeen A, Albert MV (2014) Hidden Markov Models to improve activity recognition in patients with spinal cord injury. ChiPy (Chicago Python), Nov 13, 2014

164. Adorno I, Albert MV (2014) Innate learning: training the brain before the eyes open. ChiPy (Chicago Python), Nov 13, 2014

165. Albert MV. (2013) Panel member for Parkinson's Day Fair, Rehabilitation Institute of Chicago, Presented mobile phone-based research at RIC. April 23, 2013.

166. 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

167. 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.

168.   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)

169.   Albert MV (2011) Using mobile phones to evaluate and improve patient mobility. Regional ACM presentation. October 12, 2011 (invited)

170.   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)

171.   Albert MV (2005) An overcomplete sparse code to explain visual cortical nonlinearities. First year graduate students presentations. Cornell University psychology department. March 1, 2005

172.   Albert MV (2005) Nonlinearity in primary visual cortex. Nonlinear Systems IGERT program, Cornell University. Feb 4, 2005.

173.   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)

174.   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.

175.   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.

176.   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

177.   Albert MV. "Supporting Artificial Intelligence: Managing Resources and Student Needs for Intelligent Systems" in Multiple Literacies Lab. Wed, Nov 19, 2025

178.   Albert MV, et al. Song Fu (moderator). "Applied AI and Data Science" Panel Session during University Research Day, Thursday, October 2, 2025.

179.   Albert MV, Garrod C, Gasarch W, Kleiman E, Sunshine J (moderator). "Working with Mentors: mentor training, mentor management, mentor evaluation" Panel presentation in the NSF CISE REU PI meeting April 22, 2025.

180.   University Forum on Teaching and Learning (Sep 25, 2024). "Teaching students how to 'teach' AI Systems"

181.   Day of Health Informatics and Data Science (Sep 20, 2024). Moderator and panelist for "AI and healthcare" session. Presentation: "AI strategies to bring more humanity to health informatics"

182.   Day of Data Science panel discussion "Real-World Impact of Ethics in AI" (March 22, 2023)

183.   UNT AI Summer Research Program presentation (June 23, 2021) "Creating Serendipity in Science"

184.   Biomedical Engineering Seminar (Nov 23, 2020) "Flexible gesture recognition to enhance communication for motor impaired individuals: impact of the UNT AI for Wearables course"

185.   Information Science Department Brown Bag Lunch (Sep 30, 2020) "Understanding Sensory

Neural Processing Through Efficient Coding Principles" along with Sahar Behpour.

186. Information Technology and Decision Sciences Research Forum (Apr 24, 2020) "Reinforcement learning with examples in strategic and tactical learning"

187. Biomedical Engineering BMEN 5310 course (Apr 15, 2020) "AI applications in clinical instrumentation"

188. Biomedical Engineering Seminar (Sep 15, 2019) and (Nov 25, 2019) "Clinical outcomes research: using wearables in health care"

189. 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

190. Neuroscience Seminar (Sep 26, 2017) "The limits of correlations in neuroscience"

191. Neuroscience Seminar (Oct 25, 2016) "In defense of modeling in neuroscience"

192. Neuroscience Seminar (Nov 3, 2015) "Deep Learning: a modern, powerful convergence of machine learning and neural processing"

193. 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"

194. Neuroscience Seminar (Sep 16, 2014) "Computational Neuroscience: why it is a necessary toolset for understanding the brain"

195. Math Colloquium (April 14, 2014) "How to Derive a Brain: efficient coding in sensory neuroscience"

196. Biology Seminar (Nov 6, 2013) "Innate learning models of LGN/V1 spontaneous activity"

197. Neuroscience Seminar (Sep 3, 2013) "Innate learning in early visual development"

Dissertations and theses, major and co-major professor, completed
'*' for PhD students who I became primary advisor within 2 years of their graduation

PhD Dissertation, completed, major professor
1. *Abdullah Albanyan. Investigating the Relationships between Online Hate Speech and Counterhate Replies to Mitigate Hateful Content. Computer Science and Engineering PhD (previous advisor, Eduardo Blanco - ASU) Spring 2023

2. * Md Mosharaf Hossain. Understanding and Reasoning with Negation. Computer Science and Engineering PhD (previous advisor, Eduardo Blanco - ASU) Fall 2022

PhD Dissertation, completed, co-major professor

3. Sahar Behpour. Weight Initialization for Convolutional Neural Networks using Unsupervised Machine Learning (May 2022). Information Science PhD Dissertation (co-advisor: Ting Xiao)

MS Thesis, completed, major professor
4. Pinky Sindhu. Toddler Activity Recognition using Machine Learning (Aug 2018) Computer Science Master's Thesis

5. 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

6. Ilona Shparii. Real-time fall detection and response on mobile phones using machine learning (May 2017) Computer Science Master's Thesis

7. Pichleap Sok. Activity Recognition for Incomplete Spinal Cord Injury Subjects using a Hidden Markov Model (May 2016) Computer Science Master's Thesis

MS Thesis, completed, co-major professor

8. Uzzie Cannon, Ph.D. Novels of the African Diaspora Online Catalog (May 2015) Digital Humanities Master's Thesis (co-advised along with James Knapp)

BS Thesis, completed, major professor

9. James Tindall. Pretraining neural network layers through learning from spontaneous activity. BS in CS Senior Thesis Fall 2024.

Dissertations and theses, major and co-major professor, ongoing
Tentative titles provided when available

PhD Dissertation, ongoing, major professor

10. Thasina Tabashum. Improving Gait Quality Assessment and Predicting Fall Risk Through Robust Modeling. Computer Science and Engineering PhD

11. Shou-Jen Wang. Autoencoder approach to quantify gait data for surgery prediction in children with cerebral palsy. Computer Science and Engineering PhD

12. Himanshu Sharma. Multi-modal Temporal /fusion Framework for Automated Echocardiogram Report Generation Using Multi Cross-modal attention. Computer Science and Engineering PhD

13. *Namratha Urs, Computer Science and Engineering PhD (previous advisor, Rodney Niesen)

14. *Palina Niamkova, Computer Science and Engineering PhD (previous advisor, Rodney Niesen)

15. *Suleyman Olcay Polat. Computer Science and Engineering PhD (previous advisor, Rodney Nielsen)

16. *George Mihaila. Computer Science and Engineering PhD (previous advisor: Rodney Nielsen)

17. Sekhar Lanka. Computer Science and Engineering PhD

18. Guna Sindhuja Siripurapu. Computer Science and Engineering PhD

19. Zubair Hasan. Computer Science and Engineering PhD

20. Fahmida Rifat. Computer Science and Engineering PhD

21. Saba Yousefian Jazi. Computer Science and Engineering PhD

PhD Dissertation, ongoing, co-major professor

22. Riyad Bin Rafiq. Fast and Flexible User-defined Wearable Hand Gesture Recognition via Deep Learning. Computer Science and Engineering PhD (co-advised along with Weishi Shi)

23. Ziruo Yi. Automated Report Generation and Visual Question Answering in Radiology with Multimodal Learning. Computer Science and Engineering PhD (co-advised along with Ting Xiao)

24. Ian Abeyta. Applications of machine learning for human biomechanics. PhD in Information Science - Health Informatics (co-advised along with Heejun Kim)

25. Tayiba Raheem. TBD. Computer Science and Engineering PhD (co-advised along with Gahangir Hossain)

MS Thesis, ongoing, major professor
26. Bhavani Rachakatla. Automated pre-fall detection for fall mitigation using a wearable airbag belt. MS in Computer Science Thesis.

Dissertations and theses, committee memberships

PhD committee memberships, Completed

1. Mohammad Al Olaimat, Spring 2025, "Modeling Electronic Health Records: Interpretable Sequential Approaches for Enhanced Multimodal Embeddings and Future Clinical Outcome Prediction with Time-Aware Irregular Intervals Handling" Computer Science and Engineering PhD (primary advisor, Serdar Bozdag)
2. Abolfazl Meyarian. Computer Science Ph.D. (primary advisor: Xiaohui Yuan)
3. Shabbab Algamdi, Computer Science and Engineering PhD (primary advisor, Stephanie Ludi)
4. Zhaomin Xiao. Computer Science and Engineering PhD (primary advisor: Yan Huang)
5. Ziynet Nesibe Kesimoglu. Computer Science and Engineering PhD (primary advisor: Serdar Bozdag)
6. Solomon Ubani. Computer Science and Engineering PhD (primary advisor: Rodney Nielsen)
7. Md Mosharaf Hossain. Computer Science and Engineering PhD. (primary advisor: Eduardo Blanco)
8. William Zamudio. Computer Science and Philosophy BS Honors College Thesis (primary advisor, Michael Thompson).
9. 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)
10. 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)
11. Angela Andaleon. Genetic Architecture of Lipid Traits in Diverse Populations (May 2019) Bioinformatics Master's Thesis (primary advisor: Heather Wheeler)
12. Brihat Sharma. Opioid Misuse Detection in Hospitalized Patients using Convolutional Neural Networks (April 2019) Computer Science Master's Thesis (primary advisor: Dmitriy Dligach)
13. 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)

PhD committee memberships, Ongoing

14. Ishan Ranasinghe Arachchilage. Remote Human-in-the-Loop (RHIL) for Real-Time Artificial Intelligence (AI) Systems. Computer Science and Engineering PhD (primary advisor, Ram Dantu)

15. Farahnaz Hosseini, Computer Science and Engineering PhD (primary advisors, Ting Xiao and Sanjukta Bhowmick)

16. Md Abdullah Al Forhad, Computer Science and Engineering PhD (primary advisor, Weishi Shi)

17. Ali Khan, Computer Science and Engineering PhD (primary advisor, Sanjukta Bhowmick)

18. Turja Kundu, Computer Science and Engineering PhD (primary advisor, Sanjukta Bhowmick)

19. Bizhan Alipour Pijani, Computer Science and Engineering PhD (primary advisor, Serdar Bozdag)

20. Omar Cavazos. Biomedical Engineering PhD (primary advisor, Vijay Vaidyanathan)

21. Tam Doan. Computer Science and Engineering PhD (primary advisor, Paul Tarau)

22. Xiaoqiong Liu. Computer Science and Engineering PhD (primary advisor, Heng Fan)

23. Mohammad Al Olaimat. Computer Science and Engineering PhD (primary advisor, Serdar Bozdag)

24. Farhad Mokter. Computer Science and Engineering PhD (primary advisor, JungHwan Oh)

25. Craig Carlson. Computer Science and Engineering PhD (primary advisor: Krishna Kavi)

26. Md Marufi Rahman. Computer Science and Engineering PhD (primary advisor: JungHwan Oh)

27. Jubair Ibn Malik Rifat. Computer Science Ph.D. (primary advisor: Serdar Bozdag)

Student funding and select awards directly to advisees

1. Lakhisha Balaji, 1st place mathematical sciences in the Fort Worth Regional Science Fair, and Lockheed Martin Leadership Association special award for "Objective Classification of Hemiplegic Cerebral Palsy: Objective cluster analysis of while time series gait data"

2. Ishan Ranasinghe Arachchilage (PhD - coadvised with Ram Dantu at the time) and Kapil Panda (TAMS) won 2nd place in the USICOC Spirit of Innovation Competition. $3000 prize.

3. Sahar Behpour, Golden Eagle Award (2021) "Golden Eagle Award is the most prestigious award that UNT bestows on a student leader"

4. Undergraduate Research Fellowship, University of North Texas (2021-2022): Austin Meek, Kelly Zhou, Stephanie Xia, and Andrew Zheng

5. Allen Chau (TAMS), Finalist in the Regeneron International Science and Engineering Fair (2021)

6. Brianna Chan (TAMS), Finalist in the Regeneron International Science and Engineering Fair (2021)

7. Sahar Behpour, Graduate Research Award, College of Information (2020)

8. Sahar Behpour, Mark E. Rorvig Endowed Graduate Fellowship, College of Information (2020)

9. ACM Tapia Conference Travel Scholarship (2020) for Sahar Behpour, Thasina Tabashum, Namratha Urs

10. 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"

11. Angela Andaleon, Carbon Scholarship for "*Genetic Mechanisms Underlying Cholesterol Traits in Diverse Populations"* (2017) co-advised with Heather Wheeler

12. Anne Xiaolu Zhao, Anita Borg Institution Scholarship for "*A mobile app illustrating efficient coding strategy of visual and auditory sensory system*" (2016)

13. 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

14. Gordon Kratz, Provost Fellowship for *"Automated depth perception as a behaviorally-relevant metric for the innate learning paradigm"* (2014)
15. Vlad Didorchuk, Carbon Scholarship for "*Impact of retrotransposons on plant evolution*" (2014) co-advised with Howard Laten.

News articles

1. "Innovation Fueled by AI" Story in UNT Research & Innovation newsletter [link] May, 7, 2024
2. MS in AI program story in Dallas-Fort Worth Spectrum news station [video], April 19, 2024
3. How can AI help people with motor and speech challenges communicate better. [The Lab - video] Feb 7, 2024
4. Professor develops TalkMotion app for those unable to speak. [North Texas Daily] April 7, 2022
5. UNT professor works to improve communication for people unable to speak and with limited mobility. Mar 2022 [UNT Research]
6. Accelerated Deep Learning REU announcement. Mar 2021 [UNT Research]
7. Through Artificial Intelligence, real change emerges. Nov 2020 [UNT Research]
8. Experts weigh in on job market trends. Oct 2020 [Zippia]
9. UNT AI students work to predict spread of COVID-19 in global challenge. May 2020 [EdScoop link] [UNT link]
10. 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]
11. Perspective provided for "Electronic Activity Monitors Could be Helpful in Clinical, Public Health, Rehabilitation Settings". O&P News, February 2015 [link]
12. 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 (3 credit hours or equivalent, ordered chronologically)

1. *CSCE 5280: AI for Wearables and Healthcare (2020,2021,2022, 2024)
2. CSCE 5310: Methods in Empirical Analysis (2022, 2023, 2024)
3. *CSCE 5214: Software Development for AI (2020)
4. CSCE 5215: Machine Learning (2019, 2023)
5. *CSCE 5218: Deep Learning (2020)
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. *CSE Seminar (as CSCE 5931 starting Spring 2025 - taught every semester since Spring 2022)
17. *HONORS 204: Science and Society: Automated Discrimination (2016)
18. *HONORS 204: Science and Society: Discrimination and Data Science (2015)
19. *HONORS 204: Science and Society: Network science (2014)
20. *COMP 397: Research Method Seminar in Computer Science (2015 - 2019)
21. COMP 490: Independent Study, Grad (2014+)
22. *COMP 399: Computer Science Seminar (Loyola University Chicago, 2015 - 2018)
23. COMP 398: Independent Study, Undergrad (2010+)
24. BIOI 399: Independent Study, Bioinformatics research (2014)

external courses, tutorials, and workshops aimed at education

25. Created and co-coordinated the UNT AI Summer Research Program. Summer 2020 - Summer 2024 (and ongoing) engaging 239 students in 75 projects total - counting continuation projects with 9 faculty advisors each year across multiple departments.
26. Co-organizer for Chicago's ASA-sponsored DataFest 2016 - 2019
27. Group session leader: Medical Decision Making: Block 1 (stats emphasis) for Northwestern University Feinberg School of Medicine (2015, 2016)
28. 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)
29. Co-organizer for MEMS Analytics workshop: Python and Data Visualization for Northwestern University's Master of Engineering Management program (2014)
30. Extensive MS grad and undergrad research mentoring with 39 for-credit or paid research students (17 MS graduate and 22 undergraduate)
31. Created and coordinated the Loyola Computer Science Summer Research Program with 104 students engaging in 34 projects over summer 2015 - 2019

Student advising

A comprehensive list is available at www.biomed-ai.com/alumni

Research students from the lab have gone on to the following companies, to name a few: Google, Amazon, Procured Health, Northwestern Memorial Hospital, GoHealth, Panasonic

Service

Academic reviewer

(ordered by year of most recent review, to be updated)

1. International Journal of Performability Engineering (IJPE) editorial board 2025 - current.
2. BIBM Program Committee member, 2021, 2025
3. NEJM AI (New England Journal of Medicine), 2024
4. NSF grant review panels: 2020, 2021, 2024
5. JMIR Cardio, 2023
6. BioMedical Engineering OnLine, 2023
7. Information, 2023
8. IEEE Journal of Translational Engineering in Health & Medicine, 2022
9. JMIR Bioinformatics and Biotechnology, 2022
10. JMIR Formative Research, 2022
11. IEEE Transactions on Biomedical Engineering, 2021
12. Computer Methods in Biomechanics and Biomedical Engineering, 2020
13. Biomedical Signal Processing and Control, 2020
14. JMIR Rehabilitation and Assistive Technologies, 2020
15. IEEE Transactions on Neural Networks and Learning Systems, 2020
16. Patterns, 2020
17. IEEE Sensors, 2020
18. Current Pharmaceutical Design, 2020
19. Artificial Intelligence Review, 2019
20. J Applied Computing and Informatics, 2019
21. Transactions on Neural Systems and Rehabilitation Engineering, 2018
22. JMIR mHealth and uHealth, 2018
23. Journal of Neuroengineering and Rehab, 2018
24. Information Fusion, 2018
25. IEEE Access, 2018
26. PeerJ, 2018
27. Sensors, 2017
28. Measurement, 2017
29. Journal of Medical Internet Research, 2017
30. ACS Nano, 2016
31. Computer Methods and Programs in Biomedicine, 2016
32. IEEE Transactions of Human-Machine Systems, 2016
33. PLoS ONE, 2016
34. Pervasive and Mobile Computing, 2015
35. IEEE Journal of Biomedical and Health Informatics, 2015
36. Biomedical Engineering Online, 2014
37. Big Data and Cloud Computing (BDCloud 2014)

38. Journal of Applied Gerontology, 2014
39. AAAS Research Competitiveness Program, Maine Technology Board, March 2014
40. PLoS Computational Biology, 2013
41. Rolex Awards for Enterprise (rolexawards.com), Sep 2013
42. Artificial Intelligence in Medicine, 2012
43. Annals of Biomedical Engineering, 2012
44. Brain Research, 2009

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, 2017-2019

Faculty committees

- **Associate Chair of Graduate Studies, Computer Science and Engineering**
  - Coordinate with graduate committee for admit decisions for 5000+ applicants each year
  - 400 CSE graduate students in Spring 2021 to 2700+ CSE graduate students (Fall 2023)
  - Match and manage our 250+ TAs/graders to 300 courses each long semester
- CSE Executive Committee, non-voting member, 2021 - current
- PhD admissions committee, Chair Spring/Fall 2023, member 2024 - current
- Graduate Curriculum Committee Chair since 2021, member since 2019. Also college GCC since 2021.
- Faculty mentor for
  - Mahdi Pedram, 2024 - current
  - Xinrui Cui, 2024 - current
- Academic integrity committee chair, 2023.
- CENG college PAC, member at large 2023-2024, and 2024 - 2025
- CSE Grade Appeals Committee Chair, 2022 - 2023, member 2024 - 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)
- 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