

# Research Findings Library – Digital Voice

## *Cited publications focused on Digital Voice*

- S. Amini, B. Hao, L. Zhang, M. Song, A. Gupta, C. Karjadi, V.B. Kolachalama, R. Au, and I.C. Paschalidis, "Prediction of Alzheimer's disease progression within 6 years using speech: a novel approach leveraging language models", Alzheimer's & Dementia: The Journal of the Alzheimer's Association, in print. --- should be online within a few weeks.
- Lin H, Karjadi C, Ang TFA, Prajakta J, McManus C, Alhanai TW, Glass J, Au R. Identification of digital voice biomarkers for cognitive health. Explor Med. 2020; 1:406-417. PMID: 33665648.
- Ding H, Mandapati A, Karjadi C, Ang TF, Lu S, Miao X, Glass J, Au R, Lin H. Association between acoustic features and neuropsychological test performance in the Framingham heart study: Observational study. Journal of Medical Internet Research. 2022 Dec 22;24(12):e42886.
- Ding H, Hamel AP, Karjadi C, Ang TF, Lu S, Thomas RJ, Au R, Lin H. Association between acoustic features and brain volumes: the Framingham Heart Study. Frontiers in Dementia. 2023 Nov 23;2:1214940.
- Martínez-Nicolás I, Llorente TE, Martínez-Sánchez F, Meilán JJ. Ten years of research on automatic voice and speech analysis of people with Alzheimer's disease and mild cognitive impairment: a systematic review article. Frontiers in Psychology. 2021 Mar 23;12:620251.
- García AM, de Leon J, Tee BL, Blasi DE, Gorno-Tempini ML. Speech and language markers of neurodegeneration: a call for global equity. Brain. 2023 Dec 1;146(12):4870-4879. doi: 10.1093/brain/awad253. PMID: 37497623; PMCID: PMC10690018.
- Ferrante FJ, Migeot J, Birba A, Amoruso L, Pérez G, Hesse E, Tagliazucchi E, Estienne C, Serrano C, Slachevsky A, Matallana D, Reyes P, Ibáñez A, Fittipaldi S, Campo CG, García AM. Multivariate word properties in fluency tasks reveal markers of Alzheimer's dementia. Alzheimers Dement. 2024 Feb;20(2):925-940. doi: 10.1002/alz.13472. Epub 2023 Oct 12. PMID: 37823470; PMCID: PMC10916979.
- Dodge HH, Yu K, Wu CY, Pruitt PJ, Asgari M, Kaye JA, Hampstead BM, Struble L, Potempa K, Lichtenberg P, Croff R, Albin RL, Silbert LC; I-CONNECT Team. Internet-Based Conversational Engagement Randomized Controlled Clinical Trial (I-CONNECT) Among Socially Isolated Adults 75+ Years Old With Normal Cognition or Mild Cognitive Impairment: Topline Results. Gerontologist. 2024 Apr 1;64(4):gnad147. PMC10943511.
- Yu K, Wild K, Potempa K, Hampstead B, Lichtenberg P, Struble L, Pruitt P, Kaye J, Silbert L, Dodge H. The Internet-Based Conversational Engagement Clinical Trial (I-CONNECT) in Socially Isolated Adults 75+ Years Old: Randomized Controlled Trial Protocol and COVID-19 Related Study Modifications. Frontiers in Digital Health 25:714813, 2021. PMC8521795.

- Chen L, Asgari M, Gale R, Wild K, Dodge H, Kaye J. Improving the Assessment of Mild Cognitive Impairment in Advanced Age With a Novel Multi-Feature Automated Speech and Language Analysis of Verbal Fluency. Front Psychol 11:535, 2020. PMC7160369.
- Chen L, Dodge HH, Asgari M. Topic-Based Measures of Conversation for Detecting Mild Cognitive Impairment. Proc Conf Assoc Comput Linguist Meet. 2020 Jul;2020:63-67. PMC7909094.
- Asgari M, Gale R, Wild K, Dodge H, Kaye J. Automatic Assessment of Conventional Cognitive Tests for Differentiating Mild Cognitive Impairment: A Proof-of-Concept Study of the Digit Span Task. Curr Alzheimer Res 17:658-666, 2020. PMC7719300.
- Sano M, Zhu CW, Kaye J, Mundt JC, Hayes TL, Ferris S, Thomas RG, Sun CK, Jiang Y, Donohue MC, Schneider LS, Egelko S, Aisen PS, Feldman HH. A randomized clinical trial to evaluate home-based assessment of people over 75 years old. Alzheimers Dement 15(5):615-624, 2019.
- Croff R, Witter P, Walker M, Francois E, Quinn C, Riley T, Sharma N, Kaye, JA. Things Are Changing So Fast: Integrative Technology for Preserving Cognitive Health and Community History. The Gerontologist, 59(1):147-157, 2019. PMC6326255
- Asgari M, Kaye JA, Dodge HH. Predicting mild cognitive impairment (MCI) from spontaneous spoken utterances. Alzheimer's & Dementia: Translational Research & Clinical Interventions, 3(2): 219-228, 2017. PMC5651423
- Dodge H, Mattek N, Gregor M, Bowman M, Seelye A, Ybarra O, Asgari M, Kaye J. Social Markers of Mild Cognitive Impairment: Proportion of Word Counts in Free Conversational Speech. Current Alzheimer Research 12:513-519, 2015. PMC4526336.
- Dodge H, Kaye J, Mattek N, Bowman M, Gregor M, Ybarra' O, Wild K. Web-enabled conversational interactions as a means to improve cognitive functions: Results of a 6-week randomized controlled trial. Alzheimer's & Dementia: Translational Research & Clinical Interventions 1:1-12, 2015. PMC4507295.
- Sheikhshab G, Shafran I, Kaye J. Detecting health related discussions in everyday telephone conversations for studying Medical events in the lives of older adults. Proceedings of the 2014 Workshop on Biomedical Natural Language Processing: pp. 38-24, 2014.
- Stark A, Shafran I, Kaye J. Inferring social nature of conversations from words: Experiments on a corpus of everyday telephone conversations. Computer Speech and Language, 29 (1): 224-239, 2014. PMC3810970
- Sano M, Egelko S, Donohue M, Ferris S, Kaye J, Hayes TL, Mundt JC, Sun CK, Paparello S, Aisen PS. Developing Dementia Prevention Trials: Baseline Report of the Home-Based Assessment Study. Alzheimer Disease and Associated Disorders;27(4):356-62, 2013. PMC3943465
- Lehr M, Prud'hommeaux ET, Shafran I, Roark B. Fully automated neuropsychological assessment for detecting mild cognitive impairment. In Interspeech, Sep 9 (Vol. 2012); 1039-1047. 2012.

- Stark A, Shafran I, Kaye J. Hello, Who is Calling?: Can Words Reveal the Social Nature of Conversations? Proceedings of the 2012 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, pp: 112-119. 2012. PMC3886719
- Meyer D, Messer J, Singh T, Thomas P, Sobor A , Woyczynski A, Kaye J, Lerner, A. Random Local Temporal Structure of Category Fluency Responses. Journal of Computational Neuroscience, 32 (2):213-231, 2012.
- Stark A, Shafran I, Kaye, J. Supervised and Unsupervised Feature Selection for Inferring the Social Nature of Telephone Conversations from Their Content. Proceedings of the IEEE Automatic Speech Recognition and Understanding Workshop, 449-454, 2011. PMC3384521
- Roark B, Mitchell M, Hosom J, Hollingshead K, Kaye, J. Spoken language derived measures for detecting mild cognitive impairment. IEEE Transactions on Audio, Speech and Language Processing, 19(7): 20181-2090, 2011. PMC3244269
- Coulston, R., Klabbers, E., Villiers, J.d., Hosom, J.-P. (2007) Application of speech technology in a home-based assessment kiosk for early detection of Alzheimer's disease. Proc. Interspeech, 2007, 2573-2576, doi: 10.21437/Interspeech. 2007-683

### *Links to publications focused on Digital Voice*

1. Large Language Models in Neurology Research and Future Practice: <https://pubmed.ncbi.nlm.nih.gov/37816646/>
2. Improving community health-care systems' early detection of cognitive decline and dementia: <https://pubmed.ncbi.nlm.nih.gov/36314503/>
3. Redefining and Validating Digital Biomarkers as Fluid, Dynamic Multi-Dimensional Digital Signal Patterns: <https://pubmed.ncbi.nlm.nih.gov/35146485/>
4. Fusion of Low-Level Descriptors of Digital Voice Recordings for Dementia Assessment: <https://pubmed.ncbi.nlm.nih.gov/37840494/>
5. Association Between Acoustic Features and Neuropsychological Test Performance in the Framingham Heart Study: Observational Study: <https://pubmed.ncbi.nlm.nih.gov/36548029/>
6. Cognitive Digital Biomarkers from Automated Transcription of Spoken Language: <https://pubmed.ncbi.nlm.nih.gov/36281684/>
7. Automated detection of mild cognitive impairment and dementia from voice recordings: A natural language processing approach: <https://pubmed.ncbi.nlm.nih.gov/35796399/>
8. Detection of dementia on voice recordings using deep learning: a Framingham Heart Study: <https://pubmed.ncbi.nlm.nih.gov/34465384/>
9. Identification of digital voice biomarkers for cognitive health: <https://pubmed.ncbi.nlm.nih.gov/33665648/>

10. Assessing the Utility of Language and Voice Biomarkers to Predict Cognitive Impairment in the Framingham Heart Study Cognitive Aging Cohort Data:  
<https://pubmed.ncbi.nlm.nih.gov/32568190/>
11. On Finding Optimal Partitions of Measurable Space:  
<https://wydawnictwa.ptm.org.pl/index.php/matematyka-stosowana/article/view/754>
12. Assessing the Utility of Language and Voice Biomarkers to Predict Cognitive Impairment in the Framingham Heart Study Cognitive Aging Cohort Data:  
<https://pubmed.ncbi.nlm.nih.gov/32568190/>
13. Computerized Block Games for Automated Cognitive Assessment: Development and Evaluation Study: <https://pubmed.ncbi.nlm.nih.gov/37191993/>
14. Detrending Changes the Temporal Dynamics of a Semantic Fluency Task:  
<https://www.frontiersin.org/articles/10.3389/fnagi.2016.00252/full>
15. Probing the mechanism of saccade-associated head movements through observations of head movement propensity and cognition in the elderly:  
[https://www.academia.edu/22537674/Probing\\_the\\_mechanism\\_of\\_saccade\\_associated\\_head\\_movements\\_through\\_observations\\_of\\_head\\_movement\\_propensity\\_and\\_cognition\\_in\\_the\\_elderly](https://www.academia.edu/22537674/Probing_the_mechanism_of_saccade_associated_head_movements_through_observations_of_head_movement_propensity_and_cognition_in_the_elderly)
16. Random local temporal structure of category fluency responses:  
[https://www.academia.edu/79029540/Random\\_local\\_temporal\\_structure\\_of\\_category\\_fluency\\_responses](https://www.academia.edu/79029540/Random_local_temporal_structure_of_category_fluency_responses)