CONCEPT

AI in Investment Management Training: Machine Learning Signals, NLP and Backtesting

21 – 25 June 2027
Barcelona - Eixample district four-star



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Introduction:

AI in investment management training on machine learning signals, NLP and backtesting is a one-week course for portfolio managers, investment analysts, quantitative researchers and investment risk staff, ending with an ML signal research note and backtest review for a case equity strategy. Asset managers, insurers and pension funds adopt machine learning faster than they can test it, so overfitted signals and unexplained models reach investment committees. Nominees already build or review factor, return or risk models, and the course is taught through modelling builds on equity, filing and news datasets. CoreConcept Training Center delivers this AI investing course.

Course Objectives:

- Map the investment process stages where machine learning, NLP and generative AI add value, and audit point-in-time and alternative datasets before use
- Engineer factor and signal features, label forward returns and train regularised, tree-based and neural models for return and risk prediction
- Convert company filings, earnings call transcripts and news flow into scored sentiment signals and test how quickly they decay
- Apply covariance shrinkage, hierarchical risk parity and regime detection when turning model forecasts into portfolio weights
- Detect look-ahead bias, survivorship bias and overfitting using purged cross-validation and the deflated Sharpe ratio
- Explain model outputs with SHAP values and document investment models for validation sign-off and live monitoring

Target Audience:

- Portfolio management staff responsible for equity and multi-asset strategy decisions that draw on model forecasts
- Investment research analysts responsible for company, sector and earnings research coverage
- Quantitative research staff responsible for building and maintaining factor and alpha signal models
- Investment risk staff responsible for portfolio risk forecasts, limits and stress views
- Model validation and investment governance staff responsible for approving models before deployment
- Investment data staff responsible for sourcing, cleaning and licensing market and alternative datasets

Course Outline:

Day 1: AI Across the Investment Process and Data Foundations

- Investment Process Map Locating Machine Learning Use Cases
- Prediction Versus Explanation Problems in Return Forecasting
- Point-in-Time Data Panels with Corporate Action Adjustments
- Alternative Data Sourcing, Licensing and Dataset Due Diligence
- Generative AI Assistants for Research Summaries and Drafting

Day 2: Feature Engineering and Supervised Learning for Return and Risk

- Factor and Signal Feature Construction with Cross-Sectional Ranking
- Target Labelling with Forward Returns and Holding Horizons
- Regularised LASSO and Ridge Regression for Return Prediction
- Random Forest and Gradient Boosting Return Classifiers
- Neural Network Volatility and Drawdown Risk Forecasting

Day 3: NLP Signals and Machine Learning in Portfolio Construction

- Transformer Language Models Reading Company Filings and Reports
- Earnings Call Transcript Tone and Sentiment Scoring
- News Sentiment Signal Aggregation and Decay Testing
- Covariance Shrinkage and Hierarchical Risk Parity Allocation
- Hidden Markov Model Market Regime Detection

Day 4: Backtest Integrity, Explainability and Model Governance

- Look-Ahead and Survivorship Bias Detection in Backtests
- Purged and Embargoed K-Fold Cross-Validation Design
- Deflated Sharpe Ratio and Multiple Testing Correction
- SHAP Value Explanations for Signal and Risk Models
- Model Inventory, Validation Sign-Off and Monitoring in Asset Managers

Day 5: Modelling Build of an ML Signal Research Note

- Case Equity Universe Feature Matrix and Label Build
- Gradient Boosting Signal Training with Purged Validation
- Sentiment Overlay and HRP Portfolio Simulation Run
- Backtest Review Checklist Against Bias and Overfitting Tests
- ML Signal Research Note and Backtest Review Completion

Skills You Will Gain:

- Alpha Signal Engineering
- Return Label Design
- Tree-Based Model Training
- Financial Text Sentiment Scoring
- Hierarchical Risk Parity Allocation
- Backtest Bias Detection
- SHAP Attribution Reading
- Investment Model Documentation

Why Attend This Course:

- Deliver an ML signal research note with backtest review for a case equity strategy to the head of investments and the investment committee for challenge
- Decide whether a proposed machine learning signal has enough out-of-sample evidence to enter a live portfolio
- Avoid allocating capital to overfitted or look-ahead contaminated strategies that fail soon after launch
- Coach analyst and quant colleagues on purged validation, SHAP reading and research note standards

Conclusion:

Back at work, the participant hands the head of investments, the investment committee and the model validation function an ML signal research note that sets out the data, features, model choice, validation design and backtest evidence for one equity strategy. The committee uses it to decide whether the signal moves to paper trading, a pilot allocation or rejection, and the risk team uses it to set monitoring limits. After first use, the unit should compare live signal decay with the backtest, check feature drift and confirm that SHAP explanations stayed stable.

Frequently Asked Questions FAQ:

What should participants know before AI in investment management training?

Participants should be comfortable with factor investing ideas, return and risk statistics and data work in spreadsheets or Python. Prior model-building experience helps; programming is not taught from the start, and general investment theory is assumed rather than taught.

How does AI in investment management training differ from a portfolio management or AI risk assurance course?

It centres on building and testing machine learning signals, text sentiment and ML-based allocation for buy-side portfolios. Portfolio management courses teach allocation theory and attribution, while AI assurance courses audit models across the enterprise rather than research investment signals.

Why does AI in investment management put so much weight on backtest integrity?

Machine learning fits noise in financial data very easily, so a strong historical result often fails live. Purged cross-validation, bias checks and the deflated Sharpe ratio separate genuine signals from patterns produced by repeated testing on the same history.

What do participants take back from AI in investment management training?

Participants take back an ML signal research note with a backtest review for a case equity strategy, covering feature definitions, validation design, SHAP explanations and a monitoring plan they can adapt to their own investment data.