Luke Valentino

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EDUCATION

Swinburne University of Technology   Melbourne, Victoria
Bachelor of Computer Science, Major in Software Development   *2021 – 2024*

EXPERIENCE

Research Assistant | *Python, Django, ReactJS, Machine Learning*   March 2024 – Current
Central Queensland University   *Melbourne, Victoria*
- Collaborated with a team to design and develop a web application for processing and analysing video files using object detection models.
- Developed algorithm for procedural dataset augmentation, increasing object detection model accuracy from 37% to 73%. Generating 17,394 synthetic annotations and 1,565 synthetic images to improve model robustness.
- Trained and implemented models including DETR, YOLOv8, YOLOv9, Faster R-CNN, and RetinaNet.
- Utilised DepthAnythingV2 to generate point clouds from 2D images for fish measurement.
- Contributed multiple sections on machine learning in journal paper set to be published.

Disability Support Worker   January 2022 – Current
Buttons Support Services Pty Ltd   *Melbourne, Victoria*
- Developed personalised caretaking plans in collaboration with parents and carers, leading to improved client satisfaction.
- Enhanced client learning abilities through targeted education in math and writing.
- Facilitated client participation in community activities, fostering social skill development.

PROJECTS

Video Game Development – Dark Tides | *Unity2D, C#, Shaders*   Dec. 2023 – Current
- Lead software developer for a 7-member team, overseeing the development of the game from initial concept to late prototype phase.
- Developed advanced lighting, shadows, and procedurally generated shaders to simulate dynamic water and fire effects, enhancing visual fidelity.
- Designed and implemented a complex Tetris-style inventory system, realistic AI behaviour, and unit testing.
- Managed project tasks and milestones using a Kanban board and agile methodology, collaborating with the team and tracking progress using Unity Version Control.

Scraibe - AI Transcription and Summarization Web Application | *ReactJS, AWS (API Gateway, Lambda, S3)*
- Built a cloud-based web application for processing and transcribing audio and PDF files, leveraging AWS services including Textract for document OCR and Transcribe for audio-to-text conversion.
- Designed RESTful APIs using AWS API Gateway to handle file processing requests, interfacing with AWS Lambda functions for scalable serverless processing.
- Integrated summarisation functionality by leveraging NLP models to provide concise and insightful summaries of transcribed text customised to the user's education level and domain knowledge.
- Orchestrated asynchronous job tracking and status polling using API Gateway and Lambda to provide a seamless user experience during long-running processing tasks.
- Ensured scalability, reliability, and cost-efficiency by fully utilizing serverless architecture and AWS-native solutions.

RELEVANT COURSEWORK

Software Testing and Reliability, Data Structures and Patterns, Network Administration, Creating Secure and Scalable Software, Introduction to Artificial Intelligence, Intelligent Systems, Cloud Computing Architecture, IoT Programming

TECHNICAL SKILLS

Languages: C#, C++, Python, HTML/CSS, Java, JavaScript, SQL (Postgres), PHP
Frameworks: Unity, Flask, React, Node.js, Django
Developer Tools: Git, Unity Version Control, Jupyter, AWS, Google Colab, VS Code, Visual Studio, Arduino, Firebase