**MACHINE LEARNING-POWERED CLIENT RISK PROFILING: AN EXPLAINABLE AI APPROACH FOR RADIANT FINANCIAL**

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The abstract goes here…

1. Introduction

The use of Artificial Intelligence (AI) and Machine Learning (ML) in financial services is steadily reshaping the way client risk is assessed, managed, and communicated. Traditionally, risk profiling within wealth management firms has relied on static questionnaires, subjective adviser input, and simplified scoring mechanisms [1]. This approach, while compliant, often overlooks the wealth of structured and unstructured data available within an organisation's systems. As regulatory bodies such as the Financial Conduct Authority (FCA) advocate for greater transparency and accountability in AI-driven decision-making, there is a pressing need to develop explainable, data-driven methods that enhance risk assessment practices [2].

Radiant Financial, a rapidly growing UK-based financial services consolidator, exemplifies this challenge. Following its acquisition of Seven Bridges Investment Management (SBIM), Radiant has inherited a fragmented data landscape, with legacy systems such as Wave CRM and Intelliflo housing vast but underutilised client data. The absence of integrated, predictive analytics limits the firm's ability to provide personalised, evidence-based risk assessments, impacting both operational efficiency and client trust. The upcoming deployment of a centralised data warehouse further presents a timely opportunity to design and prototype AI-driven risk profiling tools that align with Radiant's strategic goals.

This project aims to develop a machine learning-based client risk profiling model for Radiant Financial, leveraging historical client and plan data from Intelliflo CRM. The focus is twofold: firstly, to replace subjective, questionnaire-based risk assessments with an explainable AI model that transparently evaluates risk factors; and secondly, to provide actionable insights for financial advisers through clustering and segmentation of client profiles. The project will place particular emphasis on the use of Explainable AI (XAI) techniques such as SHAP values to ensure compliance with FCA guidelines and maintain stakeholder trust.

The significance of this work lies at the intersection of business and academia. For Radiant, this model represents a pathway to improved risk assessment accuracy, enhanced client engagement, and data-driven decision-making. From an academic perspective, the project contributes to ongoing research in the application of interpretable machine learning methods within regulated industries, addressing challenges of fairness, transparency, and practical deployment.

The remainder of this dissertation is structured as follows. Section 2 reviews relevant literature on AI in financial services, risk profiling methods, and explainability frameworks. Section 3 details the methodology adopted, including data collection, preprocessing, modelling, and evaluation techniques. Section 4 outlines the work undertaken, highlighting key decisions and implementation challenges. Section 5 presents the results and evaluates their business impact. Section 6 concludes with a reflection on the project's achievements, limitations, and recommendations for future work.

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1. Background
2. Methodology
3. Implementation
4. Results and Evaluation
5. Conclusion
6. Recommendations

Acknowledgements

References

[1] Dynamic Planner, ‘About Dynamic Planner’s Risk Profiling System’, Dynamic Planner. Accessed: May 12, 2025. [Online]. Available: https://dynamicplanner.com/risk-sustainability-profiling/

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[3] S. Barocas, M. Hardt, and A. Narayanan, ‘Fairness in Machine Learning’, 2020.

A  APPENDICES

In the appendix section, three levels of Appendix headings are available.

Fix the Appendix List style to A.X….

A.1 Part One

1. ANOTHER SECTION

The next subsections provide instructions on how to insert figures, tables, and equations in your document.

* 1. Tables

Tables are “float elements” which should be inserted after their first text reference and have specific styles for identification. Do not use images to present tables, or they will be inaccessible to readers using assistive technologies.

Authors can insert tables by using the MS Word option (INSERT ->Table) and providing the required row and column size. Every table must have a caption (title) above it, which must have the **“TableCaption**” style applied. Please note that tables **should not** be supplied as[[1]](#footnote-1) image files, but if they are images they must have the “Image” style applied. As an example, Table 1 shows all the styles available in this template, to be applied to the respective element of your text.

Table 1: Styles available in the Word template

| Style Tag | Definition | Style Tag | Definition |
| --- | --- | --- | --- |
| Title\_document | main title of article | ListParagraph | list items |
| Subtitle | subtitle of article | Statements | math statements |
| Authors | author name | Extract | block quotations |
| Affiliation | author affiliation information | Algorithm Caption | caption for algorithm |
| AuthNotes | footnote to author(s) | AckHead | heading for acknowledgements |
| Abstract | abstract text | AckPara | acknowledgements text |
| CCSHead | heading for CSS Concepts | GrantSponsor | sponsor of grant |
| CCSDescription | CSS terms | GrantNumber | number for the grant |
| KeyWordHead | heading for keywords | ReferenceHead | heading for references |
| Keywords | keywords text | Bib\_entry | references |
| ORCID | author's ORCID # | AppendixH1 | appendix heading level 1 |

Tables can be very difficult for people using screen reader technology to understand unless they include markup that explicitly defines the relationships between all the parts (i.e.: headers and data cells). *A key to making data tables accessible to screen reader users is to clearly identify column and row headers.* In Word, authors should identify which row or rows contain column headers. Below are the steps to do this:

1. Select that table’s row, then right-click the row and select “Table Properties”;
2. In the *Table Properties* window, click the *Row* tab and select the box that says “Repeat as header row at the top of each page.”

Or

Apply the “table head” style by highlighting the respective row and applying the “**TableHead**” style found in the “Body Element” section of the ACM Master Article Template.

* 1. Figures

Figures are “float elements” which should be inserted after their first text reference, and have specific styles for identification. Insert a figure and apply the “**Image**” paragraph style to it. For the figure caption, apply the style “**FigureCaption.**”

To accommodate readers with color vision differences, figures should still be usable when printed in grayscale. Refer to elements of the figure with non-color terms, for example “indicated as squares” instead of “indicated in blue”. Use different patterns in bar charts, different line patterns in graphs, and different shapes in plots to distinguish groups of elements and reinforce color differences.



Figure 1: 1907 Franklin Model D roadster. Photograph by Harris & Ewing, Inc. [Public domain], via Wikimedia Commons. (https://goo.gl/VLCRBB)

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There are two types of math equations: the *numbered display math equation* and the *un-numbered display math equation*. Below are examples of both.

* + 1. *DisplayFormula.*

The **DisplayFormula** style is applied in the numbered math equation. A numbered display equation always has an equation number (label) on the right.

(1)

* + 1. DisplayFormula.Unnum*.*

The **DisplayFormulaUnnum** style is applied only in unnumbered equations. An unnumbered display equation never contains an equation number Bertot and Grimes (2012) on the right—this element distinguishes it from the numbered equation.

Please note: the subsequent text after the **DisplayFormula** (numbered equation) or **DisplayFormulaUnnum** (unnumbered equation) must have the paragraph style **ParaContinue** applied.

* 1. Math statements

Math statements should have the “Statement” style applied.

**Theorem/Proof/Lemma.** Math statements should have the “**Statement**” style applied. This paragraph is an example of the “**Statement**” style.

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This section cites a variety of journal [5, 15], conference [1, 6, 8, 12, 13], and magazine [3] articles to illustrate how they appear in the references section. It also cites books [9, 10], a technical report [7], a PhD dissertation [4], an online reference [14], a software artifact [11], and a dataset [2].

ACKNOWLEDGMENTS

Identification of funding sources and other support, and thanks to individuals and groups that assisted in the research and the preparation of the work should be included in an acknowledgment section, which is placed just before the reference section in your document.

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A  APPENDICES

In the appendix section, three levels of Appendix headings are available.

A.1 Part One

1. Save as you go and backup your file regularly.
2. Do not work on files that are saved in a cloud directory. To avoid problems such as MS Word crashing, please only work on files that are saved locally on your machine.
3. Equations should be created with the built-in Microsoft® Equation Editor included with your version of Word. (Please check the compatibility at <http://tinyurl.com/lzny753> for using MathType.)
4. Please save all files in DOCX format, as the DOC format is only supported for the Mac 2011 version.
5. Tables should be created with Word’s “Insert Table” tool and placed within your document. (Tables created with spaces or tabs will have problems being properly typeset. To ensure your table is published correctly, Word’s table tool must be used.)
6. Do not copy-and-paste elements into the submission document from Excel such as charts and tables.
7. Footnotes should be inserted using Word’s “Insert Footnote” feature.
8. Do not use Word’s “Insert Shape” function to create diagrams, etc.
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A.2 Placeholder Text

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