Andrew Mayes

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Machine Learning Engineer at re:mind

Sydney, New South Wales, Australia

About

Machine Learning Engineer specialising in leveraging **Large Language Models (LLMs)**, **machine learning**, and **OCR technologies** to transform unstructured documents into actionable business insights. Proficient in deploying scalable solutions using **AWS Lambda**, **S3**, and **PostgreSQL**, and experienced in building robust APIs with **FastAPI**. Passionate about automating document processing, improving data extraction accuracy, and enhancing user experience through innovative AI solutions. Collaborative team player who thrives in cross-functional environments.

Experience

Machine Learning Engineer

re:mind | March 2024 – Present | France (Remote)

Specialised in extracting meaningful data from documents using **LLMs**, **machine learning**, and **OCR technology**. Developed automated solutions to streamline document processing and generate insights that drive business outcomes and enhance user experience.

Key Achievements:

- **Document Type Detection:** Developed machine learning models to classify document types, increasing automation efficiency.
- **Document Added Value:** Designed systems to evaluate the added value of documents, aiding in decision-making processes.
- **Content Extraction Solutions:** Implemented **LLM** and **OCR**-based solutions to extract critical data from documents, improving data extraction accuracy.
- **AI Troubleshooting Tools:** Created AI tools for diagnosing and resolving processing issues, enhancing product reliability.

Technical Skills:

- **Machine Learning & LLMs:** OpenAI, HuggingFace models
- **OCR Technology:** Google OCR
- **Cloud Computing:** AWS Lambda, S3
- **API Development:** FastAPI
- **Collaboration:** Cross-functional teamwork with developers and data validators

Data Scientist

La Poste Groupe | September 2021 – February 2024 | Nantes, France (Hybrid)

Applied **machine learning**, **NLP**, and **graph databases** in **network security** and **financial fraud detection**.

Key Contributions:

- **Network Activity Forecasting:** Identified patterns and predicted anomalies to enhance security measures.
- **Graph Database Utilisation:** Leveraged **Neo4j** to map abnormal banking activities, improving fraud detection.
- **Complex Relationship Analysis:** Analysed and visualised relationships within banking networks to understand illicit activity patterns.
- **NLP in Cybersecurity:** Applied **NLP** techniques to command-line interfaces for threat detection, focusing on **Juniper commands**.
- **Deep Learning Models:** Developed **LSTM** and **Autoencoder** models using **PyTorch** for network security analysis.
- **Log Data Analysis:** Used **Splunk** for collecting and analysing network device logs, crucial for incident detection.

Technical Skills:

- **Programming Languages:** Python
- **Deep Learning & NLP:** PyTorch, LSTM, Autoencoders
- **Graph Databases:** Neo4j
- **Cybersecurity Tools:** Splunk
- **Operating Systems:** Linux (CentOS)

Data Scientist Intern

Institut de Neurosciences de la Timone (CNRS) | February 2021 – May 2021 | Marseille, France

Gained experience in **computer vision** and **deep learning** through hands-on projects.

Key Projects:

- **Inhibition of Return Mechanism:** Implemented using **PyTorch** to build advanced computer vision models.
- **Dataset Modification:** Enhanced the **MNIST** dataset with **NumPy** to simulate background motion.
- **Experimental Design:** Conducted human-equivalent experiments using **PsychoPy** to assess model performance.

Technical Skills:

- **Deep Learning:** PyTorch
- **Data Manipulation:** NumPy
- **Experimental Tools:** PsychoPy

Lab Assistant

University of Newcastle | February 2018 – September 2018 | Central Coast - Ourimbah (On-site)

Prepared participants for **EEG** experiments and analysed resulting data.

Responsibilities:

- **Participant Management:** Screened and recruited participants for EEG studies.
- **EEG Preparation:** Fitted electrodes and prepared participants for recordings.
- **Psychological Assessments:** Administered and scored evaluations of anxiety, depression, and psychopathy.
- **Data Analysis:** Used **Principal Component Analysis (PCA)** to identify patterns in EEG data.

Technical Skills:

- **Data Analysis:** PCA
- **Neuroscience Tools:** EEG data collection and preparation

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Publication

- Mayes, A. and Anwar, A., 2022. *Machine Learning Based IDS for Cyberattack Classification*. In *Explainable Artificial Intelligence for Cyber Security: Next Generation Artificial Intelligence* (pp. 93-111). Cham: Springer International Publishing.

Education

Deakin University

Master's Degree in Data Science | February 2019 – October 2021

- Mastered concepts of **data acquisition**, **storage**, **processing**, and **analysis**.
- Gained proficiency in **Python** and **R** for manipulating and analysing large datasets.
- Applied machine learning algorithms: **regression**, **classification**, **clustering**, and **deep learning**.
- Understood ethical and legal considerations related to **data privacy** and **security**.
- Designed and implemented **data-driven solutions** to complex business problems.
- Communicated technical concepts to both technical and non-technical stakeholders.
- Utilised **data visualisation** and **storytelling** to effectively communicate insights.
- Collaborated with professionals to drive **data-driven decision-making**.

Skills Acquired:

- **Programming Languages:** Python, R
- **Data Visualisation:** Tableau
- **Machine Learning Frameworks:** TensorFlow

Aix-Marseille University

Master's Degree in Cognitive Science | 2019 – 2021

- Studied fundamental concepts, theories, and methods of **cognitive science**.

- Applied advanced statistical and computational methods to analyse complex datasets.
- Conducted experimental research: **behavioural experiments**, **neuroimaging**, **eye-tracking**.
- Understood neural and computational mechanisms underlying cognitive processes.
- Analysed data from brain imaging techniques: **fMRI**, **EEG**, **MEG**.
- Designed **cognitive models** to simulate and predict human behaviour and cognition.

Grade: Bien

Skills Acquired:

- **Programming Languages:** Python, R
- **Machine Learning Frameworks:** TensorFlow

University of Newcastle

Bachelor of Psychological Science | February 2016 – November 2018

- Specialised in **psychological science** with a strong foundation in **research** and **statistics**.
- Completed a rigorous 240-unit program emphasising **research methods** and **cognitive psychology**.
- Earned a place on the Faculty of Science and IT **Commendation List** in 2016.
- Achieved high distinctions in **Advanced Research Methods**, **Statistics**, and **Cognitive Psychology**.

Grade: Distinction

Skills Acquired:

- **Statistical Analysis:** Advanced research methods
- **Psychology Expertise:** Cognitive psychology, social and organisational psychology

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Skills

- **Programming Languages:** Python, R
- **Machine Learning & AI:** OpenAI, HuggingFace, PyTorch, TensorFlow, LSTM, Autoencoders
- **Data Extraction & OCR:** Google OCR
- **Data Visualisation:** Tableau
- **Cloud Computing:** AWS Lambda, S3
- **Databases:** PostgreSQL, Neo4j
- **API Development:** FastAPI
- **Cybersecurity Tools:** Splunk
- **Operating Systems:** Linux (CentOS)
- **Data Analysis Tools:** NumPy, PsychoPy
- **Research & Statistics:** PCA, experimental design
- **Collaboration & Communication:** Cross-functional teamwork, data validation, project management

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