INFOSECTRAIN

CYBER SECURITY DATA SCIENCE

TRAINING COURSE

COURSE DESCRIPTION

Today, data science is one of the most in-demand fields in the IT business. Cybersecurity has also undergone tremendous technological and operational changes in recent days. Infosectrain's Data Science for Cyber Security course is designed to be an all-in-one resource that may help you advance your profession. Examine all of the fundamentals of Data Science for Cyber Security while also ensuring that you have sufficient exposure to more advanced topics.

The key to making a security system automated and intelligent is to extract security incident patterns or insights from cybersecurity data and construct a data-driven model to go with it. Various scientific methodologies, machine learning techniques, procedures, and systems are employed in order to comprehend and analyse the actual phenomena with data. The information is acquired from reputable cybersecurity sources, and the analytics are used to supplement the most recent data-driven patterns in order to provide more effective security solutions.

Course Highlights

- 24 hours of Instructor-Led Training
- Access to the recorded sessions

Why Data Science for Cyber Security Training with Infosectrain?

InfosecTrain is a proficient technology and security training and consulting organization across the globe, specializing in various IT security courses and services. Our Data Science for Cyber Security training course aims to apply Data Science skills in Cyber Security to mitigate the security threats. You can leverage the following benefits with InfosecTrain:

- We can help you present your qualifications and work experience for the designated profile.
- We provide a flexible training schedule.
- We provide recorded videos after the session to each participant.
- We provide post-training assistance.
- We also provide a certificate of participation to each candidate.

Target Audience

- Candidates who want to build their career in Cyber Security and Data Science
- Candidates willing to learn Data Science for Cyber Security from Scratch

Pre-Requisites

- Basic knowledge of programming languages
- Basic understanding of network essentials, core concepts including server and network components

Course Content

Introduction to Cyber Security

1. Python Basics

> Statements and Loops
> Creating Functions
> Data Wrangling using Pandas and NumPy

2. Exploratory Data Analysis

> Summary Statistics
> Data Visualization
> Missing Value detection
> Outlier detection
> Data Transformation
> Splitting the data Into Training and Test Data

3. Machine Learning for Cyber Security

> Data Dimensionality Reduction PCA Statistical Intuition and Implementation
> Segregating data using clustering Statistical Intuition and Implementation
> Training an XGBoost classifier
> Analyzing time series using statsmodels Explanation and Implementation using statsmodels
> Anomaly detection with Isolation Forest Explanation and Implementation
> Natural language processing using a hashing vectorizer and Tf-Idf Explanation and Implementation
> Hyperparameter tuning with scikit-optimize Implementation
> Generating text using Markov chains

4. Email Cybersecurity Threats Detection

> Introduction to detect spam with Perceptrons
> Introduction to Perceptrons
> Introduction to spam filters
> Spam filter in action
> Detecting spam with linear classifiers
> How the Perceptron learns
> A simple Perceptron-based spam filter
> Pros and cons of Perceptrons
> Introduction to Spam detection with SVMs
> SVM spam filter example
> Introduction to Phishing detection with logistic regression and decision trees
> Linear regression for spam detection
> Introduction to Logistic regression
> Logistic Regression Implementation
> Introduction to making decisions with trees
> Phishing detection with decision trees
> Spam detection with Naive Bayes
> NLP with Naive Bayes Implementation

5. Malware Threat Detection

> Introduction to Malware detection
> Malware goes by many names
> Malware analysis tools of the trade
> Static malware analysis
> Dynamic malware analysis
> Hacking the PE file format
> Introduction of Decision tree malware detectors
> Malware detection with decision trees
> Random Forest Malware classifier
> Clustering malware with K-Means
> K-Means steps and its advantages and disadvantages
> Detecting metamorphic malware with HMMs Introductions
> Polymorphic malware detection strategies
> HMM Implementation

6. Advanced malware threat detection

> Obfuscation Detection Python Implementation
> Obfuscation Detection Python Explanation
> Tracking malware drift Implementation
> Tracking malware drift Explanation

7. Network Anomaly Detection

> Turning service logs into datasets
> Introduction to classification of network attacks
> Detecting botnet topology
> Introduction to different ML algorithms for botnet detection
> Introduction to Gaussian anomaly detection
> Gaussian anomaly detection Implementation

8. Securing Users Authentication

> Introduction to Authentication abuse prevention
> Fake login management- reactive versus predictive
> Account reputation scoring
> User authentication with keystroke recognition Introduction
> User authentication with keystroke recognition Implementation
> Biometric authentication with facial recognition Introduction
> Dimensionality reduction with principal component analysis (PCA) Introduction
> Eigenfaces Implementation

9. Automatic intrusion detection

> Detecting DDos Attack
> Credit Card fraud detection Introduction
> Credit Card fraud detection Implementation
> Counterfeit bank note detection Implementation
> Ad blocking using machine learning Implementation
> Wireless indoor localization Implementation
> IoT device type identification using machine learning
> Deepfake recognition

10. Securing and Attacking Data with Machine Learning

> Assessing password security using ML
> ML-based steganalysis Introduction
> ML-based steganalysis Implementation
> ML attacks on PUFs Introduction
> ML attacks on PUFs Implementation
> ML attacks on PUFs Explanation
> HIPAA data breaches – data exploration and visualization

11. Projects

> Online Transaction Fraud Detection
> Fake News Detection
> Fake Product Review Detection
> Spam Email Detection
> Credit Card Fraud Detection

www.infosectrain.com | sales@infosectrain.com