



Dr.-Ing. Tomás Arias-Vergara

Ph.D. in Computer Science

Personal information

Nationality: Colombian

Year of birth: 1991

ORCID: 0000-0001-9405-4154

Language proficiency:

Spanish: native ○ English: C1 ○ German: A2

Education

2022 – Ph.D. in Computer Science (**Summa cum laude**)

- Research topic: Analysis of Pathological Speech Signals
- Bi-national program: Universidad de Antioquia (UdeA), Colombia & Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany

2017 – Master degree in Engineering (**with distinction**)

- Research topic: Parkinson's Disease Progression Assessment From Speech
- Universidad de Antioquia (Colombia)

2014 – Bachelor degree in Electronic Engineering

- Universidad de Antioquia (Colombia)

Current position

2023 - present – Postdoctoral researcher

- Pattern Recognition Lab
- Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany)

Previous positions

2021 - 2023 – Postdoctoral researcher in computational medicine

- Topic: Machine learning methods for the analysis of voice disorders using high-speed videoendoscopy data
- Department of Otorhinolaryngology, Head and Neck Surgery
- University Hospital Erlangen (Germany)

2018 - 2021 – Marie Curie Research Fellow

- Topic: Automatic methods for the analysis of speech production of people with cochlear implants
- Department of Otorhinolaryngology, Head and Neck Surgery
- Ludwig-Maximilians Universität München (Germany)

2017 (Feb–Aug) – Software developer

- Faculty of Engineering
- Universidad de Antioquia (Colombia)

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Teaching

2022 - present – Lecturer (Virtual program)

- Undergraduate: *Signal Processing I*
- UdeA (Colombia)

2022 (Jun-Dec) – Lecturer (Virtual program)

- Graduate: *Laboratory of Pattern Analysis*
- UdeA (Colombia)

2017 - 2019 – Lecturer (Onsite/Virtual program)

- Undergraduate: *Laboratory of Digital Signal Processing, Laboratory of Signal Processing III*
- UdeA (Colombia)

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Fellowships, Awards, and Academic Memberships

2023

GI-Dissertation price nominee

Nominated by FAU

2023

Member of the Signal Processing Society

IEEE

2022-present

Member of the Andean-Caribbean Chapter of the MCAA

European Commission

2022

Junior researcher status

Ministry of Science, Technology, and Innovation (Colombia)

2022

Summa cum laude (Doctoral thesis)

FAU & UdeA

2021-present

Member of the Marie Curie Alumni Association (MCAA)

European Commission

2018-2021

Early Stage Researcher under Marie Skłodowska-Curie grant

European Union's Horizon 2020

2017-2021

National PhD scholarship program

COLCIENCIAS (Colombia)

2017

Distinction to Master thesis

UdeA (Colombia)

2015

Young researchers and innovators scholarship

COLCIENCIAS (Colombia)

Reviewing services

Journals

- Movement disorders ○ Speech Communication ○ Biomedical Signal Processing and Control ○ Pattern Recognition Letters ○ IEEE Journal of Biomedical and Health Informatics ○ Expert Systems with Applications ○ Sensors ○ ACM Transactions on Asian and Low-Resource Language Information Processing ○ IEEE/ACM Transactions on Audio, Speech, and Language Processing ○ IEEE Access ○ Diagnostics ○ Bulletin of the Polish Academy of Sciences: Technical Sciences ○ Journal of Voice



Conferences

International Conference on Acoustics, Speech, & Signal Processing (ICASSP 2023) ○ IEEE Automatic Speech Recognition and Understanding Workshop (ASRU 2022) ○ Workshop on Engineering Applications (WEA 2019) ○ Text, Speech & Dialogue (TSD 2023) ○ Workshop on Multimodal Healthcare Data (International Conference on Machine Learning - ICML, 2023)

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Selected publications

For the complete list, please visit shorturl.at/ayL39

- **T. Arias-Vergara**, M. Döllinger, T. Schraut, K. A. M. Khairuddin, and A. Schützenberger. *Nyquist Plot Parametrization for Quantitative Analysis of Vibration of the Vocal Folds*. Journal of Voice. 2023.
- **T. Arias-Vergara**, A. Batliner, T. Rader, D. Polterauer, C. Högerle, J. Müller, J. R. Orozco-Arroyave, E. Nöth, M. Schuster. *Adult CI users vs typical hearing persons: An automatic analysis of acoustic-prosodic parameters*. Journal of Speech, Language, and Hearing Research, Vol 65, pp 1-14, 2022.
- P. A. Pérez-Toro, **T. Arias-Vergara**, P. Klumpp, J. C. Vásquez-Correa, M. Schuster, E. Nöth, and J. R. Orozco-Arroyave. *Depression assessment in people with Parkinson's disease: The combination of acoustic features and natural language processing*. Speech Communication, 145, 10-20.
- **T. Arias-Vergara**, T., Schraut, J. R. Orozco-Arroyave, and M. Döllinger. *Parameterization of voice onset for automatic assessment of Parkinson's disease*. The Journal of the Acoustical Society of America, 152(4), A140-A140, 2022.
- **T. Arias-Vergara**, P. Klumpp, J.C. Vásquez-Correa, J. R. Orozco-Arroyave, E. Nöth and M. Schuster. *Multi-channel spectrograms for speech processing applications using deep learning methods*. Pattern Analysis and Applications, Vol 24, pp 423–431, 2021.
- A. M. García, **T. Arias-Vergara**, J. C. Vásquez-Correa, E. Nöth, M. Schuster, A. E. Welch, Y. Bocanegra, A. Baena, and J. R. Orozco-Arroyave. *Cognitive Determinants of Dysarthria in Parkinson's Disease: An Automated Machine Learning Approach*. Movement Disorders; 36(12), 2862-2873, 2021.
- **T. Arias-Vergara**, P. Arguello-Velez, J. C. Vásquez-Correa, E. Nöth, M. Schuster, M. C. González-Rátiva, and J. R. Orozco-Arroyave. *Automatic detection of Voice Onset Time in voiceless plosives using gated recurrent units*. Digital Signal Processing. Vol 104. 2020.
- **T. Arias-Vergara**, J. C. Vásquez-Correa, J. R. Orozco-Arroyave, and E. Nöth. *Speaker models for monitoring Parkinson's disease progression considering different communication channels and acoustic conditions*, Speech Communication. Vol 101, pp 11-25, 2018.
- **T. Arias-Vergara**, J. C. Vásquez-Correa, and J. R. Orozco-Arroyave. *Parkinson's Disease and Aging: Analysis of Their Effect in Phonation and Articulation of Speech*. Cognitive Computation, pp 1-18, 2017.



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References

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Prof. Dr.-Ing Michael Döllinger

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- phone number: +49 9131 8533 814

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Prof. Dr. med. Maria Schuster

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Prof. Dr.-Ing Juan Rafael Orozco-Arroyave

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Dr.-Ing. Tomás Arias Vergara

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