Edge AI System for Industry 4.0 and Beyond

📅 **21-22 Sep 2023**

🕐 **09:00-17:00**

📍 Level 5, PlanetSpark Training Room
15 Changi Business Park Central 1
#05-06/07, Singapore 486057

Key Takeaways

This course introduces learners to the theoretical, application and skills development aspects of deep learning and Edge AI.

Learners will be able to define and deploy machine learning models using an Edge computing system in a real world vision analytical case.

Course Code: CE1539
Register by scanning QR Code
Closing date: 31 Aug 2023

Programme (Day 1 of 2)

09:00	**Introduction to neural network** • Basic tensor concept in neural network • Back propagation and gradient calculations • Model predictions and updates • Hands-on demo/practices
10:00	**Break time**
10:15	**Introduction to neural network** • Loss optimization in neural network • Non-linear activation **Data preparation** • Data preparation and uploading for training **Hands-on practices**
12:00	**Lunch**
13:00	**Artificial Neural Network and Classification** • Network layers and model training for classification **Convolutional Neural Network and Classification** • Network layers **Hands-on demo/practices**
15:00	**Tea/Coffee Break**
15:15	**Convolutional Neural Network and Classification** • Model architectures • Transfer learning with pretrained models • Model training for classification • Hands-on practices
17:00	**Conclusion and Q&A session**

Programme (Day 2 of 2)

09:00	**Introduction to AI, Xilinx Vitis and Models** **Introduce PlanetSpark EdgeAI Box and use cases**
10:00	**Break time**
10:15	**Setup and on-Boarding on the EdgeAI Box** **Hands-on demo/practices**
12:00	**Lunch**
13:00	**Deploy and run applications/Demo**
15:00	**Tea/Coffee Break**
15:15	**Basic Vitis-AI Model End to End Process**
17:00	**Conclusion and Q&A session**

Who Should Attend

The program is for you if you:

- Want to keep pace with the business world that's becoming increasingly AI-driven
- Interest in applying AI in field of practice
- Keen in utilising Edge IoT in solutions
- Wish to understand how to accelerate your project to market.

Program Outline

How will the Program help you as an attendee:

- Define core concepts of Machine Learning and AI
- Development of an Edge Computing Model
- Build a Vision based AI model that is able to process decisions
- Build a system to receive real time data from compiled Edge Computers.

Learning Objectives

- Explain the basics of neural network training
- Describe how ANN and CNN machine learning works
- Apply deep learning training for supervised learning in object classification
- Explain the basics of EdgeAI Platform and Applications
- Describe how VitisAI and Model Zoo for machine learning works
- Explain the components of Edge AI Board Hardware
- Utilise linux script to run an AI programme on the EdgeAI board

Program Prerequisites

- Learners are expected to be able to:
 – Have basic know-how on electronics to make sense of the course.
- Own and have basic knowledge of operating a computer – Must be able to run command shell.

Trainer Profile

Rick Law

Rick is the subject matter expert in the fields of electronics - Embedded Microcontrollers, IoT Applications and Software Development, combining teaching pedagogy with experience. He has over 20 years of professional experience in electronics industry supporting customers implement applications ranging from LCDTV, PLC, Wireless Technologies, IoT Devices, Smart Home, Cloud, Mobile Apps development and IoT projects. As a trainer, he has developed and conducted courses in Electronics, Embedded Microcontrollers, IoT Applications, EdgeAI and TinyML.

Rick graduated from The National University of Singapore (NUS) Bachelor of Technology in 2002 with First Class Honours. He holds a WSQ Advanced Certificate in Learning and Performance (ACLP), and Advanced Certificate in Technical Education Pedagogy (ACTEP).

Program Fees

This is a course under the SkillsFuture Series. The course fee and subsidy table are as shown. The course fee is inclusive of venue and course materials. Certificate of participation will be provided for participants who have attended 75% of the course.

	SC <40yrs old & PRs	SC >40yrs old	SC & PR under SME
Course Fee	$450.00	$450.00	$450.00
Funding	$315.00	$405.00	$405.00
Total Gross Fee	$135.00	$45.00	$45.00
GST Payable*	$9.45(SC) $10.80(PR)	$9.45	$9.45(SC) $10.80(PR)
Total Fee Payable	$144.45(SC) $145.80(PR)	$54.45	$54.45(SC) $55.80(PR)

SC: Singapore Citizen | PR: Permanent Resident | SME: Small Medium Enterprise
*The increase of 1% GST on fees will be absorbed for Singapore Citizens in 2023

Application Process

Sign up via scanning QR Code

Connect with a program advisor
✉ **academy@excelpoint.com.sg**

https://nypeservices.nyp.edu.sg/alls/appln/cseApplnRequest.jsp?id=29170

Closing date: 31 Aug 2023

About NYP

Established as an institution of higher learning in 1992, Nanyang Polytechnic's (NYP) academic schools offer quality education and training through more than 40 full-time diploma courses and common entry programmes. NYP also has a full suite of continuing education and training (CET) options for lifelong learning, ranging from specialist and advanced diplomas, to SkillsFuture modules and courses.

About Excelpoint Academy

Excelpoint®

ACADEMY

Empowering a
Future-Ready Tomorrow

EPACA is committed to continuous quality improvement by helping to upgrade the skill sets of stakeholders and public by adopting the standards of the National Skills Future Singapore (SSG) frameworks and working closely with the industry.

By leveraging on its strength in the Electronics sector, Excelpoint Academy is able to develop bite sized and short courses that are industrially validated.

Through a hands-on approach of learning, EPACA equips course graduates to with the skills to thrive in the digital economy.

EPACA champions the SMART nation initiative of Singapore government, in partnership with various government and corporate agencies, statutory boards, vendors and suppliers to meet the vision of a future-ready workforce.

Upskilling

Work closely with industries to upgrade the skill sets of stakeholders and public.

Industrially Validated

Utilise our experience as a leader in the field of electronics, we take a hands on approach in developing and delivering bite sized industrially validated short courses.

Enabling the Future

We partner with government, and partner with government, corporate and vendors to meet the vision of a future-ready workforce.