Smart Manufacturing

Deep Learning with TensorFlow

Overview

Gain an understanding of the applications and core principles driving the technology industry and deep learning (DL) utilization. Acquire essential skills demanded by today's tech sector and reshape your approach to AI.

Whether you're diving into data science, exploring machine learning, or venturing into smart manufacturing, this program gives you the hands-on skills you need to excel in today's fast-paced tech world.

Key Skills Covered

- Deep learning fundamentals: Neural networks, models
- Pretrained model integration: Access, import practice
- Pretrained model utilization: feature extraction, decision-making
- CNN coding: Image convolution, model training
- RNN coding: Time series data, model structure

- Live instruction by ASU Assistant Professor Shenghan Guo
- Earn an ASU Engineering Badge to showcase your new skills
- See each micro-badge for student pricing
- Live via Zoom

Take one micro-badge or complete all four to earn the badge! More details about each micro-badge below.

Import Pretrained DL Models in TensorFlow Sept. 25–Oct. 9, 2024 | 5:00–8:30 p.m. MST Wednesdays | Scroll down for more info	Through a series of instructional sessions and activities, you will gain insights into topics like the transferability of pretrained models and practical coding for creating new models, Python coding, debugging, data processing, and analysis within the TensorFlow environment.
Utilize Pretrained DL Models in TesorFlow Oct. 16–30, 2024 | 5:00–8:30 p.m. MST Wednesdays | Scroll down for more info	Learn the essential principles and applications of deep learning and TensorFlow. Gain the skills needed to excel in today's tech industry and enhance your data processing and decision-making abilities.
Develop CNNs with TensorFlow Nov. 6–20, 2024 | 5:00–8:30 p.m. MST Wednesdays | Scroll down for more info	Advance your skills in designing Convolutional Neural Networks (CNNs) using TensorFlow. Strengthen your engineering knowledge through practical coding and problem-solving techniques tailored for real-world challenges.
Develop RNNs with TensorFlow Dec. 4–18, 2024 | 5:00–8:30 p.m. MST Wednesdays | Scroll down for more info	Learn the fundamentals of RNN model design, coding in TensorFlow, and decision-making strategies for engineering challenges. With a focus on practical application, this course equips individuals to address real-world challenges, enhancing their ability to extract meaningful insights and drive data-informed decision-making processes.

What you'll earn!

Participants will earn a digital micro-badge from the Ira A. Fulton Schools of Engineering for each micro-badge completed and the full badge when completing all four micro-badges. Participants will also qualify for Continuing Education Units (CEU).

Start your Deep Learning journey today!

Smart Manufacturing

Import Pretrained DL Models in TensorFlow

Overview

Acquire foundational knowledge of the applications and core principles driving engineering operations and deep learning model utilization.

Course Description

Complete the Import Pretrained Deep Learning Models in TensorFlow - Level 1 micro-badge by exploring the intricacies of feature extraction and understanding the applications of pretrained deep learning models.

Whether you're an engineering student, computer science major, or aspiring technician, this micro-badge offers a comprehensive introduction to fundamental concepts and methods, hands-on coding, and the power of TensorFlow. Gain the skills that will set you apart in today's tech-driven job market and enhance your hireability with this targeted, skill-focused credential.

Import Pretrained DL Models in TensorFlow

MICRO-BADGE

$399 $75 for current ASU students

20 SWAP Hub scholarships are available to make this program free! Click here to complete your application.

SWAP Hub Scholarship

*No prior experience is required!*

Session Topics:
- Deep Learning Concepts
- TensorFlow Fundamentals
- Steps for Coding a Deep Learning Model
- Pretrained Deep Learning Models
- Transfer Learning
- Pretrained Models in TensorFlow

Key Skills Covered:
- Understand the fundamentals of deep learning and neural networks
- Accessing and importing pretrained models in TensorFlow
- Understand the basic steps of building a neural network with TensorFlow
- Decision-making with deep learning models

Instructional sessions will be held via Zoom:
- Wednesday, Sept. 25, 2024, 5–8 p.m.
- Wednesday, Oct. 2, 2024, 5–8:30 p.m.
- Wednesday, Oct. 9, 2024, 5–8:30 p.m

Spots are limited!

Register today

Smart Manufacturing

Utilize Pretrained DL Models in Tensor Flow
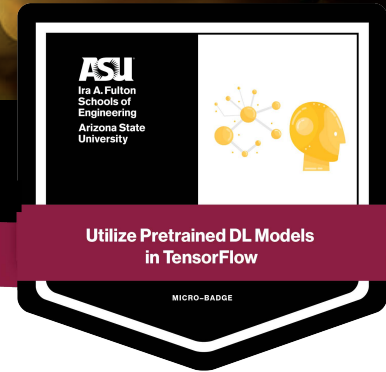
Overview

Learn the essential principles and applications of deep learning (DL) and TensorFlow. Gain the skills needed to excel in today's tech industry and enhance your data processing and decision-making abilities.

Course Description

The Utilize Pretrained Deep Learning Models in TensorFlow - Level 1 micro-badge is your gateway to grasping the essentials of feature extraction and pretrained deep learning models, crucial for today's data-driven world. Whether you're an engineering student, computer science major, or aspiring technician, this micro-badge equips you with the skills to harness the power of TensorFlow.

Designed for those ready to thrive in an evolving tech landscape, this course focuses on core deep learning concepts, various feature extraction methods, and the practical use of TensorFlow. Through hands-on activities, you'll solidify your understanding and ability to implement pretrained deep learning models for advanced data processing, setting you apart in your future career.

Utilize Pretrained DL Models in TensorFlow

MICRO-BADGE

$ ~~$399~~ **$75 for current ASU students!**

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**SWAP Hub Scholarship**

No prior experience is required!

Session Topics:
- Decision-making Applications for Deep Learning
- Fundamentals of Feature Extraction
- Decision-making with Pretrained DL models
- Feature Extraction with Pretrained DL models
- Transfer and Update Pretrained DL models

Key Skills Covered:
- Understand fundamental concepts and methods for feature extraction
- Understand decision-making with pretrained DL models
- Understand the utilization of pretrained DL models in TensorFlow

Instructional sessions will be held via Zoom:
- Wednesday, Oct. 16, 2024, 5–8 p.m.
- Wednesday, Oct. 23, 2024, 5–8:30 p.m.
- Wednesday, Oct. 30, 2024, 5–8:30 p.m

Spots are limited!

Register today

Smart Manufacturing

Develop Convolutional Neural Networks with TensorFlow
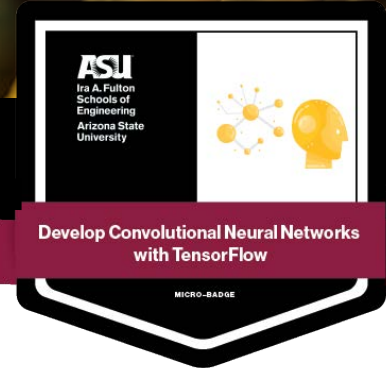
Overview

Advance your skills in designing Convolutional Neural Networks (CNNs) using TensorFlow. Strengthen your engineering knowledge through practical coding and problem-solving techniques tailored for real-world challenges.

Course Description

The Develop Convolutional Neural Networks in TensorFlow - Level 2 micro-badge offers an in-depth exploration of image processing and deep learning. Perfect for engineering students, computer science majors, and tech enthusiasts, this course covers key concepts such as image convolution, model architecture, and practical coding exercises.

Gain hands-on experience in developing robust CNN models for various applications. Through interactive lectures and coding activities, you'll enjoy an engaging learning experience that emphasizes problem-solving and decision-making, equipping you to effectively apply what you learn to real-world scenarios.

~~$399~~ **$75 for current ASU students**

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SWAP Hub Scholarship

Session Topics:
- Image and Video Data
- Image Convolution
- CNN Model Design and Architecture
- CNN Applications on Imaging Data
- CNN Coding
- Integration of CNNs with Other Models

Key Skills Covered:
- Understand image convolution techniques
- Design and structure CNN models
- Train and evaluate CNNs in TensorFlow
- Debug and customize CNN code

Instructional sessions will be held via Zoom:
- Wednesday, Nov. 6, 2024, 5–8 p.m.
- Wednesday, Nov. 13, 2024, 5–8:30 p.m.
- Wednesday, Nov. 20, 2024, 5–8:30 p.m

Spots are limited!

Register today

Smart Manufacturing

Develop Recurrent Neural Networks with TensorFlow

Develop Recurrent Neural Networks with TensorFlow

MICRO-BADGE

Overview

Learn the fundamentals of Recurrent Neural Network (RNN) model design, coding in TensorFlow, and decision-making strategies for engineering challenges.

Course Description

The Develop Recurrent Neural Networks with TensorFlow - Level 2 micro-badge dives into the world of Recurrent Neural Networks (RNNs) and their applications in time series data analysis. Whether you're an engineering student, data science major, or tech enthusiast, this course focuses on practical application, equipping you to tackle real-world challenges and enhance your ability to extract meaningful insights for data-driven decision-making.

Gain a solid foundation in RNNs and the tools needed to excel in data-driven problem-solving, setting you apart as you prepare to enter the field of data science.

$399 $75 for current ASU students

20 SWAP Hub scholarships are available to make this program free! Click here to complete your application.

SWAP Hub Scholarship

Session Topics:

- Time Series Data
- Time Series Data Processing and Analysis
- RNN Model Design and Architecture
- RNN Applications on Time Series
- RNN Coding
- Integration of RNNs with Other Models

Key Skills Covered:

- Understanding time series data processing
- RNN model structure and architecture
- Training and decision-making with RNNs
- Coding RNNs using TensorFlow

Instructional sessions will be held via Zoom:

- Wednesday, Dec. 4, 2024, 5–8 p.m.
- Wednesday, Dec. 11, 2024, 5–8:30 p.m.
- Wednesday, Dec. 18, 2024, 5–8:30 p.m

Spots are limited!

Register today