



# Very Large Scale Integration (VLSI)

MENTORSHIP PROGRAM

2 Months



# WHO WE ARE?

**The Starting Point For Your  
Career Path**

We help undergrad and post grad students struggling to get industrial experience with our Training + Internship programs which help them to become corporate-ready individuals and possess the skillset to take on any challenges without any self-doubt.



**Take the Right Turn, With Us!**



Starting Point For Your Career Path

# Our Mission & Vision

We help undergrad and post grad students struggling to get industrial experience with our Industry Grade Mentorship programs which help them to become corporate-ready individuals and possess the skillset to take on any challenges without any self-doubt.



## Mission

Our aim is to become one of the most preferred education technology platforms across the globe.



## Vision

We envision a world in which each student receives the effective, equitable, and engaging education they need to reach their full and unique potential.

# Topics & Outcomes

Month 1	Basic and fundamentals of VLSI
Week 1	Introduction to VLSI Design Fundamentals
Week 2	Advanced Digital Circuit Design
Week 3	VLSI Layout Design
Week 4	Analog and Mixed-Signal Design

Month 2	Advanced and Hands- on Experience in VLSI
Week 5	Advanced VLSI Topics
Week 6	Testing and Verification
Week 7-11	Hands-on Practical Live Project Sessions
Week 12	VLSI in Artificial Intelligence

# Lesson Plan

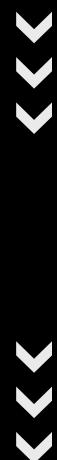
Week 1

## Introduction to VLSI Design Fundamentals:

Overview of VLSI technology and its applications

Introduction to digital logic design and Boolean algebra

Basic semiconductor physics and MOS transistor theory



## Week 2

### Advanced Digital Circuit Design :

Advanced digital circuit design techniques:  
RTL design, pipelining

Finite State Machines (FSMs) and algorithmic  
state machines (ASMs)

Hands-on session: Implement FSM-based  
traffic light controller using Verilog

## **Week 3**

### **VLSI Layout Design :**

VLSI layout design principles and tools overview

Design rules, layout constraints, and parasitic extraction

Live project session: Implement layout for basic CMOS gates and conduct DRC checks



## Week 4

### Analog and Mixed-Signal Design :

Introduction to analog and mixed-signal VLSI design

Basic concepts of analog circuit design and  
SPICE simulation

Hands-on session: Design and simulate basic  
analog circuits (e.g., amplifier, filter)



## **Week 5**

### **Advanced VLSI Topics :**

**Introduction to ASIC and FPGA design methodologies**

**FPGA architecture, programming, and verification**

**Live project session: Implement a digital system on an FPGA board**



## **Week 6**

### **Testing and Verification:**

VLSI testing and verification techniques  
overview

Scan chains, BIST, and DFT principles

Live project session: Design and implement  
a simple BIST scheme for a digital circuit



## **Week 7-11**

### **Hands-on Practical Live Project Sessions (1 hour per day) :**

---

**Sessions 19-27:** Dedicated to various live project sessions covering different aspects of VLSI design and implementation.



## Week 12

### **VLSI in Artificial Intelligence :**

- Introduction to Neuromorphic Computing and VLSI implementation
- Overview of hardware accelerators for AI inference and training
- VLSI architectures for neural networks: CNNs, RNNs, and DNNs
- Design considerations for implementing AI algorithms on VLSI chips
- Case studies of VLSI-based AI applications in edge computing and IoT devices
- Future trends and challenges in integrating VLSI with AI technologies

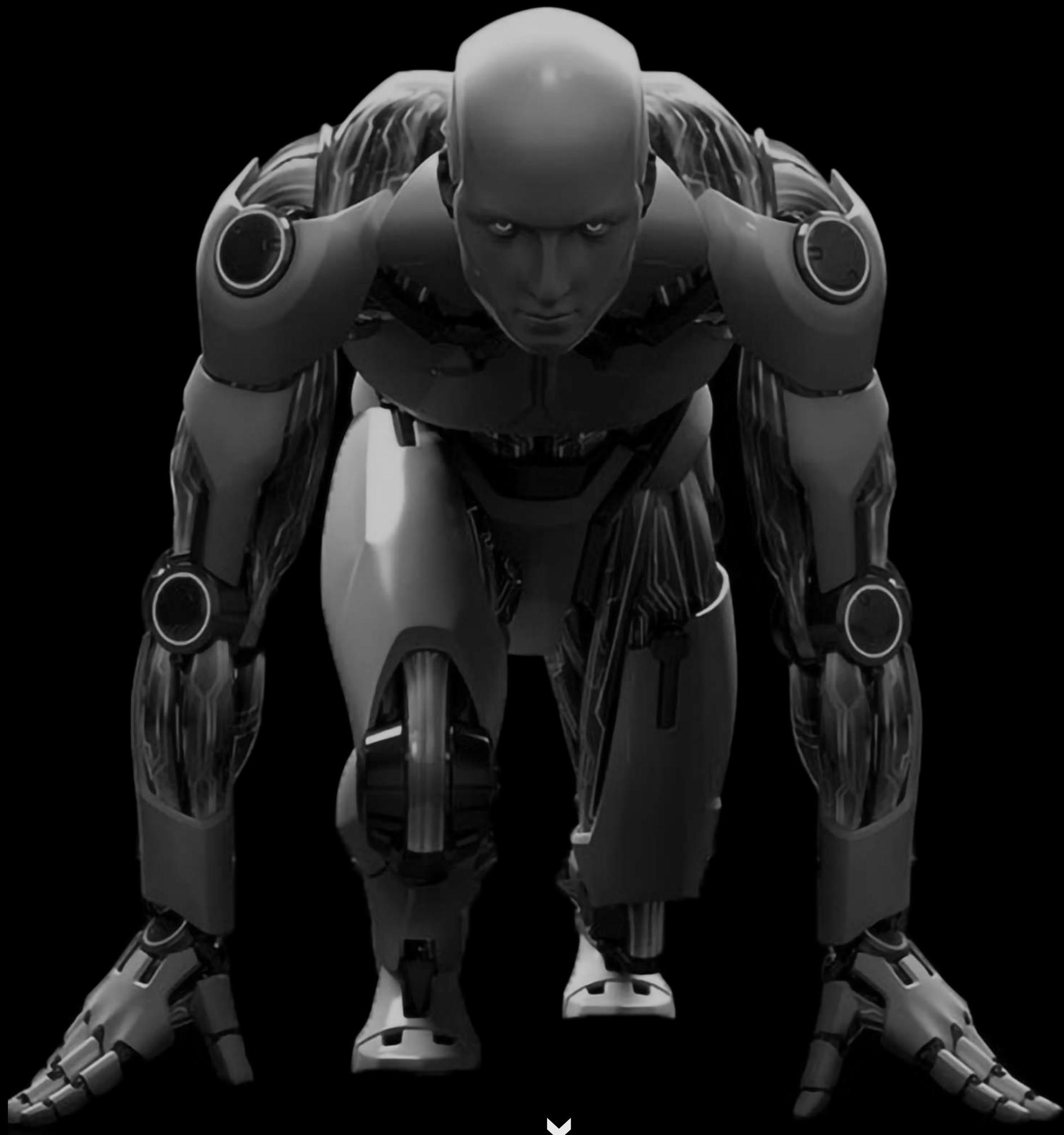
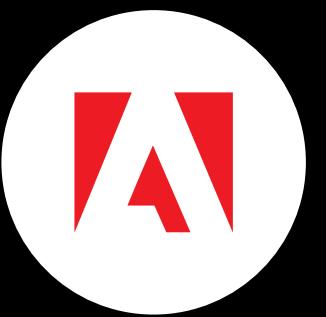
# Our Collaborated Companies





# Our Alumni Work At





# SUPPLEMENTARY PERKS



Resume Building Session



Our Courses Give You Hands On Experience With

• Mock Interviews

Scroll Down For Contact Details



# Dont Hesitate To Contact us!



[www.teachnook.com](http://www.teachnook.com)

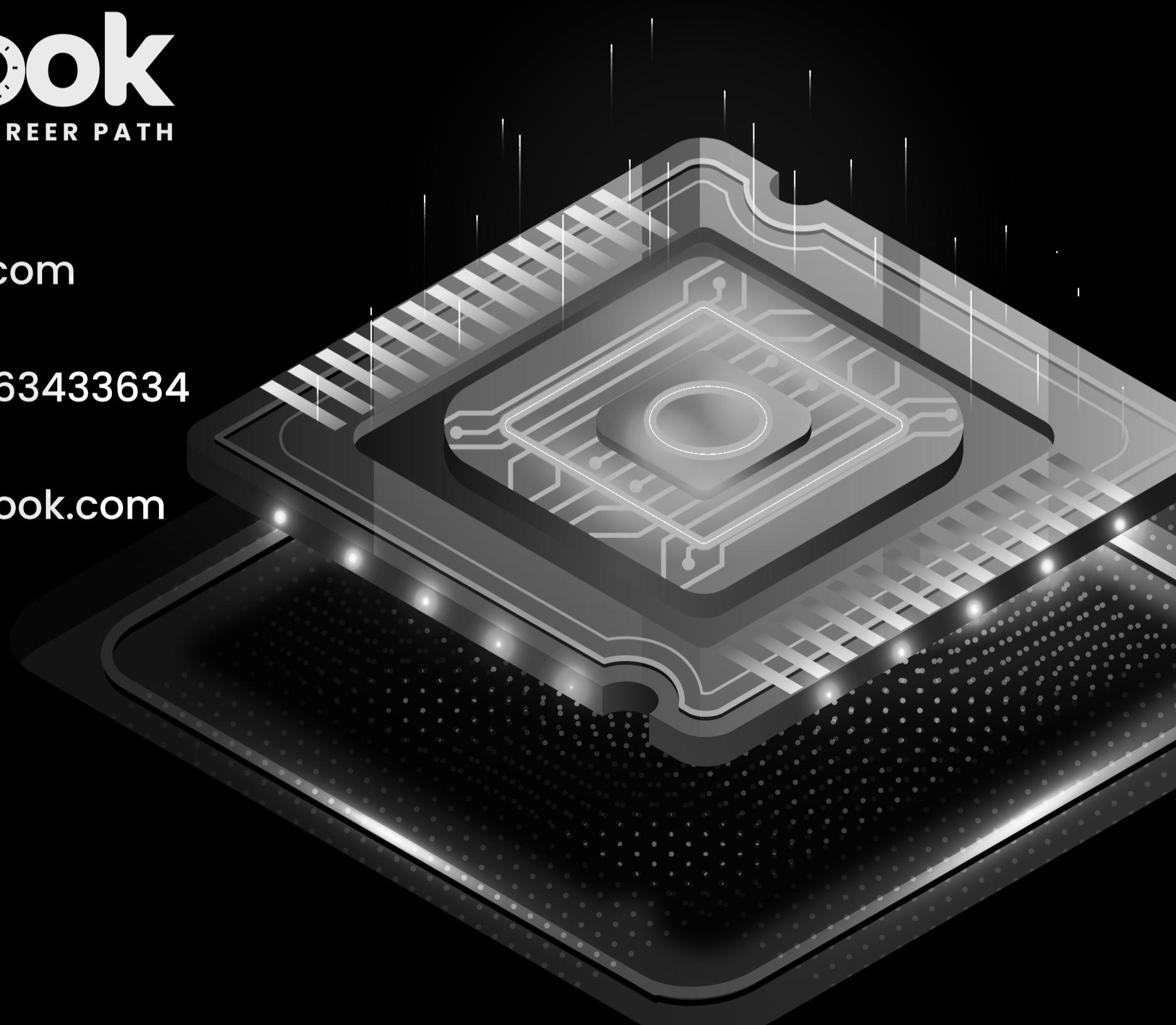


08069277254/6363433634



[support@teachnook.com](mailto:support@teachnook.com)

**Follow us**



Copyrights  
Teachnook@2023