JORDAN MOSCHOVITIS

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CAREER PROFILE

Detail-oriented physicist with expertise in **mathematical modelling, data analysis, and quantitative methods**, seeking to apply strong analytical and problem-solving skills to quantitative researcher/analyst or technical consultant roles. Experienced in (and passionate about) **scientific research** and **project work**, and in utilizing programming languages such as Python, R, and MATLAB to develop and optimize complex projects.

Knowledge Areas:
- Advanced Physics
- Mathematical Modelling
- Stochastic Methods
- Quantitative Methods
- Technical Reporting

Programming Languages:
- Python
- MATLAB
- R, C
- Solidity
- QISKIT

Data Analysis & Machine Learning:
- Pandas, NumPy, SciPy, SkLearn, Keras, PyTorch, Langchain

Other Technical Skills:
- SQL, HPC, LATEX

PROJECT AND RESEARCH WORK

AUGUST 2019 – DECEMBER 2021

DEFECTS IN NANOTEXTURED DIAMOND SURFACES, MSC THESIS

- Developed dynamic COMSOL simulation of diamond moth eye with custom MATLAB wrapper for multi-parameter input and stochastic feature generation of the COMSOL model.
- Validated simulations using experimental measurements, made with AFM, SEM and spectral ellipsometry, combined with image processing (OpenCV) to extract spatial topographical information of fabricated moth eye surfaces to serve as features for the computational model.
- Batch deployment and automation of COMSOL simulation on HPC cluster server using Linux and SLURM commands.
- Prepared, visualized, and analysed tabulated simulation data using Python (Pandas, Matplotlib, NumPy, SkLearn) and MATLAB
- Developed a predictive Gaussian process regression supervised learning model using surface input and transmission data from simulation output.
- Enabled computational of simulation and quantification of defects in nanotextured diamond surfaces leading to a patentable Bionic Eye prototype resulting in a **publication** and **patent**

Publication (Pending): ***Defect Tolerance In Fabrication Of High Transmission Diamond Nanotextured Moth-Eye Surfaces For Near-IR Application***

JANUARY 2016 – 2018

FLIGHT SYSTEM AND MISSION OPERATIONS, MELBOURNE UNIVERSITY SPACE PROGRAM CUBESAT

- Developed and implemented attitude determination and control systems, including guidance sensors, control algorithms, and actuators for CubeSat detumbling and tracking
- Designed a framework to collect environmental and locational data during flight
- Devised communication strategies for the transfer of critical navigational directives and course adjustments during flight
- Coordinated physical and computational requirements with leaders from other subsystems.
- Developed satellite-data retrieval system to retrieve, format and display data on a web-interface for use and analysis and send firmware updates and data to the satellite during flight.

EDUCATION

AUGUST 2019 – DECEMBER 2021

MASTER OF SCIENCE, CONDENSED MATTER AND MATERIAL PHYSICS, UNIV. OF MELBOURNE

Studied: Computational Physics, Quantum Mechanics, Optics, Statistical Mechanics, and Mathematical modelling (MATLAB, Python, R). Thesis in Nanotextured Diamond Surfaces.

2016-2018

DIPLOMA IN MATHEMATICS, PURE AND APPLIED, UNIV. OF MELBOURNE

Advanced skills in differential calculus, graph theory, applied mathematical modelling, stochastic methods.

2014 - 2018

BACHELOR OF SCIENCE, PHYSICS MAJOR, UNIVERSITY OF MELBOURNE

First Class Honours Major in Physics, First Class Honours.

EXPERIENCE

AUGUST 2022 – PRESENT

SOLIDITY DEVELOPER, FREELANCE

- Designed and developed tailored smart contracts with Solidity based on clients' requirements, successfully delivering 3+ projects

- Executed test scripts using the Brownie framework combined with Python and JavaScript for 2+ DeFi and NFT projects
- Successfully delivered DeFi, NFT and smart contract, including testing and deployment
- Optimized architecture patterns & token standards while developing 8+ Smart Contracts, meeting customer needs on time & within budget

FEBRUARY 2022 – PRESENT

TUTOR, UNIV. OF MELBOURNE

- Delivered interactive tutorials to 30+ students on Physics for Environmental Sciences, resulting in a 90% pass rate for tutorial group.
- Assessed and evaluated student performance through objective testing, providing detailed feedback that enabled a majority of the class to surpass their expectations.
- Facilitated learning environment by engaging students in one-on-one conversations related to course material

FEBRUARY 2020 – PRESENT

LABORATORY DEMONSTRATOR AND TUTOR, UNIV. OF MELBOURNE

- Successfully delivered Physics Laboratory classes for 100+ first-year students
- Facilitated tutorial sessions & lesson plans to ensure compliance with program standards
- Marked assessments for 50+ students and provided detailed feedback on areas of improvement to enhance learning

FEBRUARY 2020 – PRESENT

FOUNDER, LESSONUP, MELBOURNE

- Facilitated effective study plans for 10+ students in mathematics and physics, enabling them to successfully pass the 2020-2022 VCE exams with an average grade of 90%.
- Guided students to take gradually increasing responsibility for their learning.
- Coached a Bio-Medicine student who had **achieved a 98% grade** for the core mathematics subject, leading to his inclusion in the Dean's Honours list as the top-performing student in the first year.
- Under challenging time constraints, produced six-unit revisions and note booklets with question banks for all three levels of VCE Mathematics 3&4 and gained a renewed insight into the VCE syllabus.
- Mentored the students throughout their 2020-2022 exams preparation stage, resulting in the **majority of the students being accepted** into their desired University degree.

CERTIFICATES

2022

MASTER ETHEREUM & SOLIDITY PROGRAMMING, UDEMY

Solidity programming, Smart Contract Development, Web3 API, DApp development tools.

2022

SQL FOR DATA SCIENCE, IBM

SQL fundamentals, database management, advanced SQL queries, Data visualisation.

2022

MATHEMATICAL METHODS FOR QUANTITATIVE FINANCE, MIT

The application of optimisation, probability, stochastic processes, statistics, and computational techniques to financial engineering.

2022

PYTHON AND MACHINE LEARNING FOR FINANCIAL ANALYSIS, UDEMY

Calculating daily portfolio returns, risk, and Sharpe ratio, Capital Asset Pricing Model (CAPM), Markowitz portfolio optimisation, efficient frontier, and Long Short Term Memory (LSTM) networks. Natural Language Processing (NLP) for the analysis of market sentiment.

2022

DEEP LEARNING WITH PYTHON AND PYTORCH, IBM

Fundamentals of deep learning and neural networks, implementing deep learning algorithms using PyTorch, Building and training neural networks for image and text classification, Visualization and interpretation of neural network models, Deployment of deep learning models in real-world applications.

2021

MACHINE LEARNING WITH PYTHON: FROM LINEAR MODELS TO DEEP LEARNING, MIT

Machine learning algorithms, data processing, deep learning, performance evaluation.

2020

MACHINE LEARNING WITH PYTHON: A PRACTICAL INTRODUCTION, IBM

Exploratory data analysis, feature engineering, supervised learning, model evaluation, common libraries: sklearn, pandas, numpy:

ACTIVITIES

- **Dance School Director**, **Hellenic College of Arts, Dance and Culture** - Retaining a total of eighty enrolled students across three separate class groups. Preparation of a dance curriculum and performance program.
- **Director at United Hellenic Education, Melbourne** - A not-for-profit organisation dedicated to preserving Greek culture in Australia by enhancing Community Language School experiences by providing education programs making learning interactive and exciting, Feb 2020 / Present.

- **Volunteer Mathematics and Physics Tutor at VCESS -** Tutor for the University of Melbourne VCE Summer School Program, tutoring Specialist Mathematics Units 3 & 4, Dec 2019 / Jan 2020
- **Education Officer at National Union of Greek Australian Students (NUGAS)** – Liaise with external community educational organisations (community groups, schools and universities), Greek Community of Melbourne Board, and NUGAS members. Organise and lead initiatives to promote the learning and study of modern Greek at high school and tertiary level, Apr 2017 / 18.
- **President at MUNGA** - Oversee activities of the club including academic and social events, direct large committee towards cultural and community-oriented goals, Apr 2016 / Apr 2017.
- **Cultural Affiliations Officer at MUNGA** - Coordinate fundraising events, promotion and performing group for tavern nights, liaise with external community bodies to strengthen philanthropic relationships, Apr 2015 / Apr 2016.

REFERENCES

- Upon request