

# Aditya Roy

GRADUATE SOFTWARE ENGINEER

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## About Me

Master of Information Technology (Software Development) graduate from Swinburne University of Technology with a Bachelor's in Computer Science and Engineering from BRAC University. Skilled in software development, machine learning, web technologies, and database management, with hands-on project experience showcased on GitHub. Gained practical industry exposure at Ampol Foodary Ltd, developing technical expertise in POS systems and inventory control, alongside strong teamwork, problem-solving, and customer service skills. Passionate about leveraging technology to deliver innovative solutions and now seeking opportunities in software development and IT. Seeking entry-level roles in software development and data-driven solutions; open to relocation Australia-wide.

## Work Experiences

### Ampol Foodary Ltd.

Melbourne, Australia

Retail Team Member

September 2023 - Current

- Operated point-of-sale (POS) systems, accurately processing transactions and managing daily cash handling.
- Monitored stock levels, replenished shelves, and maintained inventory accuracy to ensure smooth store operations.
- Collaborated with team members to meet daily operational goals and resolve issues efficiently.
- **Technical Skills:** POS System Operation, Stock Replenishment, Inventory Control, Health and Safety Compliance, Cash Handling, Product Knowledge, Fuel Console Operation.
- **Soft Skills:** Customer Service, Communication, Teamwork, Problem Solving, Time Management, Adaptability, Attention to Detail, Reliability, Punctuality.

### Brac University

Dhaka, Bangladesh

Teaching Assistant, Department of Computer Science and Engineering

Fall 2021 - Summer 2022

- Assisted the lecturer in preparing and delivering lectures & assignments.
- Provided tutoring and academic support to students, helping them understand complex concepts & improve their academic performance.
- Graded assignments and exams, offering constructive feedback to help students improve their academic performance.
- **Courses:** Programming Language I, Programming Language II, Data Structures, Algorithms
- **Technical Skills:** Python, Data Structures, OOP, Algorithms, Google Colab, C++, Git.
- **Soft Skills:** Time Management, Communication, Presentation skills, Critical Thinking.

## Key Project Works

### MatApp – Material Selection Web Application

Melbourne, Australia

Swinburne University of Technology

Semester 1, 2025

- Allows users to filter and search materials based on properties using an intuitive interface.
- Implemented backend APIs and MongoDB for structured material data handling.
- **Technical Skills:** Flask, React (Vite), MongoDB, Python, JavaScript, Tailwind CSS.
- **Soft Skills:** Full-stack development, database design, collaboration, problem-solving.

### Swinburne AI Chatbot – AI-Powered Retrieval-Augmented Generation System

Melbourne, Australia

Swinburne University of Technology

Semester 1, 2024

- Worked on a retrieval-augmented generation (RAG) system to deliver contextually accurate responses from custom data sources.
- Integrated embeddings and document loaders & optimized prompt chaining for improved query understanding & response generation.
- **Technical Skills:** Python, LangChain, LLaMA3, FAISS, Hugging Face, OpenAI API.
- **Soft Skills:** AI research, Prompt Engineering, Experimentation, Analytical Thinking.

### ValMob - Esports Scheduling App

Dhaka, Bangladesh

Personal Project

May 2023

- Developed ValMob, a Flutter Android app delivering real-time Valorant esports news and updates via Firebase.
- **Technical Skills:** Flutter, Dart, Firebase, Cloud Firestore.
- **Soft Skills:** Mobile UI/UX design, agile development.

### Hybrid Malware Detection System

Melbourne, Australia

Swinburne University of Technology

Semester 2, 2024

- Developed a web-based hybrid machine learning system for malware detection and classification.
- Supports separate interfaces for admin and normal users.
- **Technical Skills:** Flask, SQLite, SQLAlchemy, Jinja2, HTML, CSS, Bootstrap, scikit-learn, Python.
- **Soft Skills:** Requirement analysis, system design, collaborative development.
- **Find more project works:** GitHub

# Technical Reports

## Federated GAN-Based Biomedical Image Augmentation and Classification for Alzheimer’s Disease

Dhaka, Bangladesh

BRAC University

2021 - 2022

- Researched and developed a federated learning framework leveraging Generative Adversarial Networks (GANs).
- Augment MRI brain images for improved Alzheimer’s disease classification.
- Addressed medical data scarcity and privacy constraints.
- **Technical Skills:** Python, TensorFlow, PyTorch, GANs, Federated Learning, Medical Image Processing.
- **Soft Skills:** Research methodology, academic writing, problem-solving, collaboration, presentation skills.

## UCF101 Action Classification Comparison and Hyperparameter Tuning using Deep Learning

Melbourne, Australia

Swinburne University of Technology

2025

- Implemented deep learning–based action classification on the UCF-101 dataset.
- Conducted extensive hyperparameter tuning for r3d\_18 and mc3\_18 models.
- **Technical Skills:** Python, PyTorch, Jupyter Notebook, OpenCV, Deep Learning.
- **Soft Skills:** Experimental design, hyperparameter optimization, performance analysis.

## Semantic Analysis using Multiple Feature Extraction Techniques

Melbourne, Australia

Swinburne University of Technology

2024

- Performed sentiment analysis on Google Play Store reviews using CountVectorizer and TF-IDF feature extraction methods.
- Compared their impact on classification performances.
- Trained and evaluated multiple machine learning models, including Naive Bayes, Random Forest, and Decision Tree.
- Visualised performance metrics for comparative analysis.
- **Technical Skills:** Python, scikit-learn, pandas, matplotlib, seaborn, CountVectorizer, TF-IDF.
- **Soft Skills:** Data analysis, model evaluation, critical thinking, result interpretation.

# Skills

<b>Programming Languages</b>	Python, Java, C++, C, PHP, JavaScript, Dart.
<b>Frameworks</b>	Django, Flutter, Laravel, Flask
<b>Databases</b>	MySQL, SQLite, PostGRE SQL, SQLAlchemy, Firebase, MongoDB
<b>Front-end Technologies</b>	HTML, CSS, JavaScript, Bootstrap CSS, Tailwind CSS, Jinja2, Blade.
<b>AI Tools &amp; Libraries</b>	Scikit-learn, PyTorch, Pandas, NumPy, Matplotlib, Seaborn, LLMs, Transformers, OpenCV
<b>Cloud</b>	Amazon Web Services & Oracle Cloud Infrastructure.
<b>Operating Systems</b>	Windows Vista/XP/7/10/11, Linux.
<b>Tools &amp; Libraries</b>	Figma, Git, BeautifulSoup, Tkinter, Pygame, Latex, Jupyter, Swing, AWT, PuTTY, WinSCP.

# Education

## Swinburne University of Technology

Melbourne, Australia

Master of Information Technology (Software Development)

July 2023 – July 2025

- Graduated with a CGPA of 3.44 out of 4, specialising in software development, cloud computing, and machine learning.
- **Key Coursework:** Web Applications, Data Management & Big Data, Technology Projects, Software Quality and Testing, User-Centred Design, Object-Oriented Programming, Cloud Computing Architecture, Internet Security, and Machine Learning.

## Brac University

Dhaka, Bangladesh

Bachelor of Science in Computer Science and Engineering

Jan 2019 – Sept 2022

- Graduated with a CGPA of 3.93 out of 4
- **Key Coursework:** Data Structures & Algorithms, Digital Logic Design, Discrete Mathematics, Database Systems, Computer Architecture, Compiler Design, Robotics, Computer Networks, Operating Systems, VLSI Design, Artificial Intelligence, NLP, Software engineering, and Deep Learning.

# Co-curricular Activity

## Robotics Club of Brac University

Dhaka, Bangladesh

Senior Executive, Department of Strategic Planning

Aug 2020 - Sept 2022

- Volunteer at Traction 2020: TechBizz
- Volunteer at JoyJatra’50 Techfest
- Organized and supervised Strategic Planning Valorant Series, a competitive intra-department gaming tournament.
- **Soft Skills:** Leadership, Time Management, Communication, Critical Thinking.