Through instructor-led demonstrations and self-paced hands-on exercises, ICHEC provides training on the latest techniques for applying deep learning techniques across a variety of application domains. Participants will explore widely-used deep learning frameworks on GPU-accelerated platforms and network with industry leaders.

**Deep Learning Training: Level 1**

A 5-day training course to introduce fundamental concepts in deep learning, along with an overview of prominent and widely-used deep learning frameworks. Training will include demonstration of use-cases along with hands-on exercises using the frameworks on GPU-accelerated platforms. Training will be augmented with guest lectures and networking sessions involving industry leaders in deep learning and AI.

**Course Structure**

- Programming basics for deep learning (Optional)
- Deep learning concepts and related machine learning fundamentals
- Every session contains hands on practical experience
- Introduction to deep learning frameworks: Microsoft Cognitive Toolkit (CNTK) / Google Cloud AI and TensorFlow / PyTorch / Caffe2 / MATLAB
- Guest lectures and demonstrations: Microsoft, NVIDIA, MathWorks, Intel, Google

**Learning Outcomes**

- Understanding of key components in machine learning and deep learning
- Ability to identify use-cases for machine learning and deep learning
- Awareness of features and usability of prominent deep learning frameworks
- Ability to use the deep learning frameworks on a cloud platform

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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</thead>
<tbody>
<tr>
<td>8:30-10:30</td>
<td>Kick off</td>
<td>DL concepts</td>
<td>Google Cloud AI</td>
<td>PyTorch</td>
<td>MS CNTK</td>
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<td>10:30-11:00</td>
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<td>Break</td>
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<td>11:00-11:30</td>
<td>DL concepts</td>
<td>DL concepts</td>
<td>Matlab</td>
<td>PyTorch</td>
<td>MS CNTK</td>
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<td>12:30-13:30</td>
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<td>Lunch</td>
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<tr>
<td>13:30 - 15:30</td>
<td>Introduction (optional)</td>
<td>DL concepts</td>
<td>DL concepts</td>
<td>Matlab</td>
<td>Caffe2</td>
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<td>15:30 - 16:00</td>
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<td>Break</td>
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<tr>
<td>16:00 - 17:30</td>
<td>DL concepts</td>
<td>Google Cloud AI</td>
<td>Caffe2</td>
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<td>Wrap up</td>
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<td>17:30 - 18:00</td>
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<td>Break</td>
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<td>18:00 - 19:30</td>
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Deep Learning Training: Level 2

An 8-week (4 hours per week) advanced training course to work on advanced concepts and use-cases in deep learning. Training will be achieved through offline study of material for the advanced concepts and solving basic exercises, as a lead up to each of the 4-hour session over 8 weeks. Training sessions will include personal discussions of the advanced concepts and hands-on sessions for advanced use-cases.

Course Structure

- Advanced concepts and exercises
  - Image classification, object detection, image segmentation
  - Linear classification
  - Signal processing
  - Natural language processing
  - Time series analysis
  - Fraud and outlier detection

- Project
  - Self-designed project implemented using one of the deep learning frameworks
  - Selection and implementation guided by ICHEC instructors

Learning Outcomes

- Application of deep learning techniques to practical examples and use-cases
- Ability to work with large and real-world data sets for deep neural networks
- Ability to identify, develop and implement a deep learning solution for a practical problem

Pre-requisites for participants

- 1 year of programming experience with Linux and database knowledge
- Basic algebra
- Personal laptop computer

Date and Venue

- **Deep Learning Training Level 1**: 22nd April 2018 to 27th April 2018 : Cost €1,500
- **Deep Learning Training Level 2**: 23rd May 2018 onwards: Cost €1,600
- **Venue**: Chartered Accountants House, 47 -49 Pearse Street, Dublin 2

Contact

[www.ichec.ie/deeplearning](http://www.ichec.ie/deeplearning)  
[deeplearningtraining@ichec.ie](mailto:deeplearningtraining@ichec.ie)  
00353 (0) 1 524 1608