

# AI Tactical Skills: IOT Hacking & Defense

Course code: AIIOTEH

This innovative, hands-on 5-day course provides a comprehensive foundation in the integration of AI with Internet of Things (IoT) technologies. Participants will gain practical experience across a range of domains - including smart infrastructure, industrial applications, and edge computing - while learning to detect threats, analyze data, and deploy intelligent solutions. The course emphasizes hands-on learning in building, securing, and optimizing AI-enabled IoT systems.

| Affiliate  | Duration | Course price | ITB |
|------------|----------|--------------|-----|
| Praha      | 5        | 59 500 Kč    | 75  |
| Brno       | 5        | 59 500 Kč    | 75  |
| Bratislava | 5        | 2 380 €      | 75  |

The prices are without VAT.

## Course terms

| Date       | Duration | Course price | Type     | Course language | Location         |
|------------|----------|--------------|----------|-----------------|------------------|
| 25.05.2026 | 5        | 2 380 €      | Presence | EN              | GOPAS Bratislava |
| 22.06.2026 | 5        | 59 500 Kč    | Presence | EN              | GOPAS Praha      |

The prices are without VAT.

**AI Tactical Skills: IOT Hacking & Defense** is offered in collaboration with **Cyber2 Labs**, a global security specialist-led company known for its expertise in tactical training and real-world cybersecurity solutions.

## Who is the course for

This course is designed for professionals working in cybersecurity, network and system administration, digital forensics, cloud computing, and IoT technologies. It is particularly well-suited for ethical hackers, penetration testers, drone and robotics engineers, and technical project managers seeking to expand their expertise in AI-powered IoT security and defense. Ideal for those looking to stay ahead in a rapidly evolving threat landscape through hands-on, advanced training.

- Cyber Security engineers/analysts
- Network and system administrators
- Drone, & Robotic Engineers & Developers
- Drone Operators
- Digital Forensics Investigators
- Penetration Testers
- Cloud computing personnel
- Cloud project managers
- Operations support looking for career advancement

## What we teach you

- Understand the fundamentals of IoT and AI
- Set up and configure development boards for AI-enabled IoT projects
- Develop and deploy AI models for various IoT applications
- Build and integrate IoT systems for smart homes, industrial applications, and smart cities
- Analyze and visualize data from IoT devices using AI and cloud platforms
- Implement a comprehensive AI-enabled IoT solution as a capstone project

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# AI Tactical Skills: IOT Hacking & Defense

## Teaching materials

Each participant will get 6 months access to Premier Private Lab-Range

## Each participant will receive:

- A hacking toolkit (built during the course)
- Exclusive access to the Premier Private Lab-Range for six months

## Course outline

### Module 1: Introduction to AI and IoT

- Basics of IoT / Artificial Intelligence
- Introduction to AI concepts and its importance in IoT
- Overview of Machine Learning (ML) and Deep Learning (DL)
- Key AI frameworks and tools for IoT (TensorFlow, PyTorch, OpenCV)

### Module 2: Setting Up the Development Environment

- Introduction to IoT Development Platforms
- AI for IoT hardware device options
- IoT Communication Protocols
- Detailed look at MQTT, HTTP, CoAP, and other protocols
- Setting up a basic MQTT server
- Connecting sensors and actuators to the development board

### Module 3: Handling Data

- Delta Lake and Databricks
- Data collection
- Garbage data = no ML
- Streaming data into IoT Hub
- Z-spike anomaly detection

### Module 4: Machine Learning for IoT

- IoT sensors with anomaly detection
- Regression with IoT
- Classifying sensor with decision trees
- Deep learning predictive maintenance
- Face detection
- Z-spike anomaly detection

### Module 5: Deep Learning

- Analyzing traffic patterns using AI
- Keras fall detection
- LSTM to predict device failure
- Deploying models

### Module 6: AI Anomaly Techniques for IoT

- Z-Spikes using sense HAT on Rpi
- Use of autoencoders in labeled data
- Isolated Forest
- Anomalies on the edge

### Module 7: Cloud Integration and Data Analytics

- Integrating IoT with Cloud Platforms
- Overview of cloud platforms (AWS IoT, Azure IoT, Google Cloud IoT)

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- Connecting IoT devices to the cloud

## Module 8: Computer Vision

- OpenCV camera deployment
- Deep neural nets and Caffe
- Object detection with NVIDIA Jetson Nano
- PyTorch on GPU's

## Module 9: NLP (natural language processing)

- Speech to text
- Luis (language understanding with Microsoft)
- Deploying smart bots
- Enhancing bots with QnA

## Module 10: Optimization of MCU

- ESP32 for IoT in Azure
- Streaming machine learning with Kafka and Spark
- Enriching data with Kafka

## Module 11: Deploying to the edge

- OTA updates
- Offloading to the web with Tensorflow.js
- Mobile model
- Distributed machine learning using Fog computing

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