NIKLAS FORSSTROEM | RESUME

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PERSONAL SUMMARY

Quantitative modeler with a rigorous **scientific background**, excellent **stakeholder management skills** and **experience leading projects with massive impacts**. Eager to apply my knowledge of **mathematical modeling, software development** and **effective team building** to add tangible value.

VOCATIONAL EXPERIENCE

Credit Suisse, *Quantitative analyst* *Wrocław, Poland,* **Sep 2020 – Present**

As part of the Lombard team, my models provide clients with the right lending value for a given portfolio of pledged assets. My responsibilities include:

- Being lead developer for multiple asset class models, with billions in aggregate collateral values
- Aligning senior managers from the bank's world spanning departments on common modelling approaches by 1) Considering the specific needs and requests of the different business units 2) Conducting impartial research to guide my modelling decisions 3) Leading syndication sessions where I, in a convincing and informative manner, explain to stakeholders why my proposed modelling approaches are preferable.
- Crafting model change submissions, that withstand independent critical evaluation from risk units, by stringently documenting 1) The marginal utility of my enhanced approaches 2) The relevancy and preciseness of my scientific investigations 3) The implementational feasibility of my solutions.
- Creating reliable, efficient and scalable strategic implementations that govern the Lombard business' lending values by leveraging OOP principles, test driven development and SOLID design patterns.
- Unlocking data sourcing synergies by collaborating with IT developers to construct SQL queries that optimally aggregate upstream data from a wide array of sources.

Amerden Inc, *Engineering Intern* *St. Augustine, USA,* **Jul 2018 – Jan 2019**

Interned at Amerden - a company that designs and refurbishes automated guided vehicles. My primary responsibility was leading the development of an embedded collision avoidance system.

- Solidified a $1'750'000 contract – and initiated a new partnership to refurbish a fleet of 23 vehicles – by spearheading the development of a bespoke collision avoidance system.
- Successfully reverse engineered an old antenna system without circuit diagrams, which the company had been unsuccessful in doing for a full year, after carefully tracing circuit connections and identifying amplifier stages, filters and other obscured circuit functionalities.
- Improved upon the original system by experimentally designing a new circuit, programming microcontrollers for performing logical computations and continuously testing system performance.
- Enabled effortless remote implementation and testing as I provided my client with adjustable prototypes, along with comprehensible verbal and written instructions.
- Successfully delivered my validated product after manufacturing custom PCBs, packaging and antennas.

In addition to my main project, I withstood severe pressure by solving critical customer issues on the fly, in cases where their entire lines of production had stopped.

CETAC, *Sales Associate* *Gothenburg, Sweden,* **Aug 2017 – Jun 2018**

Bridged gaps between industry and academia by organizing exclusive university events with industry leaders.

- Persuaded CEOs, from companies with annual revenues exceeding $10,000,000, to share their professional experiences with university students after evoking a sense of community and pride.
- Orchestrated the year's biggest event by utilizing effective marketing strategies, handling necessary university arrangements and managing all communications with the guest lecturer.

Kleva Gruva, *International Guide* *Vetlanda, Sweden,* **Jun 2011 – Jul 2016**

A highly formative first employment where I shouldered the responsibility to help run a local tourist facility.

- Developed leadership qualities and a proactive mindset by single-handedly running the facility on days when the owner had other commitments.
- Developed excellent verbal communication skills by conducting guided tours for international audiences.

PROJECTS AND CHARITY WORK

United Nations, *Crypto & Blockchain Expert* *New York, USA,* **Dec 2020 – Mar 2021**
Authored a white paper for the strategic implementation of a blockchain-based time accounting system, specifically designed to help meet the UN's 2030 agenda of achieving the Sustainable Development Goals.

- Successfully aligned the UN's value proposition with my system specification by defining SMART goals.
- Made the implementation feasible by providing subject matter expertise on ERC20 token economics.

Ampfield, *Master's thesis* *Gothenburg, Sweden,* **Jun 2020 – Nov 2020**
Empirically determined the pricing structure of limit orders in commodity and currency markets.

- Derived innovative hypotheses of market microstructure with the use of stochastic calculus.
- Acquired data with nanosecond precision form years of history by writing highly efficient C++ code.
- Refined my mathematical models by uncovering statistical relationships in the data with the help of R.
- Fitted my parameterized models on huge sets of training data, which would require too much memory to directly consume, by designing a Bayesian fitting procedure that supported continuous on-line evaluation.
- Validated the significant performance increase generated by my model through out of sample backtests.

RUAG Space, *Mathematical modeller* *Gothenburg, Sweden,* **Mar 2019**
Conceptualized a system for continuous capturing and monitoring of an orbiting satellite's position.

- Attained an idealistic approximation of the satellite's location by deriving a mathematical orbit model.
- Boosted model accuracy through the introductions of a Kalman filter, which successfully adjusted for fluctuations from the idealistic model.
- Passed all computational complexity criteria by optimizing the strategic algorithm's assembler code.

Chalmers University of Technology, *Bachelor's thesis* *Gothenburg, Sweden,* **Jan 2018 – Jun 2018**
Received the highest possible grade by analyzing how deep reinforcement learning could improve quantum error correction algorithms. A scientific paper was published after the university took interest in my work.

- Generated representative training data by utilizing quantum physics and Monte Carlo simulations.
- Captured the essential pieces of information in the problem and balanced the bias-variance tradeoff by constructing deep convolutional neural networks with appropriate complexity in Tensorflow and Keras.
- Optimized the use of training data via the SARSA-based training strategies I developed.
- Drastically reduced convergence time by finding symmetries in the problem and state representation.
- Achieved an out of sample accuracy of 94% after fine tuning the neural networks' hyper parameters.

EDUCATION

NATIONAL UNIVERSITY OF SINGAPORE *Singapore,* **Aug 2019 - May 2020**
Exchange studies in Mathematical & Computational Finance
Courses: Optimal Stopping and Stochastic Control in Finance (PHD), Nonlinear Optimization (PHD), Financial Modelling and Computations, Parallel and Concurrent Programming, Programming Language Implementation

CHALMERS UNIVERSITY OF TECHNOLOGY *Gothenburg, Sweden,* **Expected Nov 2020**
Master of Science, Major in Mathematical & Computational Finance, Minor in Physics
Courses: Data Structures and Algorithms, Statistical Learning for Big Data, Statistical Inference, Financial Time Series, Complex Mathematical Analysis, Linear Algebra and Numerical Analysis, Automatic Control

TECHNOLOGY

Highly skilled:	Python, C#, Java, MATLAB
Skilled:	SQL, R, git, TensorFlow
Intermediate:	C++, MS office

LANGUAGES

Swedish:	Native language
English:	Fluent
Spanish:	Basic proficiency

Additional information about my projects can be found at: https://niklasopf.github.io/
References from professional, academic and voluntary experiences are available upon request.