Speech Recognition and Audio Data Analysis in Research Training Course

Professional Development Training Course Outline

Category	Research and Data Analysis	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In the evolving field of data-driven research, analyzing sensitive audio content requires a strategic blend of ethical awareness, technical expertise, and advanced tools. Speech Recognition and Audio Data Analysis in Research Training Course equips researchers with the skills to ethically collect, process, and analyze sensitive speech data using state-of-the-art speech recognition and audio analysis techniques. With the rise of AI, natural language processing (NLP), and machine learning in qualitative research, this training helps researchers understand, interpret, and handle audio data from vulnerable or confidential populations without compromising data integrity or participant dignity.

By combining the latest tools in automated transcription, acoustic feature extraction, and ethical data management frameworks, participants will learn how to navigate cultural, emotional, and privacy-related challenges. Through hands-on modules, real-world case studies, and interactive techniques, this course empowers researchers to conduct responsible, impactful studies using audio data from interviews, focus groups, or field recordings involving sensitive topics like trauma, abuse, mental health, or social justice.

Programme Curriculum

Speech Recognition and Audio Data Analysis in Research Training Course

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Course Objectives

1. Understand ethical considerations in researching sensitive audio data.
2. Apply automated speech recognition (ASR) tools in qualitative research.
3. Utilize AI and NLP for speech-to-text conversion.
4. Manage audio datasets using secure and privacy-compliant methods.
5. Conduct acoustic analysis for emotion and sentiment detection.
6. Implement deep learning for speech and voice data processing.
7. Analyze multilingual or dialectal audio recordings effectively.
8. Create reproducible workflows using open-source audio tools.
9. Evaluate transcription accuracy with benchmarking metrics.
10. Interpret audio signals using time-series and spectral analysis.
11. Apply speech analytics for behavior and emotion inference.
12. Integrate audio insights into mixed-methods research.
13. Present ethical research findings involving vulnerable subjects.

Target Audiences

1. Academic researchers in social sciences
2. Journalists handling sensitive interviews
3. Mental health professionals conducting audio-based case studies
4. Data scientists in audio analytics
5. NGO researchers documenting human rights violations
6. Graduate students conducting field research
7. UX researchers using voice user data
8. Speech and linguistics researchers

Course Duration: 5 days

Course Modules

Module 1: Introduction to Researching Sensitive Topics

- Understanding sensitivity in research contexts
- Ethical guidelines for working with vulnerable populations
- Informed consent for audio recording
- Risks of re-identification from voice data
- Cultural considerations in sensitive research
- **Case Study: Audio documentation of survivors' testimonies in post-conflict areas**

Module 2: Fundamentals of Speech Recognition Tools

- Overview of speech-to-text systems (e.g., Google, Whisper, Azure)
- Choosing the right ASR tool for your research
- Audio pre-processing for accuracy
- Integrating ASR with research software
- Evaluating transcription quality
- **Case Study: Transcribing interviews with abuse survivors using Whisper AI**

Module 3: Audio Data Management and Ethics

- Securing sensitive audio files
- GDPR and ethical compliance for audio data
- Metadata anonymization techniques
- Data storage best practices
- Consent management systems
- **Case Study: Managing confidential hotline audio data ethically**

Module 4: Acoustic Feature Extraction & Analysis

- Fundamentals of acoustic features (pitch, tone, formants)
- Tools for audio signal processing (e.g., Praat, Librosa)
- Emotional tone and stress detection
- Visualizing speech data
- Spectral and temporal analysis
- **Case Study: Detecting anxiety markers in therapy session audio**

Module 5: Natural Language Processing in Speech Research

- NLP for spoken data (tokenization, segmentation)
- Sentiment analysis on transcripts
- Named entity recognition (NER) in sensitive interviews
- Topic modeling from audio transcripts
- Using Hugging Face for audio NLP
- **Case Study: NLP-based analysis of refugee interview data**

Module 6: Speech Analysis in Multilingual Contexts

- Handling dialectal and non-standard speech
- Multi-language transcription tools
- Language identification in mixed datasets
- Challenges of tone and code-switching
- Evaluating multilingual ASR accuracy
- **Case Study: Multilingual ASR use in migrant family interviews**

Module 7: AI and Deep Learning for Audio Research

- Introduction to audio models (CNNs, RNNs, Transformers)
- Building models for voice emotion classification
- Transfer learning for low-resource languages
- Audio tagging and classification
- Ethical AI in speech research
- **Case Study: Training deep models to detect distress in helpline calls**

Module 8: Integrating Audio Analysis in Research Projects

- Mixed-methods approaches using audio
- Reporting findings with audio insights
- Visualization of acoustic and textual data
- Designing reproducible workflows
- Stakeholder communication with audio findings
- **Case Study: Integrating audio narratives in public health research**

Training Methodology

- Hands-on demonstrations using real-world data

- Group discussions on ethical dilemmas and challenges
- Live tool walkthroughs (ASR, Praat, Hugging Face, etc.)
- Interactive labs for acoustic and NLP analysis
- Guided case study deconstruction and group reflections
- Participant project consultation and peer feedback

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com