Aynaz Adl Zarrabi (PhD)

aynazadl1@gmail.com | aynazadl.github.io | linkedin.com/in/aynaz-adl-zarrabi

Summary

I hold a PhD in Computer Science and Cognitive Science from Femto-ST (CNRS/Université Marie et Louis Pasteur, France), with expertise in Computational Modeling. My academic background includes a Master's in Applied Statistics and Computer Science from Université Toulouse II Jean Jaurès. My doctoral research focused on designing probabilistic models and statistical inference methods to estimate latent structures and derive biomarkers of perceptual deficits in post-stroke patients.

Education

PhD in Computer Science and Cognitive Neuroscience 2022 – July 2025
FEMTO-ST (CNRS), Université Marie et Louis Pasteur *France*
Thesis: Data-driven methods for the diagnosis and prognosis of prosody perception deficits after a stroke.

Supervisors: Jean-Julien Aucouturier (CNRS), Marie Villain (ICM)

MSc in Computer Science, Statistics and Applied Mathematics 2019 – 2021
Université Toulouse II Jean Jaurès *France*

BSc in Applied Statistics 2014 – 2018
University of Science and Culture *Tehran, Iran*

Research Appointments

Research Assistant 2020 – 2021
Archean Labs, IRIT *Montauban, France*
Analysis of speech perception in presbycusis patients using ML techniques (SVM, PCA), Identified typical auditory error profiles using functional analysis

Research Assistant 2020
CRMBM, CNRS *Marseille, France*
Segmented MRI images using FSLEYES and extracted features for analysis, Compared MRI modalities to evaluate disease progression and correlational analysis for Charcot-Marie-Tooth disease

Publications

Aynaz Adl Zarrabi, JJ Aucouturier, Ladislas Nalborczyk, Marie Villain (in prep). Three new analysis methods to estimate internal noise in data-driven experiments.

Merchie, A., Ranty, Z., **Adl Zarrabi, A.**, Bonnet-Brilhault, F., Houy-Durand, E., Aucouturier, JJ. & Gomot, M. (2025). Intact Representation of Vocal Smile in Autism. *Research in Autism*. DOI

Aynaz Adl Zarrabi, Mélissa Jeulin, Emmanuel Ponsot, Pauline Bardet, Pauline Commère, Lionel Naccache, JJ Aucouturier & Marie Villain (2024). Separating representational and noise components of speech prosody perception after stroke. *Scientific Reports, 14*, 15194. DOI

Teaching

Teaching Assistant 2023 – 2025
Sorbonne University *Paris, France*
UE New Methods (iMIND Master)

Teaching Assistant 2022 – 2024
ENSMM-SupMicrotech *Besançon, France*
Courses: Machine Learning, R Programming, KPI Analysis

Technical Skills

Programming & Tools Python (Pandas, NumPy, SciPy, Scikit, Keras, PyTorch, Seaborn), R, SQL, LaTeX, Git, FSLEYES

Analysis: Supervised and unsupervised learning, Neural networks, Probabilistic modeling, Bayesian inference, Stochastic analysis, Optimization

Toolbox Contributions

PALIN – Psychophysics parameters and simulation API (2025)

JONES – Reverse Correlation Psychophysical Experiment toolkit (2024)

Other Projects

Exploring Prosody Recognition in Glioma Patients: A Reverse-Correlation Study

Forecasted COVID-19 crisis progression in France using decision tree extensions and time series forest modeling on longitudinal data

Performed predictive analytics on the KPIs and NLP to assess workflow weaknesses IT department of Université Toulouse-Jean-Jaurès and support system improvements

Identified hyperspectral images using machine learning methods (Neural Networks, SVMs, Decision Trees, k-NN)

Analyzed wind farm operations (anomaly detection, performance, temperature monitoring)

Postgraduate Training

Advanced Modeling of Behavior, BAMB/EMBO, Centre de Recerca Matematica, Spain (2024)

Neuroanatomy, King's College London, UK (2023)

Hearing Restoration, Institut Pasteur, France (2022)

Presentations

ESCAN, Ghent University, Ghent, Belgium – **Poster** (May 2024)
Exploring Prosody Recognition in Glioma Patients: A Reverse-Correlation Study

Journées Perception Sonore, IRCAM, Paris, France – **Poster** (Nov 2023)
Separating Representational and Noise Components of Speech Prosody Perception after Stroke

Society for Neurobiology of Language (SNL), Marseille, France – **Poster** (Oct 2023)
Separating Representational and Noise Components of Speech Prosody Perception after Stroke

Journée de Phonétique Clinique, Toulouse, France – **Talk** (Jun 2023)
Psychophysics Procedure to Characterise Impairments of Speech Prosody Perception after Brain Stroke

Department of Automatics and Robotics, FEMTO-ST, Besançon, France – **Talk** (Jun 2023)
Psychophysics Procedure to Characterise Impairments of Speech Prosody Perception after Brain Stroke

Neuro Group, FEMTO-ST, Besançon, France – **Talk** (Feb 2023)
Internal Noise Calculation

Data-PHM Team, FEMTO-ST, Besançon, France – **Talk** (Feb 2023)
Psychophysics Procedure to Characterise Impairments of Speech Prosody Perception after Brain Stroke

RDI-BMB Annual Workshop, France – **Talk** (May 2023)
Psychophysics Procedure to Characterise Impairments of Speech Prosody Perception after Brain Stroke

Fondation pour l'Audition Laureate Symposium – **Talk** (Oct 2022)
Psychophysics Procedure to Characterise Impairments of Speech Prosody Perception after Brain Stroke

Languages

French: Fluent English: Fluent Persian: Native Turkish: Native

References

Jean-Julien Aucouturier – CNRS Research Director, FEMTO-ST aucouturier@gmail.com

Marie Villain – Lecturer and Speech Therapist, Sorbonne Université / ICM-APHP marie.villain@aphp.fr