ANDREJ LEBAN

nationality: Slovenian *location:* Berkeley, CA, U.S. linkedin.com/in/andrejleban
mobile: +1 341-766-8424 *international calls:* +1 714-793-9649 github.com/andleb/
email: andrej_leban@berkeley.edu andrejleban@gmail.com

WORK EXPERIENCE

May-September 2021

Translated *Machine Learning Internship:* Bayesian modeling of translation quality
Rome, Italy
Devised *Hierarchical Bayesian Models* to extract unknown quantities such as a translation's real quality, job difficulty, the reviewer's bias, ... from the company's raw data. Done with PyMC3 (and custom extensions).

April 2018 – August 2019 - March 2020 (non-compete clause enforcement)

Gen-I d.o.o. Quantitative Analyst / Developer
Ljubljana, Slovenia
Worked on establishing the algorithmic trading division for a large regional energy trading company: envisioned, proposed, and implemented (in Python) a backtesting & paper trading system (together with the data storage model) and used it to devise trading algorithms. On the non-algorithmic part, I was in charge of a team tasked with creating new methods to pricing *electricity transfer capacities* - among other approaches, I proposed treating them as *exotic derivatives* and carried it out. I also expanded several existing solutions: for example, a *Monte Carlo* future price simulation and a fundamentals-based model of the regional electricity market.

Publication:
Leban, Snekvik, Bohinec, Ribežl: *In-depth analysis of the German intraday electricity market*, CIGRE-CIRED session 2019

2018

Digiverse d.o.o. *Project contract:* A Monte Carlo Graph generator
Ljubljana, Slovenia
Created a solution which uses a *Monte Carlo* process to generate random graphs of arbitrary size from a sample graph, preserving the latter's properties. Implemented in C++ with Boost.Graph and Eigen.

May 2016 – April 2018

EBA d.o.o. Independent Developer
Ljubljana, Slovenia

Worked mainly on two projects:

MACHINE LEARNING: Created a linear algebra/algorithm library for machine learning on the GPU in OpenCL, developing some algorithms from the ground up. Exposed via a C++ interface.

CLOUD PLATFORM: Worked on developing the back-end of a cloud platform, where I most significantly designed and implemented the distributed storage system. This system was asynchronous and multi-threaded and allowed *replication* and *sharding*. Implemented in C++ on top of PostgreSQL [1].

EDUCATION

M.A. Statistics

2022 *University of California, Berkeley*

In the Fall semester, I am taking 19 credits worth of classes:

- Introduction to Probability at an Advanced Level
- Introduction to Statistics at an Advanced Level
- Statistical Models (PhD program core course)
- Statistical Learning Theory
- Mathematical Programming I

1 An overview of similar solutions: https://wiki.postgresql.org/wiki/Replication,_Clustering,_and_Connection_Pooling

University Diploma (M.Sc. equivalent) — Mathematical Physics

2016 — *Faculty of Mathematics & Physics, University of Ljubljana*

Besides what is implied by the name, a degree in Mathematical Physics places particular attention on scientific computing and mathematical modeling, culminating in a course titled *Computational Physics* [2]. In this, I attained a final grade of 9.5/10. Additionally, I took classes at the faculty's Financial Mathematics department.

Thesis: Time-dependent current through a quantum dot in the presence of a voltage probe
Supervisor: dr. Tomaž Rejec, Department of Theoretical Physics, Jožef Stefan Institute

Description: My thesis[3] explored the transition from the quantum to the classical by examining the effects of increasing decoherence on the temporal characteristics of a current running through a quantum dot. The simulation was done using C++ and Python. The thesis received 9/10 for the written part and 9.5/10 for its defense, which included a general oral exam.

TECHNICAL SKILLS

Scientific computing — Knowledgeable about and experienced in a wide array of the computational aspects of physics, finance, and machine learning.

Finance — Possessing a robust knowledge of financial mathematics, including practical experience in energy trading, as well as a focused interest in expanding this knowledge by self-study and practical projects[4].

Machine Learning, Statistics & Probability — Even before starting my studies at U.C., Berkeley, I had accrued considerable practical experience and knowledge via self-study. For example, I obtained a certificate from Coursera: Machine Learning and the top grade in ColumbiaX: Machine Learning, an advanced course with proctored theoretical exams.

C++ — Advanced knowledge of modern C++; well-versed in generic programming, functional programming, and real-life application of design patterns. Professional experience in designing multi-threaded and asynchronous applications. At home with the STL and Boost libraries.

Python — Besides fluency in its use as a general-purpose programming language (I placed *in the top 1%* in Advent of Code 2018[5]), I am also well-versed in the scientific/quant/machine learning stack: NumPy, SciPy, Pandas, scikit-learn, PyMC3 ... Also knowledgeable about parallel execution, the basics of asyncio, data scraping, Excel integration ...

Other — R, OpenCL, Databases (chiefly PostgreSQL, T-SQL, MongoDB), Bash, Mathematica, Matlab, LaTeX (e.g. *this document*), ...

Auxiliary — Jupyter & RMarkdown, Git (incl. managing projects), cloud computing (Azure, AWS), C++ build & documentation systems, unit & automated testing. Very good knowledge of Linux, good knowledge of OS X, Windows.

LANGUAGES

Slovene (Native)	English (IELTS 8.5/9.0)	German (Goethe C1)
Italian (Intermediate)	Croatian (Intermediate)	Latin (Basic)

OTHER

- GRE · Q170 / V170
- The *Zois Scholarship for Gifted Students* throughout High School & University
- Gold Prizes in national competitions in mathematics, physics, logic, English, and history throughout elementary and high school. Among those, I placed first nationwide in history (twice), first and second in logic, and third in physics.

2 Link to the weekly assignments in English: http://predmeti.fmf.uni-lj.si/modelska/letnik11-12
3 Text in Slovene available at: https://andleb1.wordpress.com/documents/
4 https://github.com/andleb/derivatives
5 https://github.com/andleb/aoc18