

Hands-On AI Trading

With Python, QuantConnect and AWS

Authors: Jiri Pik • Ernest P. Chan • Jared Broad • Philip Sun • Vivek Singh



Jiri Pik

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Agenda

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- 01 Part 1: The Problem & Our Solution**
Why this book exists & Our unique approach

 - 02 Part 2: Book Structure & AI Methods**
Three-part framework, 20+ AI strategies covered

 - 03 Part 3: Key Innovations**
Breakthrough techniques, Platform Advantages
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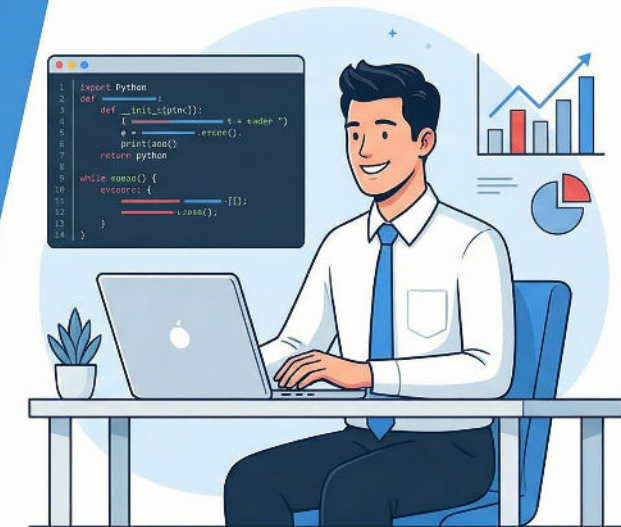
From zero to AI trading mastery in 400 pages ...

Why This Book Exists – The Gap We Identified

- Most AI trading books focus on theory or infrastructure setup
- Scattered coverage of AI methods across literature
- Missing bridge between AI capabilities and trading reality
- No single resource teaching practical implementation



**TRADITIONAL TRADING:
COMPLEXITY & CHAOS.**



**AI TRADING:
STREAMLINED INTELLIGENCE.**

The industry needs a book that teaches you to TRADE with AI, not BUILD infrastructure for AI

Our Solution – The Complete AI Trading Toolkit .

What Makes This Book Different

1. Comprehensive Coverage

- 20+ fully implemented AI trading strategies
- Complete source code for every example
- All strategies battle-tested on QuantConnect

2. Intuition Over Equations

- We teach you WHY before HOW
- Visual explanations of complex concepts
- Real market examples, not toy datasets

3. Zero Infrastructure Hassle

- QuantConnect handles data, execution, backtesting
- Focus 100% on strategy development
- From idea to live trading in hours, not months

4. Complete AI Mastery Path

- Linear Regression → Deep Learning → LLMs
- Every major AI technique applied to trading
- Graduate with production-ready skills

Master these 20 examples = Master modern AI trading. No prerequisites except Python basics.

Book Structure – Part I

Part I: Foundations of Capital Markets & Quantitative Trading Building Your Trading Foundations

What You'll Learn:

- Market mechanics and participant behaviors
- The complete research-to-production workflow
- Backtesting without look-ahead bias
- Parameter optimization and regime detection

Key Chapters:

- Chapter 1: Foundations of Capital Markets
- Chapter 2: Foundations of Quantitative Trading

Why It Matters: Understanding market structure prevents costly mistakes that destroy AI strategies in live trading.

Even the best AI model fails if you don't understand market microstructure. We fix that first.

Book Structure – Part II

Part II: Foundations of AI & ML in Algorithmic Trading

Your AI Arsenal

The 3-Step Framework:

1. **Problem Definition** – What are you predicting?
2. **Dataset Preparation** – Feature engineering, stationarity, cointegration
3. **Model Selection** – Choosing the right AI tool for the job

AI Methods Covered:

- **Regression:** Linear, LASSO, Ridge, Polynomial, SVM
- **Classification:** Random Forest, Logistic Regression, Naive Bayes, HMM
- **Deep Learning:** Convolutional Neural Networks (CNNs), Temporal CNNs
- **Language Models:** OpenAI GPT, Amazon Chronos, FinBERT

We don't just list algorithms - we show you EXACTLY when to use each one and why.

Book Structure – Part III

Part III: Advanced Applications – Where Theory Meets Reality 19 Battle-Tested Strategies

Applied Machine Learning (Chapter 6):

- ML trend scanning with MLFinlab
- FX SVM wavelet forecasting
- Trading pairs selection with clustering
- Dividend harvesting with high-yield asset selection
- Head-shoulders pattern matching with CNN (97% accuracy!)

Reinforcement Learning for Hedging (Chapter 7):

- Two-stage RL approach for options hedging
- Continuous learning from market data

AI for Risk Management (Chapter 8):

- Corrective AI for signal filtering
- Conditional Parameter Optimization (CPO)
- Regime-aware portfolio optimization

Generative AI (Chapter 9):

- LLM summarization of news articles
- RAG applications for trading insights

**Pick any example, implement it, and you'll have a production-ready strategy.
We've done the hard work for you.**

AI Strategy Categories – The Three Pillars

Three Generations of AI Trading

Classical ML (2000s–2010s)

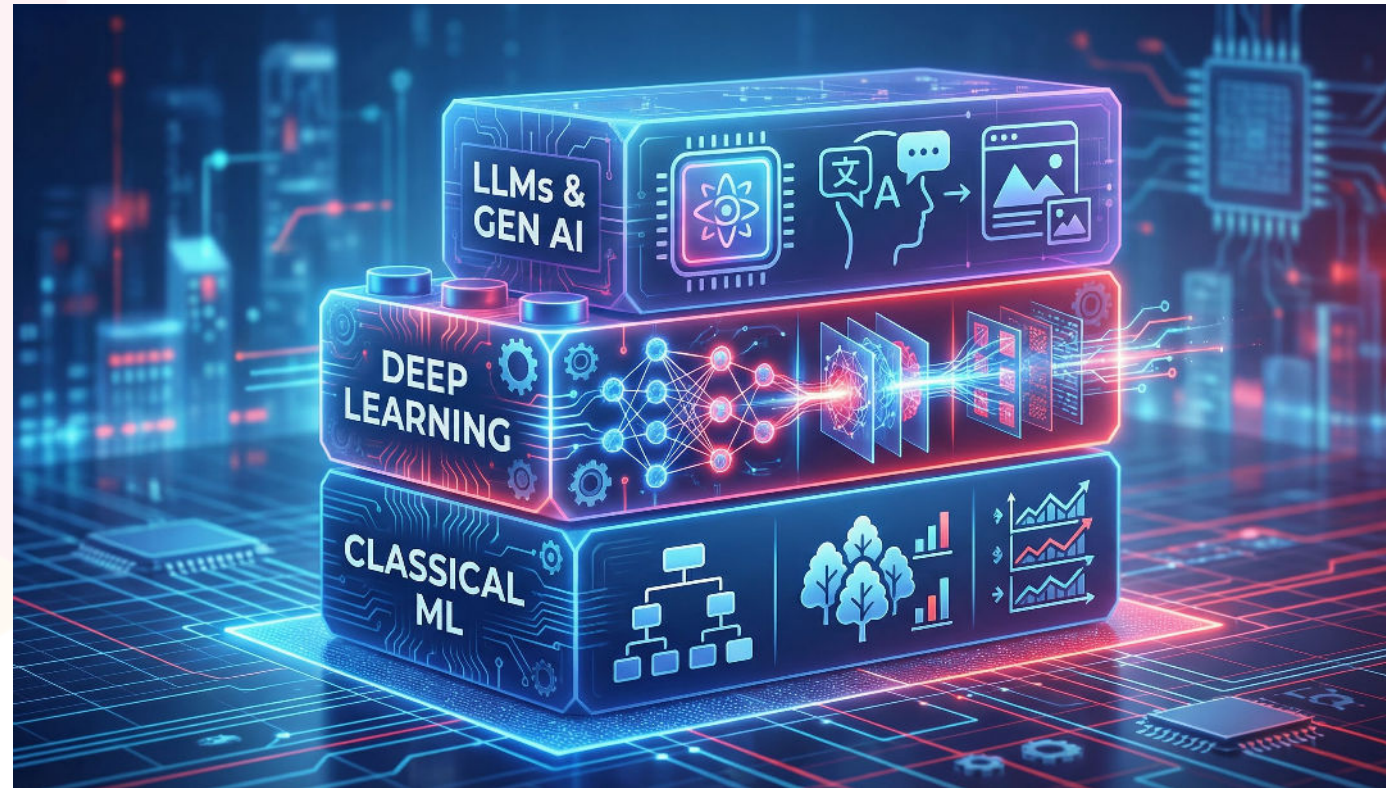
- Random Forests, SVM, HMM
- Excel at: Stock selection, regime detection, mean reversion
- Interpretable, fast, robust

Deep Learning (2010s–2020s)

- CNNs, Temporal Networks
- Excel at: Pattern recognition, time series prediction
- Handles complex nonlinear relationships

LLMs & Generative AI (2020s+)

- GPT, FinBERT, Chronos
- Excel at: News analysis, sentiment, unstructured data
- Breakthrough in alternative data processing



Most books teach one generation. We teach all three. Because markets require the right tool for each job.

Sample Strategy – Head & Shoulders Pattern Detection

Example 17: Head-Shoulders Pattern with CNN

The Challenge:

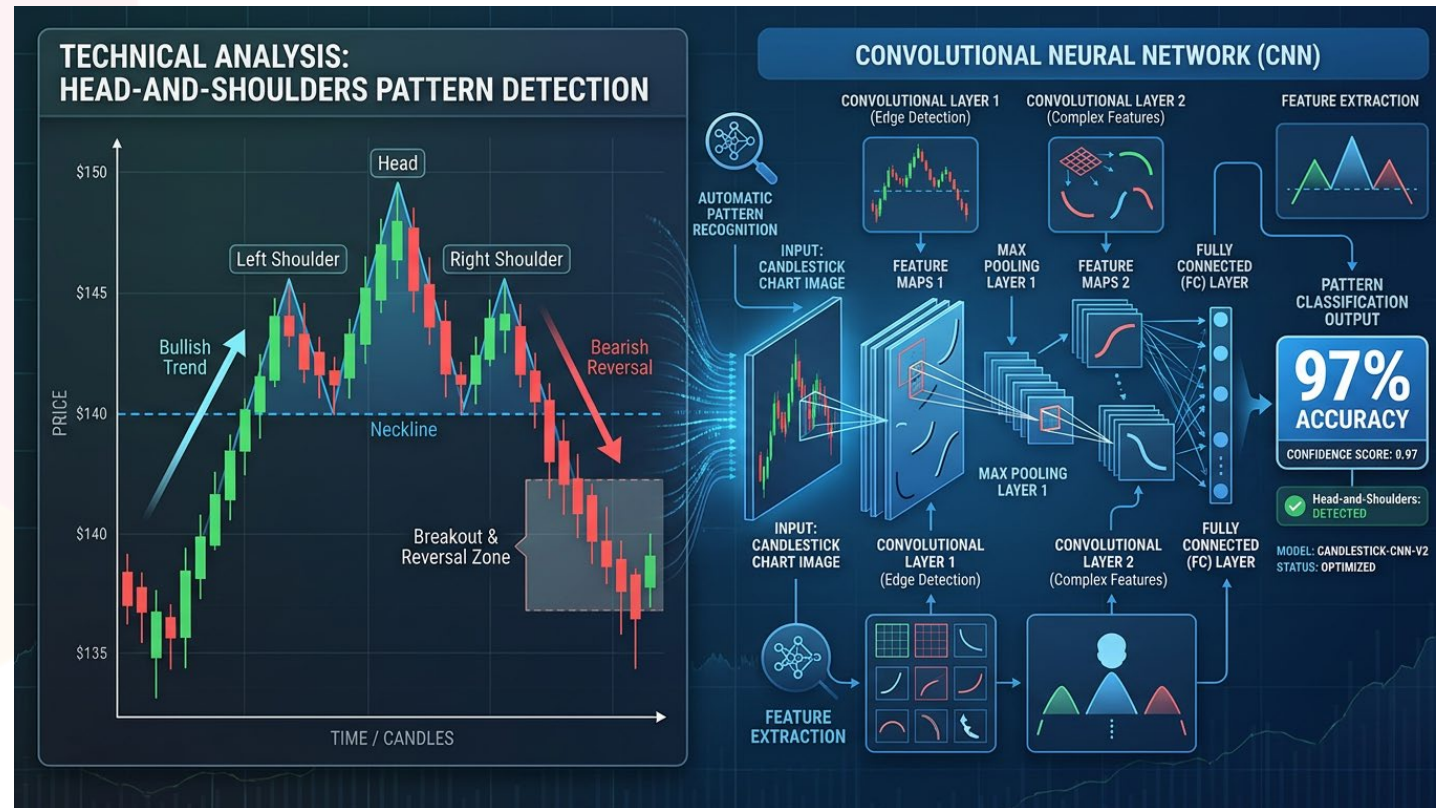
Traditional technical analysis requires manual pattern identification. Time-consuming, subjective, not scalable.

The AI Solution – How It Works:

1. Convert price charts to images
2. Train CNN to recognize head-shoulders pattern
3. Automatic detection across 1000+ stocks in real-time
4. Achieved **97% accuracy** in pattern recognition

The Result:

Scalable, objective, backtestable pattern trading that would take humans years to execute manual.



One weekend with our code = Pattern recognition system that beats 20years of manual charting experience

AI as Amplifier, Not Replacement

The Human + AI Partnership

Why AI Alone Fails:

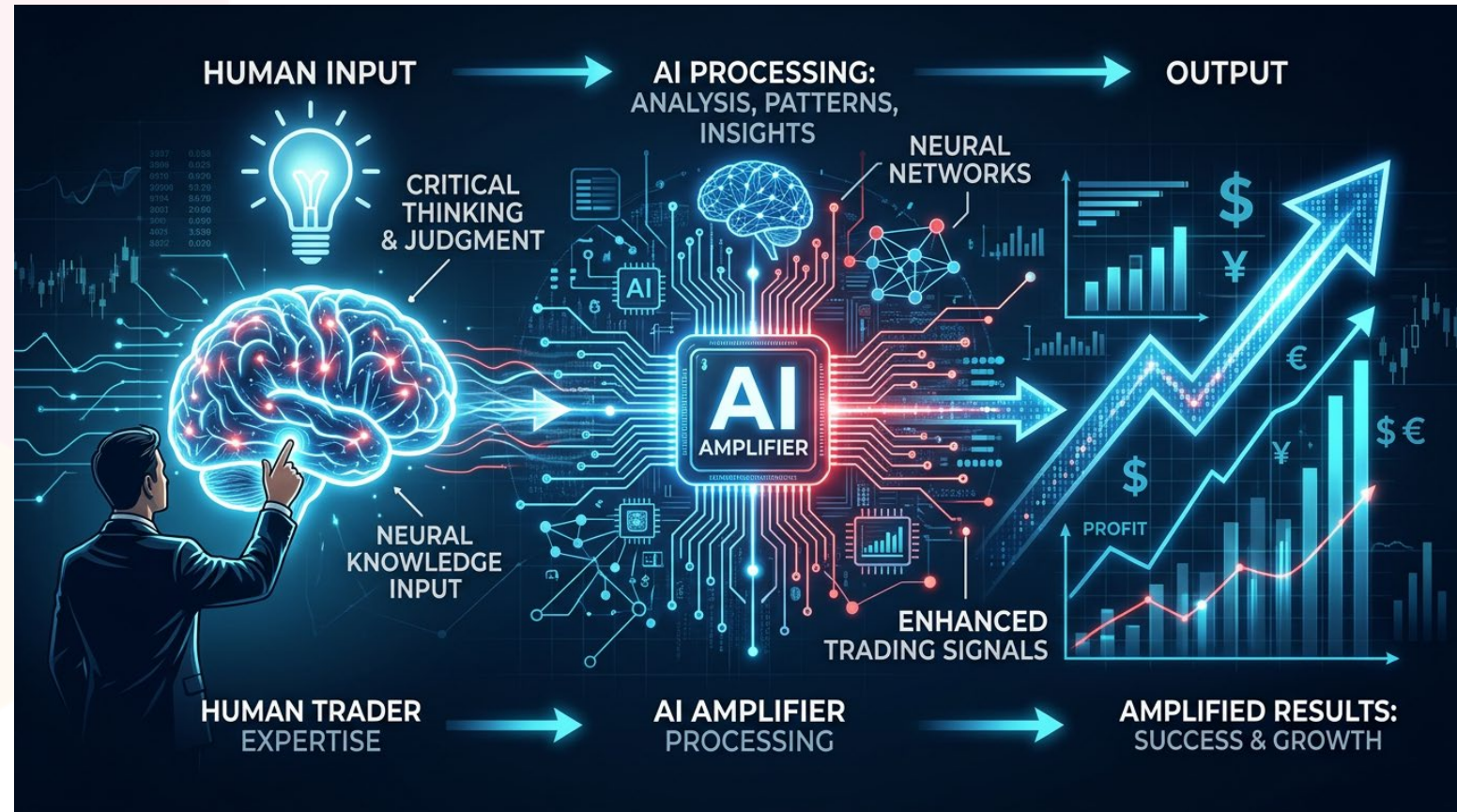
- Markets are adversarial environments
- Pure black-box models drift and fail
- Context and domain knowledge are critical

The Winning Formula:

- **Human:** Domain expertise, strategy hypothesis, risk management
- **AI:** Pattern detection, optimization, scale execution
- **Result:** Amplified returns with controlled risk

Critical Success Factors:

1. Critical thinking in feature engineering
2. Human validation of AI outputs
3. Continuous monitoring and refinement
4. Model Context Protocols for precise computations



AI doesn't replace your edge - it multiplies it. We show you how to maintain control while leveraging machine intelligence

Breakthrough Innovations

Three Techniques You Won't Find Elsewhere

1. Corrective AI (Meta-Labeling)

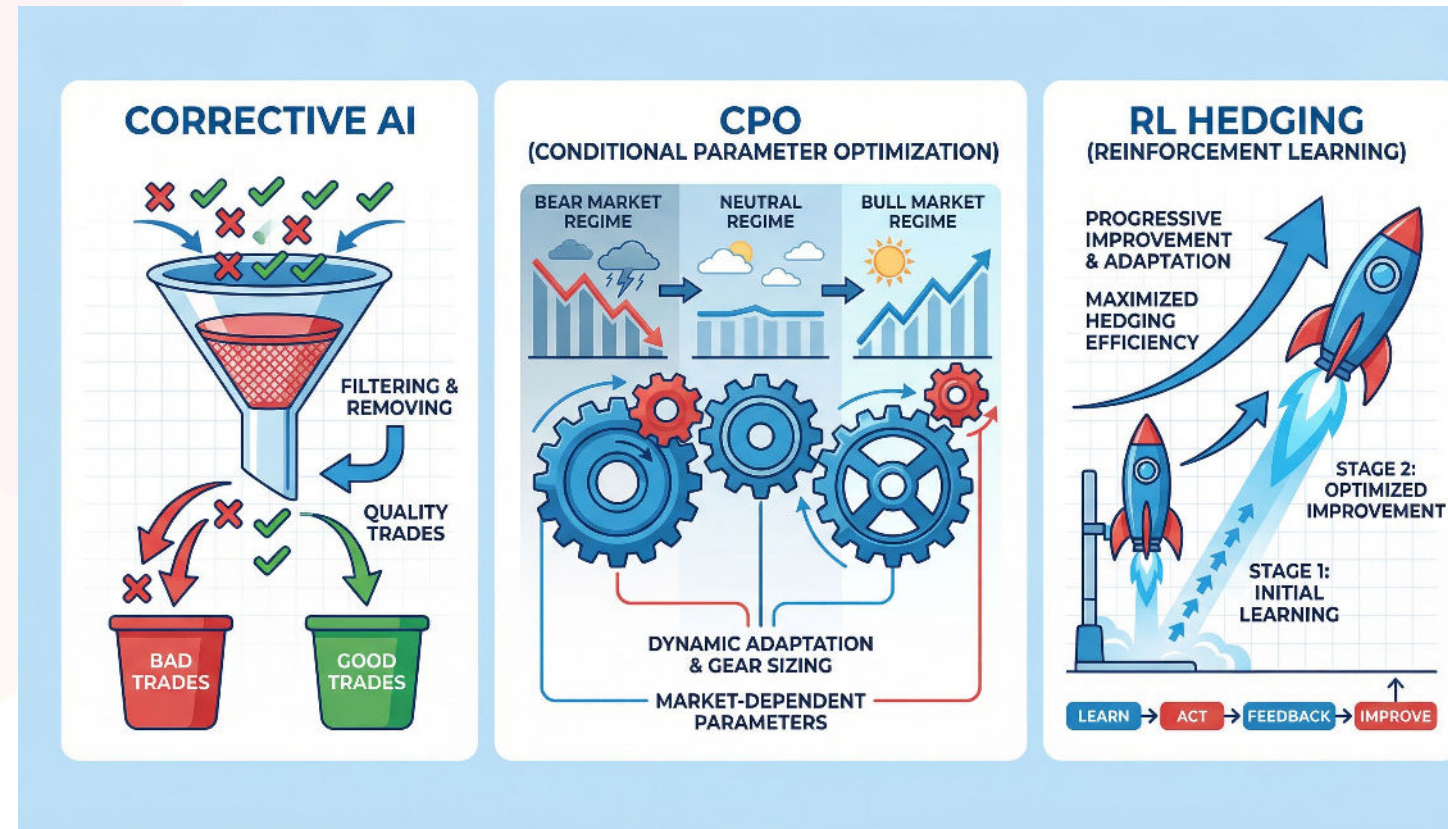
- Filters false signals from primary strategies
- Improved Sharpe ratio from 0.8 to 1.4 in live testing
- Uses ML to decide when NOT to trade

2. Conditional Parameter Optimization (CPO)

- Parameters adapt to current market regime
- Outperforms static optimization by 40%
- ML learns optimal settings for each condition

3. Two-Stage Reinforcement Learning Hedging

- Learns from Black-Scholes, then refines with real data
- Better risk-adjusted returns than delta hedging
- Handles real market friction traditional models ignore



These aren't incremental improvements - they're paradigm shifts in how AI trading actually works in production."

QuantConnect Platform – Reclaim 95% of Your Time

Stop Building Infrastructure, Start Building Alpha

What You Get:

- ✓ Terabytes of clean, ready-to-use market data
- ✓ Point-in-time backtesting (no look-ahead bias)
- ✓ Integrated parameter optimization on cloud cores
- ✓ One-click deployment to live trading
- ✓ 20+ broker integrations


What You Avoid:

- X Data cleaning and normalization
- X Survivorship bias corrections
- X Server maintenance
- X Order execution infrastructure
- X Months of setup time



Traditional quant setup: 6 months infrastructure, 1 month strategy.
QuantConnect setup: 5 minutes infrastructure, 6 months strategy. That's the difference.

Your Path to Mastery Get Started Today

 **The Book:** Amazon: amzn.to/4f10hkU

 **Source Code (All 20+ Examples) :**
github.com/QuantConnect/HandsOnAITradingBook

 **Trading Platform** QuantConnect: quantconnect.com

Your Journey:

1. Read the book → Understand the intuition
2. Clone the repo → Run the examples
3. Modify and experiment → Build your edge
4. Deploy to live trading → Generate alpha

The Promise: Master these 20 strategies and you'll have command of every major AI technique used in modern quantitative trading - from classical ML to cutting-edge LLMs.

The future of trading is AI-augmented humans. This book is your bridge to that future. Start today.

