OSCAR MOXON

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EDUCATION

2023 – 2024	MSc. Artificial Intelligence, **King's College London**, UK	(1:1)

- Modules: *Pattern Recognition and Deep Learning, Data Mining, Agents and Multi-Agent Systems, AI Planning, Computer Vision, Optimisation Methods, Machine Learning*

2020 – 2023	BSc. Economics and Management Sciences, **University of Southampton**, UK	First Class 1:1

Recipient of Dean's Award 2022 & 2023 for Outstanding Attainment, mentioned in Graduate Honours

- Modules: *Applied Macroeconomics, Risk Management, Industrial Economics, International Trade, Development Economics, Mathematics for Economics*

ACHIEVEMENTS

Global Top 10 Portfolio (of 980 teams), Bloomberg Trading Challenge (BTC)	*Fall 2022*
(x2) Deans Award for Outstanding Attainment	*Academic Yr. 2020 - 2023*
StabilityAI Researcher Sponsorship – CogX Conference	*Fall 2023*
10x Downing Street AI Hackathon: Winner (Imperial College London)	*Spring 2024*
3-Day-Startup, Barclays Eagle Labs: Winner	*2021 & 2022*
ECSS Pico Hackathon: Overall Winner	*Summer 2022*

PROFESSIONAL EXPERIENCE

Software Developer, **Real Machines**, London — *Aug 2024 – Present*

- Development of next-generation AI-powered automation solutions for industrial applications.

Software Engineer, **Bselected,** London — *May 2023 – Aug 2024*

- Developing human-on-loop software for automated CV processing and deployed full-stack app through Azure Cloud.
- CVB achieved 5-10x reduction in labour required to process a CV, with a 20% quality improvement using LLM tooling.

Intern – Innovative Technology, **BAE Systems**, London — *Easter 2023*

- Researched internal systems and developed proposal for centralised data infrastructure to improve decision making latency.

Research Student, **QuantX,** Southampton — *May – Nov 2022*

- Automated manual intraday trading through volatility analysis. Developed a program to rank indicator performance on time-series data and generate heatmaps for promising strategies. Culminated in Bloomberg Challenge Top 10 finish.

Summer Intern, **Level39 Accelerator**, London — *Summer 2022*

- Involved in onboarding investors and startups. Shadowed data scientists in early-stage AI ventures, learning to implement recommenders with PyTorch. Organized discussions with founders in the fintech incubator. Managed invoicing and rent accounts.

Summer Placement, **Canary Wharf Group**, London — *Summer 2018 & 2022*

- Worked under board of directors incl. Head Architect and President Sir Iacobescu. Performed legal skyscraper "break-ins" to test security measures with Estate CyberSecurity Team. Produced reports for CFO on M&A and contributed to architectural projects.

RESEARCH

Multi-agents Improve Complex Long-Horizon Task Performance, Kings College London, Oscar Moxon, 2024.

- Developed Nominate, a novel multi-agent system achieving SOTA performance on AgentBench KnowledgeGraph benchmark with 22.3% accuracy improvement and 25.9% reduced token usage. Advisor – Dr. Yulan He (Turing Institute).
- Introduced new topology for analysing inter-agent dynamics and task decomposition, advancing theoretical understanding of role allocation in multi-agent systems.

"The Threat of Automation: An Economic Perspective," Dissertation Review, Mar 16, 2023. 87%.

- Performed an assessment of methods of predicting economic impact of machine learning on Full Automation of Labour.
- Proposed a general model for evaluating 'risk of automation' to upgrade policymaker precision when navigating the capital benefits of technological change, ensuring equitable and effective redistribution strategies.

SKILLS

Programming	**Fluency**: Python **Familiarity**: C++, JavaScript, HTML, CSS, SQL, STATA, Ruby, Rust
Tools	Git, LaTeX, Scikit-Learn, Matplotlib, Pandas, NumPy, fastAI, PyTorch, Keras, MATLAB, OpenCV, XGBoost, Kaggle, TensorBoard, Hugging Face Transformers, Weka, Jekyll, Svelte, Docker, Flask, React
Mathematics	Statistics, Calculus, Linear Algebra, Game Theory, Coding Theory, Statistical Learning, Optimisation Methods
Algorithmics	Various Search and Ranking Strategies (Greedy, Heuristic, Genetic Algorithms, A* and WA* Search, Recommenders). Learning methods (SVM, Random Forest, Classification, Regression, Clustering, PCA, Boosting, Eval and Validate).
Models	Transformer Models, Generative Adversarial Networks, Policy Iteration and Q-Learning, RNNs, CNNs.

PORTFOLIO

illio – Portfolio Management Platform
Sep 24 – Present
- Architected and deployed a tool-wielding financial advisor using advanced language models, enabling complex portfolio analysis and real-time market insights in natural language, with function endpoints. Demoed at a16z X Mistral HACK UK.

Pickfords – Removals
Aug 24 – Present
- Advising on the next generation of Pickfords logistics infrastructure. Conducted in-depth analysis of existing systems and processes to identify and implement key areas for technological enhancement.

No°10 Downing Street Generative AI Suite (MiDAS)
Apr 2024
- Built end-to-end MiDAS software with full-stack software expertise. Won presentation at 10 Downing Street to top UK officials.
- Employed high performance embeddings in the natural language domain and tailored for searching government correspondence. Automated triaging using semantic analysis and long-context reasoning systems.

PROJECTS

Civilisation Compass
Oct 2024 – Present
- Economic study on the evolution of abundance, structure, and culture of civilisation. Developed a novel graphing software to present results alongside essay [*ongoing*]. Soon available at www.real-machines.com and www.oscarmoxon.com.

Q-Learning and Policy RL Agent
Dec 23 – Feb 24
- Using Model-Free approaches with Q-learning, and Policy Iteration and Bayesian Optimisation.
- Very high performance and accuracy; achieved 'Legendary' class on relevant benchmarks. Grade: >90%.

WebVoyager Agent
Feb 2024
- Paper implementation using langchain to autonomously navigate the web like a human, performing tasks without specific APIs. Uses visual cues and vector embeddings to traverse web for scraping, information retrieval, and documentation.

High Performance Visual Classification and Segmentation Algorithm
Nov 2023
- Edge detection and image segmentation techniques. Achieved human-level performance with naïve methods on small dataset.
- Used batch normalisation, dropout, softmax activation, whitening.

Data Extraction (@ WOLLO)
Nov 22 – Jun 23
- Trained a learning algorithm using layout data inputs to process email data and reduce the use of non-recyclable paper receipts, before switching to a transformer-based visual processing stack.
- Building the backend AI for a mobile platform that classified user receipt data and offers budgeting and profit-sharing features for users. Involved designing, building, and presenting the Wollo application.
- Member of the 2023 FutureWorlds Cohort and a winner of the 2022 Barclays Eagle Labs Startup Competition, with the mission to democratise profit from users' online footprints.

Trading Algorithm – Bloomberg Trading Competition
Nov 22
- Involved in research project focused using fundamental analysis to develop a high-performance, well hedged portfolio that generated returns of 18% during a month-long period buying security corrections.
- Developed a program to rank indicator performance on time series data.
- Team placed in the top 10 worldwide (and top 5 in Europe) against 980 university teams worldwide.

Diabolical Trumps
Aug 21
- Designed and conceptualised game of cards. Crowdfunded 4-figure seed (Kickstarter), manufactured game in Italy. Sold globally.

OTHER QUALIFICATIONS

Beechen Cliff School and Sixth Form, Bath
Sep 13 – Jul 19
- ***A Levels***: Economics (**A***), Physics (**A**), Mathematics (**A**), EPQ on *'Disrupting Monopolies'* (**A***)
- ***GCSEs***: **9** (**A - A*/9**) and **Distinction*** for HPQ on *'Graphical Storytelling'*.

Agent-Based Modelling in Finance, **King's College London**, 2024 [Surveyed]

Foundations of Machine Learning, **Southampton University**, 2023 [Surveyed]

Deep Learning Series, **UCL X DeepMind**, 2022

Bloomberg Market Concepts, **Bloomberg**, 2021

Mathematics for Machine Learning, **Coursera**, 2021

Architecture Foundations, **Buro Happold**, 2017

Interests: Have received 1.9m reads on my answers on Quora.com, most notably about figures such as Elon Musk and Renzo Piano. Publishing essays at https://oscarmoxon.com. Also published winner of a short story competition. Enjoy triathlons, hockey, and squash.