

# THOMAS LAUTENSCHLÄGER

## Master of Science in Computer Science

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📍 Darmstadt, Germany

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## EXPERIENCE

### Machine Learning Scientist / Quant Analyst

#### Inkubator 100 Plus GmbH & Co. KG

📅 Feb 2021 – Present

📍 Darmstadt, Germany

- Strategy design for investment algorithms.
- Research to combine machine learning with the stock market.
- Testing of different investing strategies.
- Evaluation of executed trades.

### Machine Learning Engineer

#### Inkubator 100 Plus GmbH & Co. KG

📅 Feb 2020 – Feb 2021

📍 Darmstadt, Germany

- Development of data processing algorithm pipelines for financial data.
- Design and planning of data processing and visualization architectures in a small team.
- Design and implementation of a backtesting software.

### Student Research Assistant

#### TU Darmstadt - Laboratory of Lighting Technology

📅 Aug 2018 – Oct 2019

📍 Darmstadt, Germany

- Collected the experience to work in a research lab and got insights to the differences between operating business companies.
- Research on non linear optimization tasks to develop a light setting controller that computes the LED configurations corresponding to the given input criteria (Python).
- Implementation and application of recent pupil detection algorithms for live tracking systems (C++).

### System Administrator & DevOps

#### Appschmiede

📅 Jul 2016 – Aug 2018

📍 Darmstadt, Germany

- Set up the IT infrastructure of the company.
- Established automated backup plans, failover networks and a new firewall system.
- Set up the backend and the data streaming pipeline (MQTT) for a bicycle riding event.

## EDUCATION

### M.Sc, Computer Science

#### TU Darmstadt

📅 April 2018 – September 2020

- **Master thesis** - Variational Inference for Switching Dynamics
  - Identification and control of switching dynamics
  - Derivation and implementation of Bayesian rARHMMs
  - Integration of rARHMMs to *reinforcement learning*
- **Focusing courses**
  - Reinforcement learning
  - Optimization of static and dynamic systems
  - Statistical machine learning

### B.Sc, Computer Science

#### TU Darmstadt

📅 April 2013 – Feb 2017

- **Bachelor thesis** - Darknet Crawling and Data Analysis
  - Extraction of market data to databases.
  - Market analysis using the extracted data.

## PROJECTS

### Autonomous trading bot

- Developed a live trading bot software that autonomously interacts on the market.
- Algorithms inspired from optimal control.

### Burrolib: A Markov game framework

- Designed and developed a framework to simulate multi-agent Markov games.
- The agents provide an interface to integrate learning algorithms e.g. RL algorithms.

### Reinforcement learning project

- Implementation and evaluation of recent RL algorithms on real hardware.
- Quanser environments (furuta pendulum, cart-pole etc.)

### Twitter sentiment analyzer

- Real-time sentiment analysis on Twitter for given hash-tags.

### Crypto market anomalie detection

- Anomalie detection on crypto assets in real-time.
- Implemented a complete ETL pipeline with additional notification functionality.