

**List of included papers focusing on naturalness in voices (alphabetical order):**

1. Abdulrahman, A., & Richards, D. (2022). Is Natural Necessary? Human Voice versus Synthetic Voice for Intelligent Virtual Agents. *Multimodal Technologies and Interaction*, 6(7), 51. <https://doi.org/10.3390/mti6070051>
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3. Anand, S., & Stepp, C. E. (2015). Listener Perception of Monopitch, Naturalness, and Intelligibility for Speakers With Parkinson's Disease. *Journal of Speech, Language, and Hearing Research*, 58(4), 1134–1144. [https://doi.org/10.1044/2015\\_JSLHR-S-14-0243](https://doi.org/10.1044/2015_JSLHR-S-14-0243)
4. Assmann, P. F., Dembling, S., & Nearey, T. M. (2006). Effects of frequency shifts on perceived naturalness and gender information in speech. In *INTERSPEECH*. Symposium conducted at the meeting of Citeseer.
5. Aylett, M. P., Vinciarelli, A., & Wester, M. (2020). Speech Synthesis for the Generation of Artificial Personality. *IEEE Transactions on Affective Computing*, 11(2), 361–372. <https://doi.org/10.1109/TAFFC.2017.2763134>
6. Baird, A., Jørgensen, S. H., Parada-Cabaleiro, E., Cummings, N., Hantke, S., & Schüller, B. (2018). The Perception of Vocal Traits in Synthesized Voices: Age, Gender, and Human Likeness. *Journal of the Audio Engineering Society*, 66(4), 277–285. <https://doi.org/10.17743/jaes.2018.0023>
7. Baird, A., Jørgensen, S. H., Parada-Cabaleiro, E., Hantke, S., Cummins, N., & Schuller, B. (2017). Perception of Paralinguistic Traits in Synthesized Voices. In G. Fazekas, M. Barthet, & T. Stockman (Eds.), *Proceedings of the 12th International Audio Mostly Conference on Augmented and Participatory Sound and Music Experiences* (pp. 1–5). ACM. <https://doi.org/10.1145/3123514.3123528>
8. Baird, A., Parada-Cabaleiro, E., Hantke, S., Burkhardt, F., Cummings, N., & Schüller, B. (2018, September 2). The Perception and Analysis of the Likeability and Human Likeness of Synthesized Speech. In *Interspeech 2018* (pp. 2863–2867). ISCA. <https://doi.org/10.21437/Interspeech.2018-1093>
9. Birkholz, P., & Drechsel, S. (2021). Effects of the piriform fossae, transvelar acoustic coupling, and laryngeal wall vibration on the naturalness of articulatory speech synthesis. *Speech Communication*, 132, 96–105. <https://doi.org/10.1016/j.specom.2021.06.002>
10. Birkholz, P., Martin, L., Xu, Y., Scherbaum, S., & Neuschaefer-Rube, C. (2017). Manipulation of the prosodic features of vocal tract length, nasality and articulatory precision using articulatory synthesis. *Computer Speech & Language*, 41, 116–127. <https://doi.org/10.1016/j.csl.2016.06.004>
11. Cabral, J. P., Cowan, B. R., Zibrek, K., & McDonnell, R. (2017). The Influence of Synthetic Voice on the Evaluation of a Virtual Character. In *Interspeech 2017* (pp. 229–233). ISCA. <https://doi.org/10.21437/Interspeech.2017-325>
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13. Diel, A., & Lewis, M. (2024). Deviation from typical organic voices best explains a vocal uncanny valley. *Computers in Human Behavior Reports*, 14, 100430. <https://doi.org/10.1016/j.chbr.2024.100430>

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15. Duville, M. M., Alonso-Valerdi, L. M., & Ibarra-Zarate, D. I. (2024). Improved emotion differentiation under reduced acoustic variability of speech in autism. *BMC Medicine*, 22(1), 121. <https://doi.org/10.1186/s12916-024-03341-y>
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Comment on literature search:

Please note that we performed a literature search with two search terms only ("naturalness" and "human-likeness"). This raises the question, to which degree the literature search is biased, because it might neglect relevant publications which used different, but conceptually related keywords. Please note that this is not a fully systematic literature search, so it was not the aim to exhaustively identify all publications that fit the inclusion criteria. Nevertheless, the identified literature ideally should capture the full scope of current voice naturalness research, which calls for an assessment to which degree the search was limited by our choice of keywords. We addressed this by running some additional searches in Web of Science (in October 2024) with different keywords. For each search, we checked how many of our included papers would be listed in the results: realism AND voice" (5 publications), "anthropomorphism AND voice" (6), "artificial\* AND voice" (10), "normal\* AND voice" (3), "accept\* AND voice" (9), "clarity AND voice" (3), "ease\* AND voice" (3), and "quality AND voice" (19). This way, we show that research from all these keywords is represented in our literature overview. The only exception is "authent\* AND voice," which picked up 0 of our naturalness papers. This is because we made an explicit effort to keep the concepts of naturalness and authenticity separate. In summary, we conclude that our literature search resulted in a representative overview of voice naturalness publications.