# Rudik Grigoryan

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## PROFILE

Inspired engineer with an unwavering enthusiasm for the fields of machine learning and data. Demonstrated expertise in designing, prototyping and productionising sophisticated AI/ML solutions, proficiently handling processing and exploratory analysis of Big data, and maintaining robust data pipelines within intricate software ecosystems, resulting in substantial company profits.

## EDUCATION

**2017 - 2021** **Imperial College London**

*MEng Electronic and Information Engineering – Upper Second Class Honours*

- Emphasized Data Science, ML, OOP, Computer vision and Statistics in Master's year
- Electronics lab work in Signal Processing, Communications, FPGA, Embedded systems
- Computing coursework:
  - Programmed a CPU simulator executing binary files with MIPS ISA instructions; handling 32-bit memory registers, exceptions, errors
  - Delivered a compiler to accurately read and translate C code to assembly language
- Practically built supervised and unsupervised **ML models**: regression, clustering, classification, hypothesis testing, random forest, SVM, KNN, LSTM, CNN, GAN, etc.

**2021** **Master's Project** – Proposed and executed an innovative deep invertible **neural network** using wavelet-based soft thresholding; outperformed cutting-edge non-invertible networks, boasting a PSNR of 31, fewer parameters, and enhanced interpretability

## TECHNICAL SKILLS

**Python, PyTorch, C/C++, Java, HTML, R, SQL, Snowflake, Linux, CUDA, OpenCL, Spark, ETL, React, Kubernetes, Docker, Git, TensorFlow, NumPy, Pandas, Sklearn, AWS, CI/CD and more**

## WORK EXPERIENCE

**2022 - 2023** **ML/Data Scientist** – *'Nuk Ltd'*

- Developed neural networks using PyTorch for computer vision tasks such as object detection and image segmentation on large-scale camera feed data; end-to-end (Agile); achieved a 20% increase in prediction accuracy compared to previous models
- Analysed model/training parameters and visualised feature maps to optimise for performance and scalability, reduced inference time by 25%
- Implemented statistical methods for better data quality and constructed data views for BI tools (Tableau), notably increased the interpretability of the unstructured data
- Designed APIs with Flask for the ML models; containerized the models (Docker), performed version control and leveraged cloud-based tools (AWS) for deployment
- Contributed to building/maintaining robust data pipelines to transform and extract value from raw data by ingesting millions of raw records from diverse sources using Apache Spark; increased operating efficiency by 85%
- Performed Continuous Integration to ensure the steps of the ML pipeline were automated, from data ingestion to prediction generation; wrote tests (TDD), fine-tuned using results

**2021** **ML/Data Engineer** – *'Vergano'*

- Produced reliable, easy-to-maintain, and error-free code for various company applications including NLP/LLM, generative AI and predictive models in collaboration with key stakeholders, resulting in a 25% increase in revenue in the second quarter
- Spearheaded end-to-end model design, development, testing/validation, and seamless integration within the production environment, participating in Agile development cycles, adhering to budget constraints and cutting development time
- Programmed state-of-the-art NLP models to perform text to image generation based on attention-based GAN, training more than 1 million samples on GPU with OpenCL and ensuring repeatable and dependable operation when containerised and deployed (API)
- Coordinated closely with a team of 10 and communicated complex features and systems in detail, receiving commendation for technical reports tracking the progression

**2020 - 2021** **Machine Learning Engineer** – *ARM*

- Collaborated with a team to launch an innovative FPGA-based device for measuring ECG, giving medical professionals an insight into patients' health outside of contact hours. The device received accolades for its real-time processing and affordability, thus accessibility to less developed countries; huge company profits were anticipated.
- Adapted business requirements translating them to a dozen technical data science challenges; presented insights using data visualisation tools; advocated for the team to prioritize the balance between accuracy and speed of the product's function
- Performed data analysis, ideation, and data collection subsequently applying deep learning tools for predictive modelling; classified patterns in heartbeat data identifying concerns (e.g. the possibility of a heart attack) with an outstanding 95% accuracy

## PROJECTS AND ACHIEVEMENTS

FPGA device – *Imperial College London*

- Delivered a programmed FPGA which allowed the user to alter a video stream played in real-time by keeping coloured cards in front of a webcam
- Compiled the conversion of C code to register-transfer level HDL with Vivado HLS

'Tabletop arrivals' device – *Imperial College London*

- Produced an embedded IoT computer (Raspberry Pi chip), with sensors, as an alarm clock showing the arrival times of local buses
- Managed a team of 4; organised meetings and evaluated positions of responsibility

IT Architecture workshop – *IBM*

- Finished a course on analysing customer requirements for large systems, designing a solution and technical outputs, and presenting those to customers

## EXTRACURRICULARS

- Represented all students in the faculty of 'Imperial Horizons: Skills for Employability', by giving presentations and supporting students during health-related crises
- Volunteered at 'Red Cross' as a coordinator of events, managing 2-3 projects at a time and organising donations to kids' hospitals and orphanages