Randy Frans Fela

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SUMMARY

With 7+ years blending academia and industry, I specialize in crafting top-tier audio experiences, excelling in Acoustic Signal Processing, Statistical Design of Experiments, Human Perception, and Machine Learning. Currently serving as a Perceptual Evaluation Engineer at Jabra and researcher in speech-to-qualitative coding for the PHC NUSANTARA 2024 (2024 − 2026), I drive innovation through collaborative problem-solving. With a background in audio-video processing and quality evaluation, as well as my current role in perception research & engineering, I am eager to continue in research, especially in the domain of machine learning.

EDUCATION

Technical University of Denmark — Kgs. Lyngby Denmark
PhD in Electrical Engineering, Topic: Immersive Audio-video Quality — *Jan. 2019 − June. 2022*

Institut Teknologi Bandung — Bandung, Indonesia
M.Sc in Engineering Physics, Topic: Auditory and audiovisual perception in VR environment — *Aug. 2016 − Jul. 2018*

University of Salford — Manchester, UK
Assoc. Student in Acoustics Research Center, School of Computing, Science, and Engineering — *Oct. 2017 − Dec. 2017*

Queensland University of Technology — Brisbane, Australia
Short course awardee in Business Technology — *Sep. 2016*

Universitas Gadjah Mada — Yogyakarta, Indonesia
B.Eng in Engineering Physics, Topic: Acoustic emission — *Aug. 2010 − May 2015*

WORKING EXPERIENCE

GN Audio (Jabra) — Jul. 2022 − Present
Perceptual Audio Evaluation Engineer — *Ballerup, Denmark*

- Design and execution experimental methodologies for assessing perceptual audio/audiovisual quality both objectively and subjectively.
- Analyzing measurement and perceptual evaluation data using univariate and multivariate statistics.
- Developing perceptual model for various advanced audio features in headphone technology.

SenseLab, FORCE Technology — Jan. 2019 − June. 2022
Industrial PhD — *Hørsholm, Denmark*

- EU Project, ITN RealVision
- Developed an efficient method for immersive multimedia quality evaluation.
  Tasks related to; audio-video objective quality metrics, psychophysical experiment, head-eye motion tracking, and data modelling based on machine learning approach.

Gadjah Mada University − Bandung Institute of Technology — Jan. 2015 − Dec. 2018
Research Assistant for Collaborative Projects — *Yogyakarta − Bandung, Indonesia*

- **Auditory Virtual Reality Section, Integrated Smart and Green Building** .
- Involved in technical and non-technical tasks for the national and international project in the field of Acoustics, Audio, and VR between UGM & ITB.

Gadjah Mada University — 2018
Co-supervisor, Undergraduate Thesis — *Yogyakarta, Indonesia*

- Supervised 3 undergraduate thesis in Audio Visual Reproduction in VR environment
- Informal supervisor for undergraduate thesis in building modeling and simulation in case of auditory and visual assessment

Gadjah Mada University — 2015 − 2017
Teaching Assistant, subject: Acoustics — *Yogyakarta, Indonesia*

- Designed discussion materials of Fundamental of Acoustics after mid-term class for approx. 60 − 80 students sophomores each year
- Delivered weekly lecture review and discussion for groups of 5 − 6 students

Associations / Networks

Audio Engineering Society (**AES**), Institute of Electrical and Electronics Engineers (**IEEE**), Alumni Network Australia Awards Indonesia, Marie Curie Alumni Association.

Technical Skills / Experience

Languages: for Signal Processing (Matlab, Python), for Encoding-Decoding (FFmpeg), for Stats (R) − (basic to intermediate level)

Frameworks: Wordpress and basic web application, HTML, CSS

Developer Tools: Git, CMAKE, Google Cloud Platform, VS Code

Softwares: Statistics & DoE (R, SPSS, JMP), Video Processing (H.266, H.265 reference software, 360Lib), Audio Processing (REAPER, Adobe Audition − ambisonic & binaural processing and panning), Unity3D (with GVR, Resonance Audio, Steam Audio), VR Playback (HTC Vive, Mixed Reality headset), Acoustics Simulation (CATT Acoustics − Modelling and Auralization),

Writing & reference tools: Ms. Office, Latex/Overleaf, Zotero

Projects

PHC Nusantara - French/Indonesian S&T Cooperation Program / Project Proposal Granted
- **2024 / Project activities**
  - ∗ Co-researcher. Assist in data analysis, statistical analysis, and preparing research publications.

GN Audio A/S (Jabra)
- **Main role in Perceptual Evaluation of Speakerphones and Videobars (Tx & Rx) for Collaborative Products**
  - ∗ Sound quality, speech in noise quality, non-speech noise suppression, direction of arrival estimation − As Principal PAE Engineer in Jabra
- **2024 / Jabra Elite 8 and Elite 10**
  - ∗ Developed and executed field evaluation for Spatial Audio feature in Denmark and China
  - ∗ Spatial audio tuning
- **2024 / Establish the GN Global Assessor Panel**
- **2023 / Evaluation of Own Voice Perception while Using In-Ear Headsets**
  - ∗ As Industrial Supervisor of Master's Thesis from Technical University of Denmark
- **2023 / Establish the Jabra Audiovisual Assessor Panel**
- **2023 / Jabra PanaCast 50 Videobar / Released**
  - ∗ Development of Perceptual Quality Models and Classification Algorithm – internal development for some related cases in the company
- **2022 / Jabra Speak2 75 & Jabra Speak2 55 / Released**
  - ∗ Development of Perceptual Quality Models and Classification Algorithm - internal development for some related cases in the company

FORCE Technology
- **2019 − 2022 / Main activities**
  - ∗ Developing methods for immersive multimedia quality evaluation, as *Early Stage Researcher*
  - ∗ Omnidirectional Audiovisual Quality Assessment Dataset
  - ∗ Claim Test for Pro Web camera + Soundbar − as Technical Assistant for Client Project - Benchmark test for image and sound quality of professional web camera working under transmission networks
  - ∗ Claim Test for home web camera − as Technical Assistant for Client Project - Benchmark test for image quality of consumer web camera working under transmission networks

2016 − 2018
- **Ministry of Research & Technology of Indonesia Funds** − Semi Immersive Virtual Auditory Reality as A Tool and Adaptive Training Media for Workers in a Noise Environment, as *Research student*
- **Internal Funding ITB & DIKS UGM** − Acoustic Subjective Evaluation in Intensive Care Unit Based on Auditory Virtual Reality, as *Research student*
- **International Funding with Hiroshima University** − Acoustic Evaluation in Urban Area, as *Research assistant*

Publications

Acoustics, Audio, Immersive Multimedia

Fela, R F., Pastor A., Le Callet P., Zacharov N., Vigier T, Forchhammer S. Multimodal Perceptual Quality Evaluation of 360 Media: Dataset, Metrics and Models. To be submitted to IEEE Trans. Multimedia. *Submitted*

Takeuchi, M., Marozeau, J., Gkanos, K., **Fela, R F**., Nørholm, S M. (2024). Evaluation of One's Own Voice Perception while Using In-ear Headsets.2024 AES 4th International Conference on Audio and Music Induced Hearing Disorders. 29 – 31 May 2024, Copenhagen..

Fela, R F., Zacharov N., Forchhammer S. (2022). Comparison of Full Factorial and Optimal Experimental Design for Perceptual Evaluation of Audiovisual Quality. Journal of the Audio Engineering Society. vol. 71, no. 1/2, pp. 4-19, (2023 January.).

Fela, R F., Zacharov N., Forchhammer S. (2022). Assessor Selection Process for Perceptual Quality Evaluation of 360 Audiovisual Content. Journal of the Audio Engineering Society. vol. 70, no. 10, pp. 824-842, (2022 October.)

Fela, R F., Pastor A., Le Callet P., Zacharov N., Vigier T, Forchhammer S (2022). Perceptual Evaluation on Audio-visual Dataset of 360 Content. International Conference on Multimedia and Expo 2022. Taipei, Taiwan.

Fela, R F., Zacharov N., Forchhammer S. (2021). Perceptual Evaluation of 360 Audiovisual Quality and Machine Learning Predictions. Multimedia and Signal Processing Conference 2021. Tampere, Finland.

Fela, R F., Zacharov N., Forchhammer S. (2020). Towards a Perceived Audiovisual Quality Model for Immersive Content. The 12th International Conference on Quality of Multimedia Experience. Dublin, Ireland.

Barabah, H A G., Utami, S S., Hapsari, H R., Prasetiyo, I., **Fela, R F**., Yanti, R J., (2019). Prediction of sound insulation for middle class apartment based on noise site analysis. Engineering Physics International Conference. 31 October – 2 November 2018, Surabaya.

Hapsari, H R., Utami, S S., Barabah, H A G., Sarwono, J., **Fela, R F**., (2019). Evaluation of sonic environment in prospective middle-class apartment building in Demak regency. Engineering Physics International Conference. 31 October – 2 November 2018, Surabaya.

Puspagarini, D A., Utami, S S., Sudarsono, A S., **Fela, R F**., (2019). Soundscape study of an urban campus park. Engineering Physics International Conference. 31 October – 2 November 2018, Surabaya.

Utami, S S., **Fela, R F**., Sarwono, J., Widowati, K. (2018). Study of Partition Walls to Minimize Leaking Sound in Counselling Rooms. Engineering Physics International Conference. 31 October – 2 November 2018, Surabaya.

Fela, R F., Sarwono, J., Utami, S S., (2018). A Pilot Study: How to Develop Auditory Virtual Reality for Pre-Registered Nurses education? ICSV25, 8 – 12 July 2018, Hiroshima.

Azzahra, I R N., Sarwono, J., Prasetiyo, I., Sudarsono, A S., Ikhwanuddin, R., **Fela, R F**., Utami, S S., (2018). Hospital soundscapes: Soundscapes intervensions in intensive care unit. ICSV25, 8 – 12 July 2018, Hiroshima.

Utami, S S., **Fela, R F**., Sarwono, J., Ikhwanuddin, R., (2018). Acoustics Survey to Predict Occupants Preferences of A Library. ICSV25, 8 – 12 July 2018, Hiroshima.

Fela, R F., Sarwono, J., Utami, S S., Prasetiyo, I., Azzahra, I R N., (2017). Data Recording of Audio Stimulus for Continuing Nurse Training Using Auditory Virtual Environment. INTER-NOISE 2017 pages 2999–3996, pp. 3831 – 3837(7), 27 - 30 August 2017, Hong Kong.

Azzahra, I R N., **Fela, R F**., Sarwono, J., Utami, S S., Hardjoprawito, T J A., Sedono, R., (2017). Hospital Soundscapes: Perception Analysis of Acoustics Environment in Intensive Care Unit. INTER-NOISE 2017 pages 2999–3996, pp. 3635 – 3640(6), 27 - 30 August 2017, Hong Kong.

Utami, S S., Yanti, R J., Sarwono, J., **Fela, R F**., Azzahra, I R N., (2017). Design Consideration for Improvement of Speech Intelligibility and Privacy in a Hospital Intensive Care Unit. ICSV24, 23 - 27 July 2017, London.

Utami, S S., Navvab, M., **Fela, R F**., (2016). Sinkronisasi Sensasi Pendengaran dan Visual di dalam Dunia Simulasi Komputer. Jurnal Nasional Teknik Elektro dan Teknologi Informasi. (National Journal)

Building Physics (Collaborative works)

Fela, R F., Utami, S S., Mangkuto, R A., Suroso, D J., (2019). The Effects of Orientation, Window Size, and Lighting Control to Climate-Based Daylight Performance and Lighting Energy Demand on Buildings in Tropical Area. Building Simulation 2019. Rome, Italy.

Mangkuto, R A., **Fela, R F**., Utami, S S., (2019). Effect of Facade Thickness on Daylight Performance in a Reference Office Building. Building Simulation 2019. Rome, Italy.

Afif, M Z., **Fela, R F**., Utami, S S., Ridwan, M K., Mangkuto, R A., (2019). CFD Simulation in Naturally Ventilated Multi-Purpose Sports Hall: Effects to the Basketball and Badminton Matches. Building Simulation 2019. Rome, Italy.

Book Authorship (Indonesian Language)

Menuju Bangunan *Zero Energy* di Indonesia	**2020** | *UGM Press*
Towards a Zero Energy Building in Indonesia	
Menelusur Jejak Implementasi Konsep Bangunan Hijau dan Pintar di Kampus Biru	**2016** | *UGM Press*
Implementation of Smart and Green Building in a Blue Campus	
Kajian Metode Pengukuran Akustik Ruang: Studi Kasus di Indonesia	**2016** | *UGM Press*
A Study of Room Acoustics Measurement Methods: A Case Study in Indonesia	

Awards

2024 − Winner of the Microsoft Power Platform Hackaton Event, hosted by GN Store Nord and Microsoft, held on April 24th−25th, 2024, at Microsoft, Kgs. Lyngby, Denmark.

2019 − Building Simulation 2019 Best Poster Award. Effect of Facade Thickness on Daylight Performance in a Reference Office Building

2017 − World Class University ITB. Sandwich Program Scholarship

2016 − Australia Award Scholarship. Taking Business to The Next Level – A Course for Leaders, Entrepreneurs, and Innovators for technology-enabled start-up

Seminars and Trainings

2024 − present
- Participant on **Megatrends in the Sound Industry Workshop** by Danish Technological Institute & Danish Sound Cluster – June 14, 2024 at FORCE Technology, Hørsholm, Denmark
- Participant on **Global Power Platform Bootcamp 2024** – February 23, 2024 at Microsoft, Kgs. Lyngby, Denmark
- Hackaton Participant on **Microsoft Power Platform Hackaton Event** – During April 2024, at GN Store Nord and Microsoft

2023
- Participant on **Danish Sound Day 2023** at Rigshospitalet, København
- Participant on **Mastering MATLAB: Unleashing the Potential of Data Analysis, AI, and Application Development** at Radisson Collection Royal Hotel, København
- Invited Speaker on **The[14] Engineering Physics Talk 2023 at** Institut Teknologi Sumatera
- Invited Speaker at Faculty of Engineering, Universitas Negeri Padang
- Invited Speaker at Faculty of Mathematics & Natural Sciences, Universitas Negeri Padang
- Delivered a Commencement Speech for Master and Doctoral Graduates at Faculty of Engineering, Universitas Gadjah Mada

2021 − 2022
- Presenter on **Audio Demo Day - GN Group Workshop 2022**
- Presenter on **International Conference on Multimedia and Expo 2022**
- Presenter on **IEEE Multimedia and Signal Processing Conference 2021**

2020

- Speaker on **Virtual SenseCamp '20** − Modelling and perceptual evaluation for hyper-realistic and immersive multimedia
- Participant on **RealVision Industrial Forum** − Light Field and Deep Learning Synthesis
- Participant on **AES Virtual Vienna**
- Presenter on **2020 11th International Conference on Quality of Multimedia Experience**

2019
- ITN RealVision fellow on **Fraunhofer Institute for Integrated Circuits IIS** Meeting − Image formation & Computational Imaging: SoA & main trends
- ITN RealVision fellow on **University of Oxford, UK** Meeting − Vision, Psychophysics, and Modeling
- Speaker on **SenseCamp '19 FORCE Technology** − Audio quality evaluation and Machine learning

2018
- **Building Physics and Acoustics Group ITB** − The role of building physics in Sustainable Development in Indonesia. Special Lecture by Prof Jeong-Guon Ih (KAIST) – Noise and Vibration Issues in Electrical Vehicles
- **School of Architecture, Policy and Urban Planning ITB** − Summer School Digital Tectonics: Built Environment Design in the Era of Computation

2017
- **University of York** − International Conference on Accessibility in Film, Television, and Interactive Media

Organization

2020 − 2021 | General Secretary — Indonesian Student Association in Denmark

2019 − 2020 | Head of Multimedia — Indonesian Student Association in Denmark

2014 − 2016 | Founder and Leader — Students Acoustics Research Group, Gadjah Mada University

Other information

Place, Date of birth / Nationality: Jakarta, June 5, 1991 / Indonesia

Marital status: Married, 2 children

Referees

Nick Zacharov, D.Sc. (Tech.) | Mentor   Meta − Reality Labs, Paris, France
Senior Technical Manager – Perceptual Audio Evaluation   *E-mail: upon request*