in association with **DREW & NAPIER**

Deep Learning Essentials

Course Objectives

'Deep Learning' was initially coined for neural networks that grew in breadth and depth, requiring increased computation power rather than new forms of 'learning'. Yet, it turned out that deep learning indeed benefits from new twists in the learning stage. Nowadays it stands for a vast variety of complex architectural Artificial Intelligence (AI) models, which range from traditional pure neural networks to architectures which include neural networks for general processing, but are combined with application specific extensions, such as Convolutional Neural Networks (CNN) and transformer based Large Language Models (LLM). This course explains the core concepts of neural networks and deep learning. It further highlights challenges in the deep learning process, and it explores why and how neural networks (GAN), and LLM.

This course is ideal for all who have little time but are interested in and need a solid understanding of deep learning as a fundamental technology driving many old, modern, and future AI systems and architectures. It explains deep learning and engineering jargon as well as technical details in a manner also suitable for non-IT audience. This course aims to separate fact from fiction and misunderstandings around deep learning; it puts you in a better position when you deal with any deep learning project, be it on systems, risks, or compliance concerns. As they say: AI is here to stay, so build up critical work knowledge now, for a baseline that allows you to keep up with this fastpaced technology.

This course complements our <u>What to look out for when procuring an AI Solution - Legal</u> and <u>Technology Essentials</u> course.

Who should attend?

- Privacy / Software Engineers, Technical Staff, Developers, Data Analysts, Data Architects, and Project / Risk Managers
- Data Protection Officers (DPOs) and Compliance Professionals
- Executives, Managers, and Staff involved in the management, collection, use or other processing of personal data

Course Details

Course Code:	Al101
Title:	Deep Learning Essentials
Duration:	1/2 day (approximately 3.5 contact hours)
Mode of Training: In-person	
Venue:	Drew & Napier LLC
	10 Collyer Quay, 10th Floor, Ocean Financial Centre
	Singapore 049315
Course Fee:	S\$300.00 (excluding GST)



To view available dates and register for this course, please click <u>here</u>. You may view all available courses and our course schedule(s) on our Academy webpage (<u>https://www.drewnapier.com/Academy</u>).

Course Outline

- The artificial neuron
 - o Structure
 - o Operation
- Basic architecture of neural networks
 - o Layers
 - o Connections
 - o Al 'model'
- Data flow in neural networks
 - o Forward Pass
 - o Backward Pass
 - Error Back Propagation
 - o Hyperparameters
- The role of Graphic Processing Units (GPUs) in AI
- Challenges in deep learning
- Deep learning tricks and optimisations
- Overview of application specific extensions (such as for CNN, LLM, and GAN)

Course Facilitator



Albert PichImaier is Senior Learning Technology Designer with Drew Academy and concurrently Senior Cybersecurity & Privacy Engineer with Drew & Napier's Data Protection, Privacy & Cybersecurity practice. He holds a degree in Computer Science from a German tertiary institution. He is a Certified Information Systems Security Professional (CISSP), a Certified Data Privacy Solutions Engineer (CDPSE), a holder of the Singapore WSQ Advanced Certificate in Learning and Performance (ACLP), and a certified Blockchain Developer. Albert is credited as an inventor of two patents granted in Germany and other countries. His technical expertise covers a wide-ranging area of matters involving Cybersecurity, Privacy Engineering, Cryptography, Quantum Computing, Artificial Intelligence / Machine Learning, Blockchain

Development, Data Analytics, Big Data, and Data Visualisation. For the courses and webinars under the Drew Academy, he draws from this pool of knowledge and experience to explain technical content to non-technical audiences, develop proof-of-concept and learning tools, and engage with experts on finer details.

Albert was formerly an Executive Manager with the Personal Data Protection Commission (PDPC), where he was involved in technology assessments for data breach investigations, research into trending / disruptive technologies and advising on technical aspects of various PDPC guidelines and publications (amongst other matters). Prior to his role with the PDPC, Albert worked in technology-related organisations in the private and public sector in Germany, Spain, and Singapore. He was also a technopreneur, having set up a company to provide testing tools for embedded systems and smartcard applications.