ARTIFICIAL INTELLIGENCE FOR AUTOMATED INVESTMENT MANAGEMENT
Brainalyzed

Founded: Summer 2017
Headquarters: Bad Bramstedt near Hamburg
Customers: Banks, Insurance

Referencen:
F10 Accelerator Zurich/Switzerland
Projects with Banks in Germany and Switzerland
AI is the new electricity – Andrew Ng

Source: https://twitter.com/erictopol/status/701465779389083648
How everything began?

Source: https://www.slideshare.net/LuMa921/deep-learning-the-past-present-and-future-of-artificial-intelligence
What changed since then... enabling technology

- Big data (Digitalization)
- Algorithmic Progress
- Computation (Moore’s Law, GPUs, ASIC)
Neural net != Neural net?

A mostly complete chart of Neural Networks

Source: http://www.asimovinstitute.org/neural-network-zoo/
Open Questions:
Which Inputs?
Which Architecture?
Brainalyzed INSIGHT – AI Platform*

**Curate Data**
- Combine data from files, DBs and cloud storage
- Run automatic sanitation and imputation
- Use prebuild interfaces to data providers

**Train AI Swarm**
- Define (multiple) AI objectives
- Run distribute training on private or public cloud
- Train thousands of different AI’s at once and combine to AI Swarm

**Deploy to Live-System**
- Roll out system via API
- Monitor prediction performance
- Adjust swarm composition

* to be launched Q1 2019
Brain training (generic)

Consideration of time-series data

Multi-objective optimization to minimize customer-specific performance metric (e.g. False-Positive, Risk)

Parameterization of network inputs, network architecture and lookback
Brain training & selection (generic)

Selection of pareto-optimal swarm of Brains
Use Case – Forex Overlay

Objective:
Identify short term buy or sell signals to enhance tactical hedging in the FX market.

Input:
- 10 years of 1-min data (hard to obtain)
- Granular technical data of various currency pairs

Output:
- Binary classification (sell/buy)
- Direct execution via real-time broker interface (paper trading)
Use Case – Forex Overlay
Use Case – Customer churn prediction

Objective:
Identify customer with a high probability to churn in the next six month, to steer marketing initiatives.

Input:
- Dataset of 20000 customers (2 years)
- Base data parameters (15x)
- Time-series data parameters (44x)

Output:
- Binary classification (churn/non-churn)
- Customer specific ratio of CAC/CRC ≈ 5
Use Case – Customer churn prediction
Use Case – Asset Allocation

Objective:
Identify distribution of investment capital over a number of asset classes.

Input:
• 20 years of EOD data
• Technical data of asset classes as well as economic data (e.g. GDPs)
• Forward looking Markowitz Analysis

Output:
• Regression output (weightings)
Swarm intelligence is like a brain of brains.
Louis B. Rosenberg
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