FIN TECH @ University of Glasgow | School of Computing Science

Vision

Success in Financial Markets is driven by complex interactions between core business fundamentals, investor perception and world events. Traders, financial analysists, regulators and governments need to collate, analyse and apply these factors and the interactions between them to effectively perform their roles. However. In our modern globalized economy, it is no longer possible for one person to fully understand these factors and interactions, due to the increased complexity, number of stakeholders involved, as well as increasing attempts to obscure or misconstrue information. Hence we believe that the future of financial markets lies in AI assistive agents, which can collate, analyse and apply financial data in real-time and at scale for customers.

1. Staff

Professor Iadh Ounis
Information Retrieval, Data Science, Big Data Analytics, Sensing Systems
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Professor Craig Macdonald
Information Retrieval for Web, Enterprise, Social Media and Smart Cities
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Real-time IR, Machine Learning, Big Data Stream Processing, Evaluation
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Dr. **Javier Sanz-Cruzado**
Financial Recommendation Systems
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2. Current PhD Students

- Edward Richards: **Automatic Identification of Financial Asset Price Manipulation Efforts in Social Media**
- Lubingzhi Guo: **Automatic Financial Knowledge Generation from Digital Documents**

3. Pathways for Collaboration with Us

- Joint Supervision of Undergraduate or Masters Individual Projects
- Industry-led PhD Scholarship
- Part-Time Secondment to the University for a Project or PhD
- Industry-Defined Research Project
  - Funded either via Research Council or the Industry Partner
- Impact Accelerator Projects

4. Projects

Enhancing Sustainability via Dynamic Optimization of Barclay's Data Services — BARCLAYS — 2023-2026
Automatic analysis of financial data access patterns for driving **infrastructure and service scalability** in cloud environments

FAR-AI — Engineering and Physical Sciences Research Council — 2023
Building a **financial asset recommendation platform** for the UK banking market

PPC-FI — Engineering and Physical Sciences Research Council / National Bank of Greece — 2023
Developing **Personalized Portfolio Construction** and **Optimisation** algorithms for **Retail Customers**

INFINITECH — 2019-2023
Tailored **IoT & BigData** Sandboxes and Testbeds for Smart, Autonomous and Personalized Services in the European **Finance** and **Insurance** Services Ecosystem

IMX — THE DATA LAB — 2017
Investment Management eXtension
Leveraging **data mining** and **machine learning** to comparing **finance assets** with model portfolios for financial product construction

5. Research Topics

Collate

- **Know Your Asset**
  - Automatic Collation of Asset Profiles from Web Search Results

- **Fact Extraction from Online Documents**
  - Analysing Financial Reports to extract company performance
  - Analysing Financial News articles to identify key Financial Events

- **Financial Knowledge Graphs**
  - Construction of Financial Knowledge Graphs from existing repositories
  - Construction of Financial Knowledge Graphs from online reports

- **Collecting Financial Discussions on Social Media**
  - Automatic discovery and crawling of emerging financial topics on social media

Analyse

- **Technical Analysis**
  - Production of technical indicators in real-time and at scale

- **Understanding Public Perceptions regarding Financial Entities**
  - Using Social Media to track Asset perception across user groups
  - Analysing Social Media to identify coordinated attempts to manipulate public perception regarding assets

- **Financial Knowledge Graph Embedding**
  - Converting human interpretable knowledge graphs to AI-usable vectors
  - Temporal Embeddings

Apply

- **Forecasting Financial Asset Performance**
  - Forecasting performance using technical analysis
  - Forecasting performance using investment patterns
  - Enhancing Forecasting across Cross-Markets

- **Trading Strategies**
  - Portfolio Construction
  - Trading Strategy Simulation
  - Learning-to-Trade
  - What-if analysis

- **Financial Asset Recommendation**
  - Recommendations from Price/Trend/Profitability predictions
  - Recommendations from Customer Investment History

- **Automatic Asset Profile Construction**
  - Generative summarization of asset descriptions and key events

Interested in a Collaboration? Come and talk with us or send us an email!