

Portfolio.

A N D R E W
P A N G

Aspiring AI Engineer

DIPLOMA IN APPLIED AI & ANALYTICS

Singapore Polytechnic

ANDREW PANG

ASPIRING AI ENGINEER

CONTACT

- +65 9889 5442
- andrewphw.24@ichat.sp.edu.sg
- 996B Buangkok Cres, 532996
- www.andrewpang.dev
- www.github.com/4ndrrw
- www.linkedin.com/in/andrew-pang-hw/

SKILLS

- Machine Learning
- Deep Learning
- Tensorflow & Keras
- PyTorch
- Scikit-learn
- Data Analysis
- Data Preprocessing
- Problem Solving
- Critical Thinking
- Efficient Collaboration
- Adaptability to Change
- Time Management

LANGUAGES

- Python
- SQL
- Javascript
- HTML5
- CSS3



ABOUT ME

I'm an Applied AI & Analytics student at Singapore Polytechnic with a passion for turning data into meaningful solutions. I've worked on several projects involving image classification, forecasting, and data segmentation using Python and libraries like Scikit-learn and Keras. I enjoy experimenting with ideas, solving practical problems, and learning from real-world challenges. I'm eager to apply my skills in meaningful projects and continue growing through hands-on experience.



EDUCATION

Singapore Polytechnic Apr 2024 - Present
Diploma in Applied AI & Analytics

Deep Learning Apr 2025 - Aug 2025
Singapore Polytechnic

The Deep Learning module offered hands-on experience with neural networks, CNNs for image classification, RNNs for sequence modeling, and advanced generative models like GANs and VAEs. I also explored reinforcement learning and applied these techniques in projects, focusing on model design, training, optimization, and evaluation on real-world datasets.

Data Structures & Algorithms Apr 2025 - Aug 2025
Singapore Polytechnic

The Data Structures and Algorithms module covered essential data structures. Such as arrays, linked lists, stacks, queues, trees, and graphs – alongside recursion, sorting, searching, and complexity analysis. Projects like a haiku generator and an OCR text restoration tool reinforced practical skills in algorithm design, recursion, and efficient problem-solving.

AI & Machine Learning Oct 2024 - Mar 2025
Singapore Polytechnic

The AI & Machine Learning module covered foundational concepts with hands-on implementation using Scikit-learn, including classification, segmentation, and time series forecasting. I built end-to-end ML pipelines, explored CNNs for basic image recognition, and completed projects that reinforced feature engineering, model tuning, and result analysis.

Holy Innocents' High School Jan 2020 - Sept 2023
GCE 'O' Levels in General Studies

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COURSES

Introduction to Deep Learning with PyTorch

Aug 2025

DataCamp

- Learned the fundamentals of deep learning and its applications across domains such as computer vision, speech, and autonomous systems.
- Built and trained classification and regression models using PyTorch, one of the leading deep learning frameworks.
- Gained hands-on experience in model development, training, and evaluation for real-world tasks.

Introduction to Deep Learning with Keras

May 2025

DataCamp

- Built deep learning models with Keras for real-world tasks, including regression, binary, and multi-class classification.
- Applied neural networks to reconstruct noisy images and improve prediction accuracy.
- Learned training control and hyper-parameter tuning to optimize model performance.

Supervised Learning with Scikit-learn

Nov 2024

DataCamp

- Built and trained predictive models using Python's Scikit-learn on real-world datasets.
- Tackled problems such as customer churn prediction, diabetes diagnosis, and music genre classification.
- Applied end-to-end workflows: data preprocessing, model selection, parameter tuning, and performance evaluation.

EXTRA-CURRICULAR ACTIVITIES

Dragon Boat

Apr 2024 - Sept 2024

Singapore Polytechnic

- Developed teamwork, discipline, and perseverance through active participation in the Dragon Boat team.
- Enhanced communication and coordination skills by training and competing within diverse teams.
- Strengthened time management and resilience, enabling effective focus on complex AI projects.

Wushu

Jan 2020 - Apr 2023

Holy Innocents' High School

- Led the Wushu team as captain, honing leadership and decision-making skills.
- Fostered team cohesion and motivation, guiding members to achieve collective goals.
- Built discipline, focus, and resilience, translating athletic dedication into professional and academic pursuits.



Project Showcase

1P Pro

Conditional GAN Letter Generator

For this deep learning project, I implemented a Conditional Generative Adversarial Network (CGAN) to generate 160 grayscale letter images across 16 classes using the EMNIST dataset. The original dataset presented a challenge as each label included a mix of upper- and lowercase characters, resulting in hybrid or ambiguous outputs during initial training.

To improve generation quality, I designed and trained a custom classifier to filter the dataset, isolating only uppercase letters. Using this cleaned subset, I retrained the CGAN, which significantly improved the clarity and consistency of generated images. This workflow demonstrated my ability to identify dataset issues, think creatively, and build effective ML pipelines from scratch. Evaluation was done via visual inspection and class-wise analysis.

[www.github.com/4ndrrw/
EMNIST-Letter-Generation-
GAN](https://www.github.com/4ndrrw/EMNIST-Letter-Generation-GAN)



2Prc

DQN Pendulum Balance

For this project, I implemented a Deep Q-Network (DQN) to solve the classic Pendulum control task from OpenAI Gym. The objective was to train an agent to balance the pendulum upright by learning an optimal policy through trial and error.

To improve performance, I discretized the continuous action space and experimented with different hyperparameter combinations such as batch size and hidden layer size. I also applied experience replay and target network updates to stabilize training. Over time, the agent learned to reduce swing amplitude and maintain balance more effectively.

This project strengthened my understanding of reinforcement learning concepts and gave me hands-on experience in building, tuning, and evaluating RL agents within a simulated environment.

[https://github.com/4ndrrw/
Pendulum-Balance-DQN](https://github.com/4ndrrw/Pendulum-Balance-DQN)



3Prc

CNN Vegetable Classifier

For this project, I built convolutional neural networks (CNNs) to classify 11 classes of grayscale vegetable images resized to 23x23 and 101x101 pixels. Initial models showed moderate accuracy on the smaller images but struggled with larger inputs.

To enhance performance, I improved the architectures and applied Keras Tuner for hyperparameter optimization, tuning filter sizes, dropout rates, and learning rates. After tuning, the 23x23 model's accuracy increased to 79.5%, and the 101x101 model reached 93.9%, with reduced loss and error rates.

This project strengthened my skills in deep learning model design, tuning, and evaluation, using tools like TensorFlow and Keras. Confusion matrices and training curves guided my analysis of model performance.

[https://github.com/4ndrrw/
Vegetable-Image-Classifier-
CNN](https://github.com/4ndrrw/Vegetable-Image-Classifier-CNN)





STATEMENT OF ACCOMPLISHMENT

#42,508,927

HAS BEEN AWARDED TO

Andrew Pang

FOR SUCCESSFULLY COMPLETING

Introduction to Deep Learning with PyTorch

LENGTH

4 HRS

COMPLETED ON

AUG 21, 2025

 datacamp

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Jonathan Cornelissen
CEO, DataCamp



STATEMENT OF ACCOMPLISHMENT

#40,545,307

HAS BEEN AWARDED TO

Andrew Pang

FOR SUCCESSFULLY COMPLETING

Introduction to Deep Learning with Keras

LENGTH

4 HRS

COMPLETED ON

MAY 07, 2025

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Jonathan Cornelissen
CEO, DataCamp



STATEMENT OF ACCOMPLISHMENT

#41,892,587

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Andrew Pang

FOR SUCCESSFULLY COMPLETING
Generative AI Concepts

LENGTH

2 HRS

COMPLETED ON

JUL 15, 2025

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Jonathan Cornelissen
CEO, DataCamp



STATEMENT OF ACCOMPLISHMENT

#36,982,307

HAS BEEN AWARDED TO

Andrew Pang

FOR SUCCESSFULLY COMPLETING

Supervised Learning with scikit-learn

LENGTH

4 HRS

COMPLETED ON

NOV 12, 2024

 datacamp



Jonathan Cornelissen
CEO, DataCamp



Andrew Pang Hong Wei was a student of Holy Innocents' High School (HIHS) from 2020 to 2023.

A resilient and confident student, Andrew is a well-liked student. Andrew approaches every undertaking with certainty, always ready to take on new challenges and venture beyond his comfort zone. His self-assuredness not only fuels his own development but also motivates those around him, encouraging them to believe in their potential. Andrew's unwavering determination has allowed him to overcome obstacles, always striving for personal growth and success.

Andrew is a dedicated student, possessing many skills that complement his academic skills. He has displayed organisational skills to manage his time and tasks to meet deadlines and excel in his studies. One of Andrew's greatest strengths is his critical thinking and problem-solving abilities. He consistently approaches challenges with a well-reasoned and analytical mindset, and his ability to think outside the box has yielded innovative solutions to complex problems. Andrew actively engages in classroom discussions, confidently presenting his ideas while respectfully considering alternative perspectives. Furthermore, Andrew has displayed teamwork and leadership skills. He readily collaborates with his peers, offering support and encouragement to ensure the success of group projects.

Andrew played an exceptional role as the Captain of the school Wushu Co-Curricular Activity (CCA). In leading his CCA team, Andrew has displayed remarkable dedication, leadership and passion for Wushu. His commitment to the sport and his teammates has been truly commendable. Andrew consistently led by example, demonstrating unwavering discipline and an unyielding work ethic that inspired his team members to strive for excellence. His ability to effectively communicate and motivate the team has fostered a supportive and cohesive environment where each member feels valued and motivated to give their best. Andrew's distinguished skills in Wushu, combined with his humility and willingness to guide and mentor others, have significantly contributed to the overall success of the CCA. Andrew represented the school in the National School Games in 2022 and 2023, placing 20/32 and 13/34 respectively. In addition, he performed for the National Day Celebration in 2022 and the Chinese New Year Celebration in 2023. For his leadership qualities, Andrew received the Edusave Award for Achievement, Good Leadership and Service (EAGLES) for Leadership in 2022.

Wanting to give back to the community, Andrew also participated actively in class-based Values in Action (VIA) projects. Together with his class, he participated actively in the beach clean up for his VIA project in 2022 and 2023. Andrew worked with his group members to clean up litter at Changi Beach (2022) and East Coast Park (2023) to improve the environment. He was also actively involved in school events such as HI Active Youth Day

Testimonial(Cont'd)

Holy Innocents' High School

and HHHS Road Run across the four years of his secondary school life.

Andrew is exemplary in many facets of his high school experience. His commitment, active participation in extracurricular pursuits, and support for his peers and educators will prepare him well for future challenges.

~ End ~



聖嬰中學

HOLY INNOCENTS' HIGH SCHOOL

Co-Curriculum Certificate for Secondary

For Year 2023

Page : 1 of 2

Name : ANDREW PANG HONG WEI FENG HONGWEI ANDREW

Class : S4-IN

Stream : EXPRESS

ID : T0706588J

D.O.B : 01-MAR-2007

Gender : Male

Co-Curricular Attainment: EXCELLENT

Level of Attainment				Bonus Points
Leadership	Achievement	Participation	Service	
5	4	5	5	2

Leadership

Leadership Development

Involvement Name	Year	Level of Attainment
WUSHU CCA Captain	2023	5
WUSHU CCA Captain	2022	5
STUDENT LEADERSHIP (CLASS APPOINTMENT)	2021	2
Cyberwellness Ambassador		
WUSHU Lower Sec CCA Executive Committee	2021	3
LEADERSHIP MODULE Completed 2 modules on leadership		1
Sec 2 Level Camp	2021	
Sec 1 Level Camp	2020	

Enrichment

Area	Activity	Year
PHYSICAL ACTIVITIES AND SPORTS	Hi! Active Youth Day	2023
PHYSICAL ACTIVITIES AND SPORTS	Hi! Active Youth Day	2022
	Touch Rugby & Kin Ball	2022

Achievement

Achievement	Event/Competition	Involvement Name	Year	Level of Attainment
OTHER SPECIAL EVENTS	HIHS Road Run 2023	Represented Class at Intra-School Event	2023	1
WUSHU	School Open House	Represented CCA at Intra-School Event	2023	1
	Chinese New Year Celebration Performance	Represented CCA at Intra-School Event	2023	1
	NSG Wushu Championships B Division	Represented School at Local	2023	4
	Boys Short Weapon 1st International Broadsword	Event		
OTHER SPECIAL EVENTS	HI One Mile Challenge	Represented Class at	2022	1



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Page : 2 of 2

Name : ANDREW PANG HONG WEI FENG HONGWEI ANDREW

ID : T0706588J

CCA Name/Area of Achievement	Event/Competition	Involvement Name	Year	Level of Attainment
WUSHU	School National Day Celebration	Intra-School Event Represented CCA at Intra-School Event	2022	1
	Teachers' Day Performance	Represented CCA at Intra-School Event	2022	1
	NSG Wushu Championships B Division	Represented School at Local	2022	3
	Boys Short Weapon 1st International Broadsword	Event		

OTHER SPECIAL EVENTS		HI One Mile Challenge	Represented Class at Intra-School Event	2021	1
WUSHU	NSG Wushu Championships C Division		Represented School at Local	2020	2
	Boys, 1st International Broadsword		Event		

Participation					
CCA Name	Year		Level of Attainment		
WUSHU	2020 - 2023		5 ^A		

^AHigher level awarded to recognise exemplary conduct and/or active contribution in CCA participation that exceeded expectation.

Service						
VIA Type	VIA Title	Partner Organisation	Role of Student	Hours	Year	Level of Attainment
PROJECT (SCHOOL INITIATED)	Sec 4 & 5 Service Learning Project	-	PARTICIPANT	6	2023	
PROJECT (SCHOOL INITIATED)	Sec.3 Service Learning Project	-	PARTICIPANT	13	2022	
PROJECT (STUDENT INITIATED)	Sec.2 Service Learning Project	Caritas Singapore	PARTICIPANT	9	2021	
PROJECT (STUDENT INITIATED)	Sec.1 Service Learning Project	-	PARTICIPANT	10	2020	

Total 38 5





Ministry of Education
SINGAPORE



People's Association

EDUSAVE AWARD FOR ACHIEVEMENT, GOOD LEADERSHIP AND SERVICE (EAGLES) 2022

is presented to

ANDREW PANG HONG WEI

of

SECONDARY 3

HOLY INNOCENTS' HIGH SCHOOL

for demonstrating leadership qualities, service to community and schools,
excellence in non-academic activities, and
good conduct

CHAN CHUN SING
MINISTER FOR EDUCATION

EDWIN TONG
DEPUTY CHAIRMAN
PEOPLE'S ASSOCIATION