RAFAEL NICOLAS FERMIN COTA

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WORK EXPERIENCE

MetaLearner Pte Ltd, Co-Founder, Singapore **Oct 2023 to Present**

Backed by a proven team of data scientists and engineers, MetaLearner.AI is a copilot for data science that speeds predictive AI model building and deployment. https://www.metalearner.ai/

Euclid Technologies Corp, Managing Partner, British Virgin Island **Jan 2017 to Present**

Euclid is a technology-focused family office that combines fundamental analysis with data science. We employ a bottom-up, fundamental method of investing with a data-driven focus to exploit industry trends and capitalize on company-specific opportunities ahead of the broader market. https://www.linkedin.com/pulse/quality-growth-investors-new-world-order-euclidtech-roowe/

National University of Singapore, Adjunct Senior Lecturer, Singapore **Oct 2019 to Present**

Seminars in Analytics
This course has the central goal of helping students to become an effective data scientist as quickly as possible through real-world problems. I will carefully explain the connections between the tools that make the data science modeling workflow possible. https://www.linkedin.com/pulse/updated-dba4761-material-rafael-nicolas-fermin-cota-qjjpe/

NVIDIA's GPU Technology Conference (GTC), Presenter, San Jose California **May 2017 to Present**

Factor Investing Using Deep Learning **Mar 20, 2019**
Talked about how we used deep learning and GPU-Accelerated portfolio construction techniques to generate a long-short portfolio. We started with a database containing more than 4,000 daily factors on more than 6,000 publicly traded U.S. equities over nearly 30 years. We explained how we applied deep learning to process this data and identify relationships that forecast relative equity performance at multiple time horizons. Our neural networks identified long-short portfolios that we combined into our final portfolio by using a CUDA implementation of a risk-parity algorithm.
https://developer.download.nvidia.com/video/gputechconf/gtc/2019/presentation/s9743-factor-investing-using-deep-learning.pdf

Applying Natural Language Processing on News Data using Deep Learning **Mar 28-29, 2018**
In this lab taught the fundamentals of natural language processing (NLP) as it applies to the generation of trade signals from real-time news data. A dataset of news article headlines was used to train neural networks to predict market direction. We introduced several popular models for text representation including bag-of-words, Word2Vec, GloVe and Doc2Vec. The effectiveness of LSTM, CNN and feed-forward deep neural networks were covered. Techniques for improving training times with NVIDIA GPUs and the cuDNN library were discussed.
https://github.com/rnfermincota/academic/tree/main/teaching/NVIDIA/Applying-Deep-Learning-Financial-Markets-News%20Data

GPU Accelerated Machine Learning for Bond Price Prediction **Mar 27, 2018**
Discussed how GPU accelerated deep learning and machine learning (ML) can be used for accurately predicting bond prices. We highlighted how DNN & GPU accelerated machine learning algorithms aid in reducing the model building and training time. We also mentioned how we used distributed computing using MPI for training several independent learners in parallel. Lastly, we briefly commented on how AVX vectorization & CUDA kernels can be used in practice to reduce the time spent on the data pre-processing and feature engineering stages of the machine learning pipeline.
https://github.com/rnfermincota/academic/tree/main/teaching/NVIDIA/GPU-Accelerated-Machine-Learning-Bond-Price%20Prediction

Applying Deep Learning to Financial Market Signal Identification with News Data **May 10, 2017**
Discussed how natural language processing techniques can be used for predicting financial markets from news data. By adapting techniques from other natural language processing applications to news data and market signals, predictive models can be built. Due to the large volume of news data available, models must be trained, optimized, and tested using GPU acceleration.https://github.com/rnfermincota/academic/tree/main/teaching/NVIDIA/Applying-Deep-Learning-Financial-Markets-News%20Data

Ivey School of Business, University of Western Ontario, Adjunct Senior Lecturer, Canada May 2007 to May 2017
Honour Roll 2012-2017. Faculty member with an overall average of 6.3 or above.

Applied Data Science **Feb 2017**
This seminar allowed master students to get experience in accelerating the work of data scientists through more efficient and scalable in-database computing. Many popular data science tools, such as the popular R/Python data.table/pandas libraries, do not effectively leverage modern hardware (large RAM, multicore CPUs, GPUs etc.). Much of the effort in the ecosystem has been focused on deep learning and problems related to machine learning. This has left fundamental issues in low latency data accesses, data manipulation, exploratory data analysis and feature engineering relatively unattended.

Introductory Data Science **Jan 2016 – May 2017**
Taught basic statistical learning principles, without the theoretical mumbo-jumbo, and jumped right to the real-world cases that students face, as they collect, curate, and analyze the data crucial to the success of business. They applied the R programming language and statistical analysis techniques to carefully explain the examples given in class in the areas of marketing, business intelligence, and decision support.

Data Management in Excel and R **Jan 2016 – May 2017**
Buy-side firms are using Business Intelligence solutions to track and manage their portfolio of companies. There is a tremendous amount of data flowing in from each portfolio company every month. The incoming data is diverse – statements of cash flow, operating metrics, debt schedules, budgets vs. actual, segment data, month/quarterly/annual data points, etc. The goal of this course was to teach students how to use Python from within Excel to accelerate decision making, streamlining data capture and providing scalability to employees, consultants and advisors, even if they have never programmed before.

Advanced End User Modeling **Jan 2013 – May 2015**
Lectured an advanced modeling course in R and C++. The genesis for this course stemmed from my personal experience in building algorithms for real-time financial applications.

End User Modeling **Jan 2009 – May 2015**
Lectured a financial modeling course in Excel. The goal of the class was to transfer VBA programming knowledge to perform financial modeling in a structured and defensible manner.

The Ben Graham Centre for Value Investing – Researcher **May 2007 – May 2008**
Spent four years designing, coding and optimizing a fundamental data aggregator on public companies. By designing a system capable of aggregating historical financial statements and consensus estimates, I had the opportunity to code DCF computations on arrays (i.e., vectors or matrices) efficiently, and my research was centered on identifying the value drivers for the price paid for growth, and the implied valuation that emerged from these drivers.

EDUCATION

Richard Ivey School of Business, GPA 3.4 / 4.0. London, ON, Canada **Sept 2003 – May 2006**
Honors Business Administration, Specialization in Finance
Master of Science, Specialization in Management Science
Received the 2005 Ivey HBA CEMS Master Programme Scholarship

Concordia University, GPA 3.5 / 4.0, Montreal, Canada **Sept 2001 – May 2003, Summer 2004 & 2005**
Bachelor of Arts in Economics, Mathematics Concentration