

**SUPERFLUID ACADEMY**  
DATA • INTELLIGENCE • ADVANTAGE

# Credit Risk Assessment with Data Analytics and Artificial Intelligence for Technical Teams

FOR MORE DETAILS EMAIL US @  
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Data Science and Analytics are must have capabilities for today’s competitive company. Gain a competitive edge with **AI-POWERED CREDIT RISK ASSESSMENT**

**Why is this programme necessary?**

As a Technical Person, you will be equipped with the technical data analytics and artificial intelligence techniques used in credit risk scoring for lending. As you are already familiar with your lending business area. AI-Powered Credit Risk Assessment gives you the power to scale lending efficiently, profitably and to take advantage of monumental data growth to assess behaviour and risk more efficiently with artificial intelligence

**Key benefits to participants**

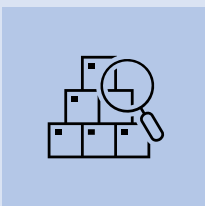
The course is designed to provide the needed

- Knowledge
- Technical Skills
- Understanding
- Capacity building for

using Data and Analytics as part of the tools for assessing risk in lending.

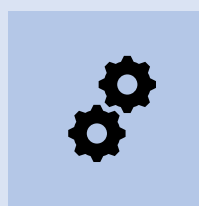
**Five Benefits of Using Artificial Intelligence in Credit Risk Management**

**Efficiency**



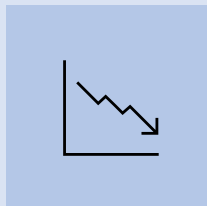
Take advantage of the abundance of data and AI to assess credit risk efficiently

**Automate**



Reduce risk management cost with automation and analytics

**Reduce Losses**



Reduce losses by increasing the accuracy of predicting likely defaults

**Innovate**



Improve customer experience with intelligent loan products

**Grow**



Scale lending and increase market share

## The Objective

To equip participants with the technical data analytics and artificial intelligence techniques used in credit risk scoring for lending. The course follows a data science problem solving process right from business problem understanding to model deployment while teaching the key concepts and tools at each step where each step is divided into modules.

## Datasets

- Open to client sharing their data (For a tailored approach to client business context)
- If client data is missing. We use our own generic data.

## Learning Outcomes

On completion of this course, the student will be able to :

- Understand and critically discuss the data science steps to delivering a credit scoring tool for a lending business
- Understand, design, develop and deploy a credit risk tool.
- Quantitatively evaluate the predictive performance of credit scoring models.

## Pre-requisite

- Basic understanding of programming concepts
- Knowledge of basic concepts in maths or statistics
- Microsoft Excel or Google Sheets
- Microsoft PowerPoint / Google Slides



## Technical Training Modules

<b>Module 0</b>	Basic Concepts Introduction
<b>Session 1</b>	Overview of AI, Machine Learning and Data Science
<b>Session 2</b>	Linear Algebra, Key Concepts in Statistical Learning for Data Science
<b>Session 3</b>	Python Fundamentals, Conditionals, Functions
<b>Session 4</b>	Some Key Concepts in Statistics
<b>Session 5</b>	Introduction to SQL
<b>Session 6</b>	Introduction to Machine Learning
<b>Module 1</b>	Business Understanding
<b>Session 7</b>	Assets Review & Kick off
<b>Module 2</b>	Data Understanding
<b>Session 8</b>	Pandas for Data Science - Part 1
<b>Session 9</b>	Pandas for Data Science - Part 2
<b>Session 10</b>	Exploratory Data Analysis in Pandas
<b>Session 11</b>	Data Visualization (Pandas + Seaborn + Matplotlib)
<b>Session 12</b>	Data Understanding using SuperScore
<b>Module 3</b>	Business Problem Sizing
<b>Session 13</b>	Business Problem Quantification using Google Sheet
<b>Module 4</b>	Feature Engineering
<b>Session 14</b>	Data Pre-processing in Python

## Technical Training Modules

<b>Module 5</b>	Feature Selection
<b>Session 15</b>	Brief on Weight of Evidence and Information Value Methodology and Application
<b>Session 16</b>	Model feature selection
<b>Module 6</b>	Model Training, Evaluation and Selection
<b>Session 17</b>	Logistic Regression
<b>Session 18</b>	Linear Regression
<b>Session 19</b>	Model Selection
<b>Session 20</b>	Learning from Imbalanced Data
<b>Session 21</b>	Dimensionality Reduction
<b>Session 22</b>	Curse of Dimensionality + Feature Engineering + Feature Selection
<b>Session 23</b>	Decision Trees and Random Forests
<b>Session 24</b>	Naive Bayes + Support Vector Machines
<b>Session 25</b>	Unsupervised Learning - Clustering
<b>Session 26</b>	SuperML Demo - Part 1
<b>Session 27</b>	Models Evaluation Metrics: AUC, Accuracy
<b>Module 7</b>	Candidate Models Impact Analysis
<b>Session 28</b>	Confusion Matrix , Risk-Split ratio and AUC comparisons
<b>Session 29</b>	Quintiles, Deciles and Economic Scenario

## Technical Training Modules

<b>Module 8</b>	<b>Model Deployment and Monitoring</b>
<b>Session 30</b>	Build API 1
	Refactor Code in Jupyter notebooks to be production-ready scripts
	Implement API structure
<b>Session 31</b>	Build API 2
	Accept as input/requests raw features matching proposed structure
	Use Transformation Layer to derive features to be used as input for model
	Make API calls to SuperML hosted model / use H2O model to get predictions
	Sort probabilities + Determining Risk Groups
<b>Session 32</b>	Deploy Model in Production
	Deployment and test environment for clients
	Integration to Clients Systems
	Quality Assurance (by clients) and monitoring
<b>Module 9</b>	<b>Capstone Project</b>
<b>Session 33</b>	Select, define and solve an agreed actual business problem at the participants' organizations.
<b>Session 34</b>	Office-hours and project check-in
<b>Session 35</b>	Final Presentations

# Standard Pricing

## Price

Starts at

# USD 100

per session per participant

Training Offerings	Duration	Notes / Discount
<ul style="list-style-type: none"> <li>• <b>USD 100</b> per session per participant</li> </ul>	To be arranged based on training requirements	<ul style="list-style-type: none"> <li>• Participants can select as many modules / sessions as desired from the listed options.</li> </ul>
<ul style="list-style-type: none"> <li>• Hands-on technical training sessions</li> </ul>		<ul style="list-style-type: none"> <li>• Discounts will be available and offered based on the final selection of number of participants and total sessions or modules.</li> </ul>
<ul style="list-style-type: none"> <li>• Real-business data used for examples and exercises</li> </ul>		<ul style="list-style-type: none"> <li>• However a minimum training commitment of at least USD 5,000.00 is required for discount consideration.</li> </ul>
<ul style="list-style-type: none"> <li>• Capstone Project to solve actual business problem at participants' organizations</li> </ul>		

## Delivery Team

Our team of data scientists, ex-bankers, engineers, and mathematicians have rich industry experience from IBM Research, Banking, Technology Companies, and globally renowned consulting companies and financial institutions across Africa. The team has successfully built several credit risk scoring engines from financial data, mobile money data, transactions data, and several other alternative data sets for over five industries.



### About The Superfluid Labs

Superfluid Labs was recognized by the London Stock Exchange Group as part of the 2019 Companies to Inspire Africa List through the firm's innovative use of AI and Big Data in financial services delivery. The firm also won the best Data Analytics and Credit Scoring company at the 2020 Africa Tech Summit in Kigali (ENGIE Credit Scoring Challenge ) and has built several AI-powered credit scoring engines for varied lending products across several industries. The company has incorporated offices in Ghana, Kenya, and Germany with customers in over 10 African countries.

## Delivery Team Lead

### Timothy Kotin

(CEO, Co-Founder of Superfluid Labs)

Timothy Kotin is the Co-Founder and CEO of Superfluid Labs. He is a recognized thought-leader at the intersection of Artificial Intelligence and international development and served on the USAID Advisory Panel on Artificial Intelligence (AI) and Machine Learning (ML) in 2019.

Timothy has extensive experience, including holding proprietary patents and inventions related to developing digital financial products (credit, savings, asset finance, etc.) and credit scoring models that leverage both traditional financial data as well as new alternative data sources such as call data records or mobile money transactions from MNOs and social media.





# Online Registration

[superfluid.io/academy](https://superfluid.io/academy)



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