

PHILIP SPANOUDES

Machine Learning Engineer

San Francisco, California | philipspanoudes@gmail.com

Data Scientist / Machine Learning Engineer with a specialization in the design and implementation of deep/machine learning algorithms. Industry experience in: predictive modelling, optimization problems and simulations.

WORK EXPERIENCE

SQUARE INC

Senior Machine Learning Engineer | Apr 2019 - Current

Tech lead on the Square Measurement Science team. The team is responsible for all forecasted internal metrics that are utilized from multiple teams across Square for quarterly/annual planning and investment portfolio optimization.

- Consulted on the design & development of various projects within the team. Helped by identifying possible gaps/roadblocks and suggesting ways on how to overcome these risks.
- Formed a small independent team of MLE's within Square and contributed to the design and implementation of a framework for deploying trained ML models as a service. The framework facilitated the application of ML models where real-time scoring was necessary.
- Enhanced existing merchant value forecast models to take into account the observed effects as well as speculated effects of the COVID-19 pandemic.
- Built a framework that facilitates the training of predictive models that are used to forecast a merchant's value across various Square products.
- Improved merchant churn prediction model, significantly decreasing the false positive rate in the upper score range. This in turn increased the amount of relevant case generation for the merchant retention program, meaning an ~ \$11,000 improvement in daily ROI.

SQUARE INC.

Machine Learning Engineer | May 2016 - Apr 2019

Part of the initial Square Capital Data Science team that was tasked with the continual optimization of all lending product design, marketing strategies and servicing techniques.

- Improved the internal rate of return (IRR) forecasting model for the Capital Flex product.
- Designed and implemented a product simulation framework that is used to evaluate the effects of model swaps and loan facilitation methodology alterations.
- Designed and implemented a heuristic optimization framework for product eligibility that searches for optimum threshold configurations based on expected loss and volume.
- Designed and implemented an email servicing model for automated solution suggestions to email inquiries.
- Improved the pre-existing loss forecasting model for the Capital Flex loan product.
- Designed and implemented an account servicing model that is used to identify high risk customers.
- Designed and implemented a Capital acceptance model for the marketing team that uses merchant event patterns to determine the probability of product acceptance.
- Created and was responsible for the team's model hosting framework and development environment.

FRAMED DATA

Data Scientist | Nov 2015 - Apr 2016

Hired as Framed Data's principal research scientist with the sole task of improving the company's churn prediction algorithms for each customer.

- Researched and implemented a novel machine learning pipeline for arbitrary customer churn prediction.
- Invented a generalized data representation architecture that can be applied on different raw event company data.
- Implemented a state-of-the-art Deep Learning architecture that effectively decomposed complex user event patterns and ultimately increased prediction accuracies.

FLIGHT DATA SERVICES

Data Science Intern | May 2014 - Aug 2014

Summer Data Science internship which helped in the uncovering of interesting patterns in flight sensory data to help with our flight operation quality assurance reporting to customers.

- Applied statistical analysis, machine learning and data mining techniques on vast amounts of flight sensory data.
- Identified patterns and interesting associations between combinations of flight data variables.
- Designed and generated visualizations that helped with the interpretation and explanation of the identified patterns within the FOQA product.

NCR CORPORATION

Software Developer | Jun 2012 - Aug 2013

One year placement at NCR (EMEA HQ) as part of the BSc. (Hons) Software Engineering course at the University of Portsmouth.

- Developed parts of the system that are currently being used by the Inland Revenue Department in Cyprus.
- Experienced different development life-cycles including Agile methodologies.
- Performed extensive Testing and produced Product Manuals for audiences of various technical knowledge.

EDUCATION

LANCASTER UNIVERSITY (UK)

Master of Science in Data Science Distinction | Sep 2014 - Nov 2015

Best Overall Student Performance Award: Prestigious award in recognition for best student performance across all degree modules.

UNIVERSITY OF PORTSMOUTH (UK)

Bachelor of Science in Software Engineering First Class Honours | Sep 2010 - May 2014

PROJECTS

ATTENTION FUSION NETWORKS: COMBINING BEHAVIOR AND E-MAIL CONTENT TO IMPROVE CUSTOMER SUPPORT

Researcher | Jun 2018 - Nov 2018

Research conducted at Square Capital for the purpose of automatically suggesting solutions to customer email inquiries. The research yielded a novel deep learning architecture that combines two disparate data sources when estimating its predictions.

DEEP LEARNING IN CUSTOMER CHURN PREDICTION: UNSUPERVISED FEATURE LEARNING ON ABSTRACT, COMPANY INDEPENDENT VECTORS

Researcher | Jun 2015 - Aug 2015

Initial research performed for Framed Data as part of the MSc Data Science Degree dissertation at Lancaster University. The research work conducted proved that Deep Learning can be successfully applied in the field of customer churn prediction by yielding better prediction results while also bypassing the tedious feature engineering phase in a traditional machine learning pipeline.

SKILLS

Machine Learning

Deep Learning

Feature Engineering

Python

Java

C++

Apache Spark

C#