Text Analytics for Electronic Health Records Training Course

Professional Development Training Course Outline

Category	Research and Data Analysis	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today’s data-driven healthcare environment, Electronic Health Records (EHRs) have become essential repositories of clinical information. However, unlocking actionable insights from unstructured data within EHRs requires advanced text analytics techniques. Text Analytics for Electronic Health Records Training Course empowers healthcare data professionals, researchers, and analysts with practical skills to apply Natural Language Processing (NLP), machine learning, and semantic technologies to EHRs. Learners will explore key methods for extracting clinical information, improving patient outcomes, detecting trends, and enhancing decision support systems.

This course is designed to bridge the gap between healthcare informatics and AI-powered data analytics. Participants will gain hands-on experience in deploying text mining techniques, sentiment analysis, and deep learning approaches specific to clinical narratives, lab reports, and radiology notes. Through a combination of real-world case studies, interactive labs, and project-based assessments, learners will be equipped to drive evidence-based decision-making in healthcare organizations and research institutions.

Programme Curriculum

Text Analytics for Electronic Health Records Training Course

Introduction

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Course Objectives

1. Understand foundational concepts of text mining and NLP in healthcare.
2. Apply machine learning techniques to analyze clinical narratives.
3. Extract structured data from unstructured EHR content.
4. Use clinical ontologies and terminologies for data normalization.
5. Perform sentiment analysis on patient-reported outcomes.
6. Analyze radiology reports and lab notes using text analytics.
7. Detect disease patterns using predictive modeling techniques.
8. Develop automated clinical coding systems using NLP.
9. Improve clinical decision support through extracted insights.
10. Implement de-identification methods for patient privacy compliance.
11. Evaluate AI models for EHR text classification.
12. Interpret trends in population health using text data visualization.
13. Conduct research using big data analytics in healthcare informatics.

Target Audience

1. Clinical Data Scientists
2. Health Informatics Professionals
3. Medical Researchers
4. EHR Software Developers
5. Data Analysts in Healthcare
6. Public Health Officials
7. Health IT Managers
8. AI/ML Engineers in Healthcare

Course Duration: 10 days

Course Modules

Module 1: Introduction to EHR and Text Analytics

- Overview of EHR systems
- Structure and types of clinical data
- Basics of text analytics
- Importance of unstructured data in healthcare
- Key tools and platforms
- *Case Study: Text Extraction from Physician Notes*

Module 2: Natural Language Processing in Healthcare

- NLP pipeline components
- Named Entity Recognition (NER)
- Tokenization and parsing in clinical text
- Handling medical abbreviations and synonyms
- Integration with clinical ontologies
- *Case Study: NLP in Processing Discharge Summaries*

Module 3: Data Preprocessing for EHR Text

- Text cleaning techniques
- Removing Protected Health Information (PHI)
- Stemming and lemmatization
- Stop-word filtering in clinical contexts
- Annotating clinical datasets
- *Case Study: Preparing Radiology Reports for Analysis*

Module 4: Machine Learning Models for EHR Text

- Supervised vs. unsupervised learning
- Text classification algorithms
- Model evaluation metrics
- Feature engineering for text
- Model deployment in healthcare
- *Case Study: Predicting Readmission from EHR Notes*

Module 5: Ontologies and Clinical Vocabularies

- SNOMED CT, ICD-10, LOINC
- Mapping clinical terms
- Semantic search in EHRs
- Vocabulary normalization techniques
- Role of UMLS
- *Case Study: Enhancing Search in Clinical Databases*

Module 6: Sentiment and Emotion Analysis

- Sentiment analysis tools
- Understanding patient narratives
- Opinion mining from feedback data
- Emotion detection algorithms
- Application in mental health monitoring
- *Case Study: Analyzing Patient Surveys for Sentiment Trends*

Module 7: Predictive Analytics in EHR

- Risk modeling using text data
- Predictive algorithms in clinical settings
- Early disease detection
- Real-time alert systems
- Evaluation of predictive outcomes
- *Case Study: Predicting Sepsis from Admission Notes*

Module 8: Clinical Decision Support Systems (CDSS)

- Role of text analytics in CDSS
- Rule-based vs. AI-powered CDSS
- Integration with EHR systems
- Alert fatigue and mitigation
- Case triage automation
- *Case Study: Enhancing CDSS with NLP Inputs*

Module 9: Information Extraction from Clinical Notes

- Relationship extraction

- Event and temporal data identification
- Context-aware extraction
- Key phrase detection
- Template-based annotation
- *Case Study: Extracting Medications and Dosage from Notes*

Module 10: Text De-identification Techniques

- HIPAA and patient privacy
- Named Entity Recognition for PHI
- Rule-based vs. ML-based de-identification
- Synthetic data generation
- Compliance tools and platforms
- *Case Study: De-identifying Patient Records for Research*

Module 11: EHR Text Classification and Clustering

- Labeling clinical datasets
- Document clustering techniques
- Dimensionality reduction methods
- Hierarchical vs. k-means clustering
- Visualizing text clusters
- *Case Study: Grouping Similar Clinical Narratives*

Module 12: Visualizing Text Data in Healthcare

- Word clouds and bar plots
- Term frequency–inverse document frequency (TF-IDF)
- Heatmaps and Sankey diagrams
- Dashboards for clinical text
- User-friendly UI for health professionals
- *Case Study: Visual Dashboard for Emergency Room Reports*

Module 13: Evaluating and Validating NLP Models

- Validation metrics (F1, ROC, AUC)
- Overfitting in healthcare data
- Cross-validation techniques
- Clinical relevance validation
- Interpretability in model outputs
- *Case Study: Evaluating NLP Model for Cancer Detection*

Module 14: Implementing Text Analytics in EHR Systems

- Software architecture for integration
- APIs and interoperability standards
- User interface and usability
- Real-time vs. batch processing
- Change management in hospitals
- *Case Study: Deploying NLP in a Live Hospital Setting*

Module 15: Ethics, Bias, and Future Trends

- Bias in clinical algorithms
- Ethical considerations in patient data use
- Explainability and fairness in AI

- Regulatory landscape (GDPR, HIPAA)
- Future directions in EHR analytics
- *Case Study: Addressing Bias in Mental Health Text Classification*

Training Methodology

- Instructor-led live virtual sessions
- Hands-on lab exercises and coding tutorials
- Case study analysis with real-world datasets
- Group discussions and peer feedback
- Project-based assessments with expert feedback
- Access to online resources, datasets, and tools

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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