Nardiena A. Pratama

<LinkedIn> <location> <Github>
<contact>

Education

<University> Feb 2023-Nov 2023
Bachelor of Computer Science (Honours) awarded with First Class Honours
Thesis: *MRI Segmentation in the Latent Space* with Dr. Shekhar Chandra
Honours GPA: <>; Overall GPA (BCompSc + Honours): <>

<University> Feb 2020-Nov 2021
Bachelor of Computer Science (Data Science Major) - Joint Double Degree Program
GPA: <>

<University> Aug 2017-Dec 2019
Bachelor of Computer Science - Joint Double Degree Program
GPA: <>

Under Revision for Invited Resubmission

N. A. Pratama, S. Fan, G. Demartini. *Visual Content Annotation: Differences between Humans and Foundation Models.* Under revision for invited resubmission for International AAAI Conference on Web and Social Media (ICWSM '25). [https://arxiv.org/abs/2411.18968].

In Press

M. Skipanes, **N. A. Pratama**, K. Porter, G. Demartini. *Fast Synthetic Data Generation for Case-Specific Entity Extraction in Criminal Investigations.* Accepted to Digital Forensics Doctoral Symposium (DFDS '25), December 2024.

Research Experience

UQ Casual Research Assistant with Prof. Gianluca Demartini Dec 2023-present
Working on individual project and assisting with PhD projects.

- Extending the *Human vs Machine Learning Data Annotations on Visual Content* Project to include ML-generated captions in the analysis; improving the training process of the predictive models
- Assisted a PhD student by contributing to code development for a Named Entity Recognition (NER) pipeline using a BERT-based transformer model to use with Norwegian Police documents
- Assisting a PhD student with generating and cleaning image captions using captioning models and Large Language Models (LLMs) for a project investigating persuasive techniques using LLMs

UQ Honours Thesis with Dr. Shekhar Chandra Feb 2023-Nov 2023
Worked on *MRI Segmentation in the Latent Space Using Deep Learning*.

- Developed a deep learning pipeline, consisting of pretrained Vector Quantised Variational Autoencoders and a U-Net-like model, to perform segmentation and reconstruction of 2D MRI data.

UQ Semester-long Research Project with Prof. Gianluca Demartini July 2023-Nov 2023
Worked on *Human vs Machine Learning Data Annotations on Visual Content* project.

- Compared and analysed human annotations and machine learning (ML) generated annotations for handwashing data using statistical techniques
- Developed and analysed predictive machine learning models using human and ML annotations

UQ Winter Research Program with Prof. Gianluca Demartini June 2023-July 2023
Worked on *Human vs Machine Learning Data Annotations on Visual Content* project.

Telstra Labs Software Engineering Intern with Luca Stamatescu Nov 2020-Feb 2021
Worked on *Synthetic Dataset Generation* project at Telstra Labs.

- Created a synthetic dataset generator which creates significant amounts of artificial images of the Telstra modem using the Unity software, cutting down weeks' worth of collecting training data to several minutes
- Developed a transfer learning-based Faster-RCNN object detection model using Tensorflow's Object Detection API, trained using synthetic data of the Telstra modem generated from the synthetic dataset generator

Presentations

Research Proposal: Enhancing Breast Cancer Classification with LLM-Generated Textual Descriptions. 3-Minute Thesis Presentation (Runner-Up). **Information Resilience PhD School 2024**, Oct 2024.

MRI Segmentation in the Latent Space Using Deep Learning. **UQ EECS Innovation Showcase 2023**, Nov 2023.

Evaluating the Human and Artificial Intelligence Perception of Digital Media for Socio-Economic Bias. **Australasian Council of Undergraduate Research (ACUR) 2023**, Nov 2023.

Industry Experience

<Employer> Feb 2022-present

Graduate Data Specialist

- Contributed to data exploration within the <>to identify key features for developing fraud prevention machine learning models in the Australian contex
- Developed an optimisation model using PuLP to identify optimal locations for building edge compute sites across Australia, considering location-specific demands and requirements

Emerging Technology Specialist (Data Scientist) April 2023-present

- Conduct trials for vehicle detection, analysing data from underground fibre optic networks using object detection and a U-Net image segmentation model
- Develop script to automate extraction of network data

Technical Skills

- Programming Languages: Python, Java, C#, Javascript, React Native, SQL
- Libraries/frameworks: Pandas, Polars, Tensorflow, Pytorch, OpenCV, Darknet
- Deployment: Tensorflow Serving, Docker
- Other: Bash scripting, CUDA, Git version control

Course Projects

CSSE 6400: Salt & Paper - Recipe Web Application Feb 2023-June 2023

- Led and collaborated with a team of four students, including undergraduates and postgraduates, to develop a web application that allows users to create, view, and share recipes in the platform
- Designed and implemented the software architecture, including containerisation of the load balancer, Celery workers, Redis, and PostgreSQL database using Docker Compose
- Orchestrated the deployment process with Terraform on Amazon Web Services (AWS), utilising Amazon ECS for task definition and Amazon SQS for efficient queue management

DECO 3801: Plateducate - AI Diet Mobile Application July 2021-Nov 2021

- Partnered with five undergraduate students and worked on a mobile application that tracks user's food intake to improve their diet and avoid health problems
- Developed YOLO-based food object detection model using Darknet for automatic food identification to enhance user experience
- Containerised the backend and ML applications within the mobile app using Docker Compose, and implemented TensorFlow Serving to facilitate model serving

COSC 3000: Roller Coaster Simulation Feb 2020-June 2020

- Developed a roller coaster simulation in Unity with C# scripts, featuring online assets, camera controls (1st/3rd person POV, pan), and movement controls (start/stop car).
- Aimed to mimic the experience of riding an actual roller coaster, focusing on a small track section for immersive testing.

Other Experience

<University> Linear Algebra, *Teaching Assistant* Feb 2019-June 2019

<University> Formal Languages and Automata, *Teaching Assistant* Aug 2019-Dec 2019