भारतीय विज्ञान संस्थान

Empower Yourself With AI & Quantum

Pave way to drive innovation with **IISc & QpiAI**

SCAN ME

A step in the right direction.

35,000+

Data Engineer job openings in India with an average salary of **10.5LPA**

Source: Indeed

40%

of global organizations are adding more jobs due to AI adoption.

Source: Dun & Bradstreet

₹48k Crore

The Indian AI market is valuation as of August 2020.

Source: Analytics India Magazine

₹7.1k Crore

The global quantum computing market worth by 2025.

Source: AI Multiple

Course Overview

Discover AI and Quantum from the fundamentals and advance your way through Artificial Intelligence algorithms, Machine Learning techniques and Quantum programs. Gain strong foundational technical knowledge and write, build, test, train and deploy AI/ML/Quantum solutions. Throughout the course, you will be introduced to real-world problems and applications to prepare you for what the future holds.

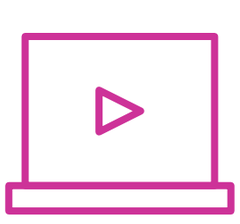
Learning Experience

Industry Perspective

Taught by industry leaders and professors

Assignments & Projects

Guided learning and implementation



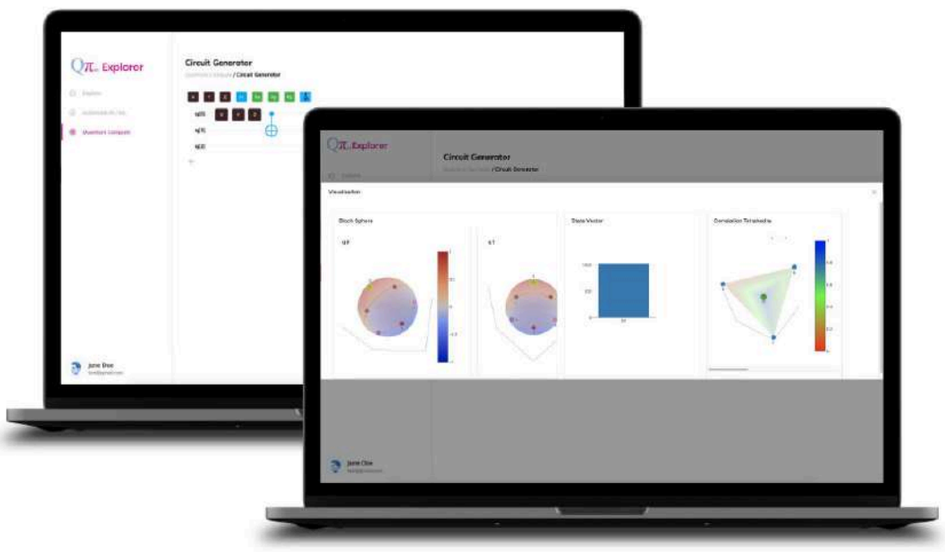
100% Online

Theory and practical

Live Interactions

Doubt clearing sessions once every month

Why Learn With Us?



Access India's **Most Advanced Quantum Simulator**

QpiAI Explorer is an offline learning tool that outstandingly combines the power of AI and Quantum within the same platform. It helps you learn, prepare, generate and predict AI/ML models along with simulating advanced quantum circuits.

Secure a Certificate from the World's Top Research University and QpiAI

Master AI and Quantum along with experts from Indian Institute of Science, QpiAI leaders and secure a value-added certification for your resume to boost your career credentials.

Collaborate With Enterprises and Sell Your Solutions

With the know-how you gain through the certification, you can build AI models, Quantum solutions and earn by directly selling them to businesses on QpiAI Marketplace.

Accelerate your career with

In(dustry)-Depth Curriculum

AI Foundation

Dip your toes in the field of AI

Course Duration
3 Months

Explorer Access
6 Months

Course Fee
INR 29,999

Chapter 1: Prerequisites for Artificial Intelligence

1.1 Linear Algebra
1.2 Probability Theory, Bayes Theorem and Statistics

1.3 Calculus and Optimization

Chapter 2: Machine Learning

Supervised Machine Learning:
2.1 Introduction to Machine Learning, Supervised and Unsupervised techniques

2.2 Linear and Multiple Linear Regression, Performance Metrics, Regularization

2.3 Classification Models: KNN, Logistic Regression

2.4 Support Vector Machines; Classification Performance Metrics

2.5 Decision Trees, Bagging, Boosting and Ensemble Algorithms

Unsupervised Machine Learning:
2.6 Dimensionality Reduction: PCA

2.7 Clustering: K-Means Clustering

Chapter 3: Deep Learning

3.1 Introduction to Deep Learning, Activation Functions, Feedforward Network

3.2 Back Propagation, Loss Functions, Hyperparameter Tuning

3.3 Convolutional Neural Networks (CNN)

3.4 CNN Architectures for Image Classification

3.5 Recurrent Neural Networks

3.6 Long Short-Term Memory Models

3.7 Autoencoders

Chapter 4: Reinforcement Learning

4.1 Introduction to Reinforcement Learning and Multi Armed Bandits

4.2 Markov Decision Processes

4.3 Dynamic Programming (Value and Policy Iteration)

4.4 Monte-Carlo Methods (On-policy and Off-Policy Algorithms)

Bonus: Practical Hands-on Session

5.1 Machine Learning model generation with scikit-learn

5.2 Deep Learning model generation with PyTorch

AI Expert

Dive Deep into AI & ML

Course Duration
6 Months

Explorer Access
12 Months

Course Fee
INR 41,999

All Chapters in AI Foundation+

Chapter 5: Special Topics in Machine Learning

5.1 Dimensionality Reduction: t-SNE, Kernel PCA, Spectral Clustering

5.2 Exploratory Data Analysis

5.3 Feature Engineering, Hyperparameter Tuning, Model Selection

Chapter 6: Advanced Topics in Deep Learning

6.1 Object Detection

6.2 Semantic Segmentation

6.3 Generative Adversarial Networks

6.4 Variational Autoencoders

Chapter 7: Advanced Reinforcement Learning

7.1 Q-learning, Temporal Difference Methods

7.2 Function Approximation, DQN

7.3 Policy Gradient Techniques and Actor Critic Methods

Chapter 8: Bayesian Methods in Machine Learning

8.1 Bayesian Inference

8.2 Bayesian Optimization

8.3 Variational Methods

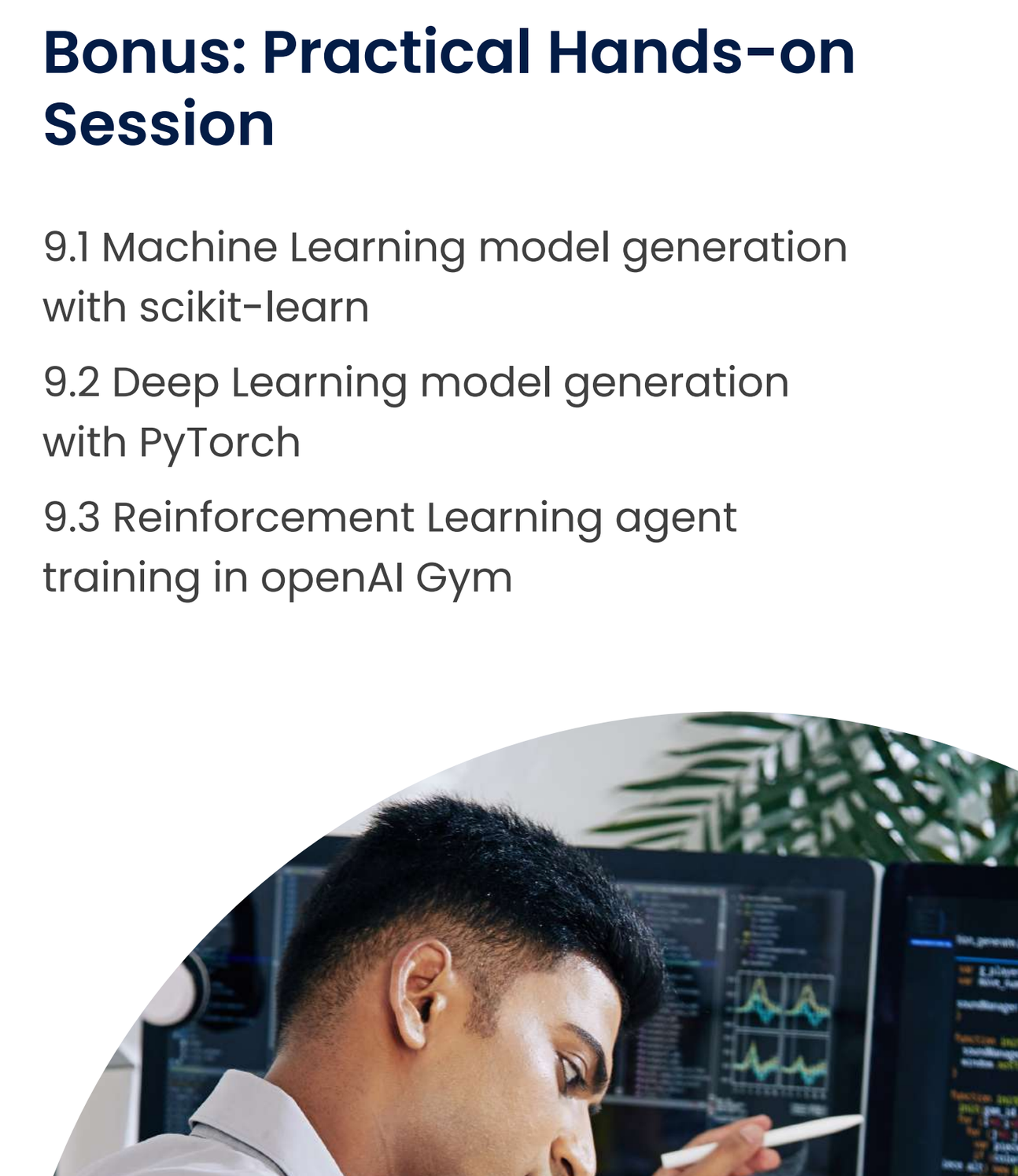
8.4 Gaussian Process Regression

Bonus: Practical Hands-on Session

9.1 Machine Learning model generation with scikit-learn

9.2 Deep Learning model generation with PyTorch

9.3 Reinforcement Learning agent training in openAI Gym



Let’s set you up for success?

GET IN TOUCH

AI Pro

Become The AI Grandmaster
AI Expert + Access to Industry Standard
Auto ML platform

Course Duration
6 Months

Explorer Access
12 Months

Course Fee
INR 1,09,999

All Chapters in AI Foundation+

Chapter 5: Special Topics in Machine Learning

5.1 Dimensionality Reduction: t-SNE, Kernel PCA, Spectral Clustering

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750 Hours worth of QpiAI-Pro access on QpiCloud with GPU Instance

QpiAI™ Pro is the most collaborative way to ideate ML & AI Models. Engage in the next level of futuristic innovations in AI/ML.

10.1 Model discovery using Pro

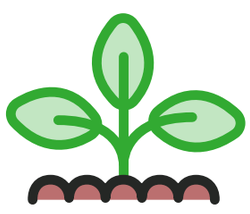
10.2 model generation and Automl

10.3 Model deployment on edge devices and cloud

10.4 End to End Project 1 with 48 hrs of cloud usage (Student can choose project)

10.5 End to End Project 2 with 96 hrs of cloud usage (Student can choose project)

10.6 End to End Project 3 with 198 hrs of cloud usage (Student can choose project)



Quantum Foundation with Amazon Braket

Dip toes in the field of Quantum

Course Duration
3 Months

Explorer Access
6 Months

Course Fee
INR 59,999

Chapter 1: Prerequisites for Quantum Computing

1.1 Essential Linear Algebra

1.2 Basics of Quantum Mechanics

1.3 General Lecture on Quantum Technology

1.4 Essential Computer Science

Chapter 2: Quantum States and Qubits

2.1 Single-qubit states and superposition

2.2 Single-qubit gates and measurements

2.3 Two-qubit states, entanglement, and Bell's inequality

2.4 Two-qubit gates and observable

2.5 Multi-Qubit states (GHZ and W states)

2.6 Universal gates and quantum circuit model

2.7 Quantum adiabatic computation and the Ising model

Chapter 3: Quantum Algorithms

3.1 Quantum Circuits

3.2 Deutsch-Jozsa Algorithm

3.3 Bernstein-Vazirani Algorithm

3.4 Quantum Fourier Transform

3.5 Quantum Factoring: Shor's Algorithm

3.6 Quantum Database Search: Grover's Algorithm

3.7 Circuit Simulations on QpiAI Explorer Software

Chapter 4: Quantum Protocols

4.1 Quantum Teleportation

4.2 Superdense Coding

4.3 Simulation of QpiAI Explorer Software

4.4 Quantum Cryptography and Key Distribution

4.5 Quantum Communication and Networks

4.5 Guest Lecture - QKD, Communications

Chapter 5: Quantum Hardware: Superconducting Qubits

5.1 Introduction to physical qubits

5.2 Circuit Quantum Electrodynamics

5.3 Transmon and Coupled Qubits

5.4 Control and Readout

Let's set you up for success?

GET IN TOUCH

Quantum Expert with Amazon Braket

Dive deep into Quantum

Course Duration
6 Months

Explorer Access
12 Months

Course Fee
INR 83,999

All Chapters in Quantum Foundation+

Chapter 6: NISQ Devices

6.1 Noise Models

6.2 Quantum Error Mitigation

6.3 Quantum Volume and Performance Metrics

6.4 Hybrid Quantum-Classical Computing

Chapter 7: Quantum Algorithms for Applications

7.1 Quantum Inspired Computing

7.2 Variational Quantum Algorithms

7.3 Variational Quantum Eigensolver

7.4 Quantum Approximate Optimization Algorithm

7.5 Quantum Machine Learning: QNNs

7.6 HHL Algorithm for Solving Linear Systems

Chapter 8: Quantum Hardware: Semiconducting Qubits

8.1 Introduction to physical qubits

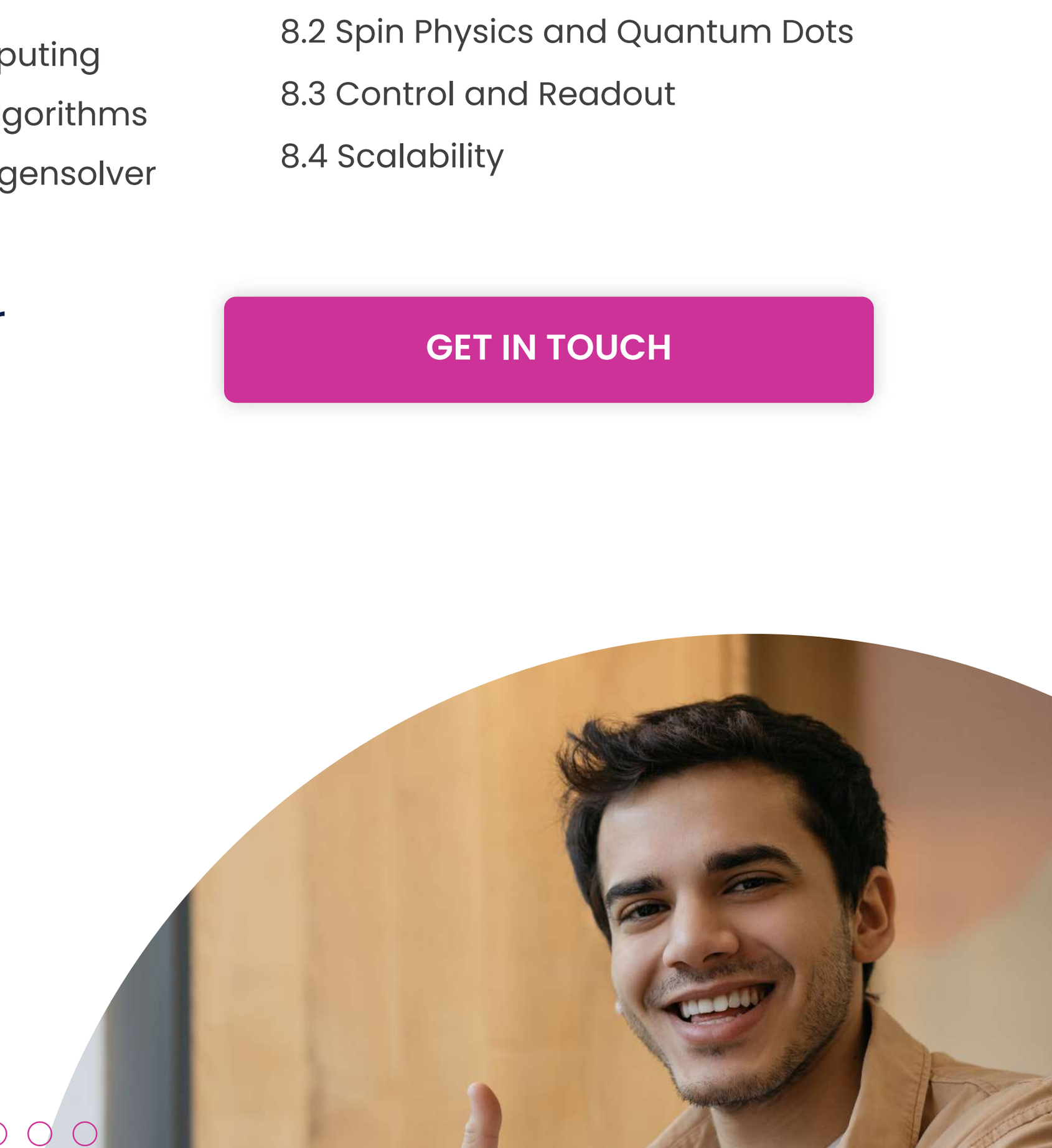
8.2 Spin Physics and Quantum Dots

8.3 Control and Readout

8.4 Scalability

Let’s set you up for success?

GET IN TOUCH



Joint AI & Quantum Expert with Amazon Braket

Become the AI & Quantum Grandmaster

Course Duration
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Course Wrap-up and Future Directions

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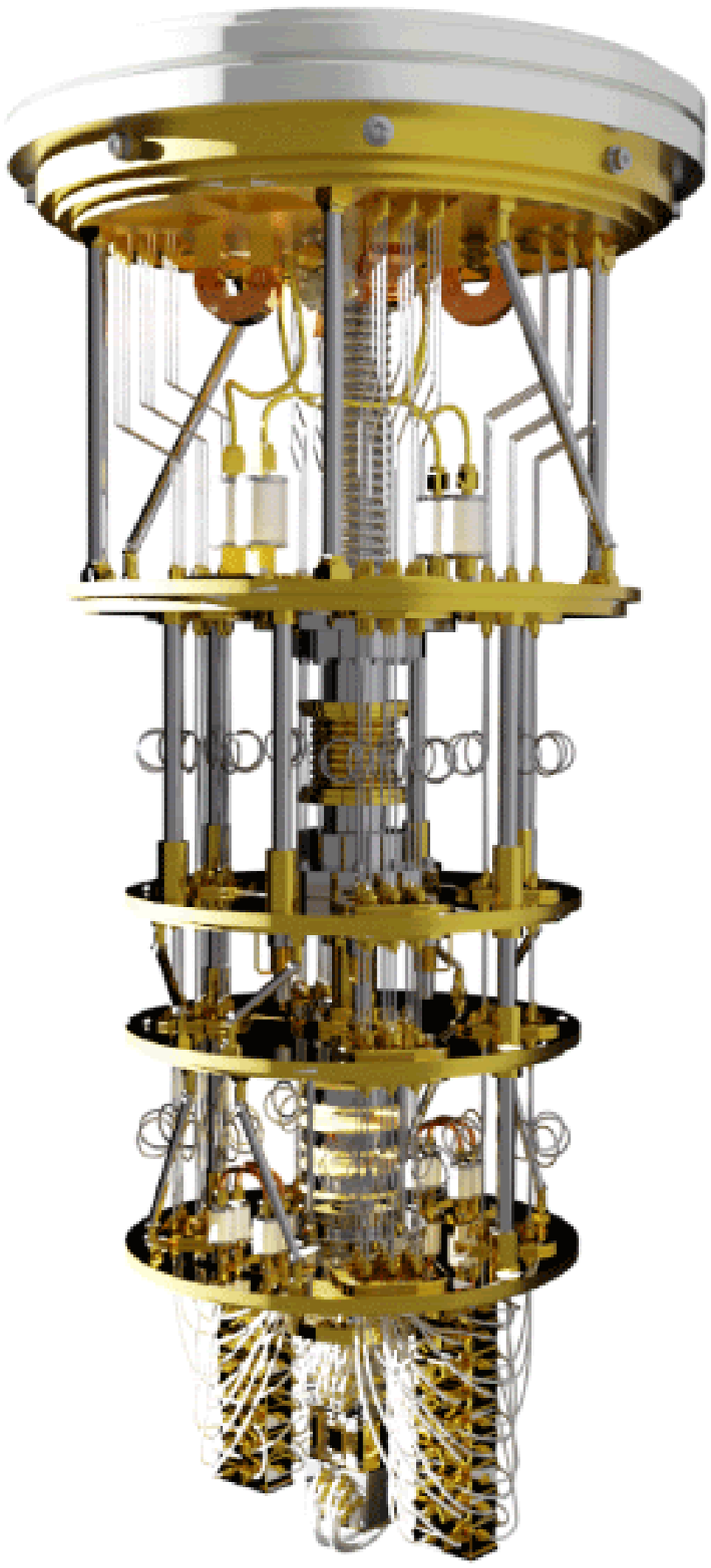

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Quantum Expert

Dive deep into Quantum

Course Duration
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Explorer Access
12 Months

Course Fee
INR 41,999

All Chapters in Quantum Foundation+

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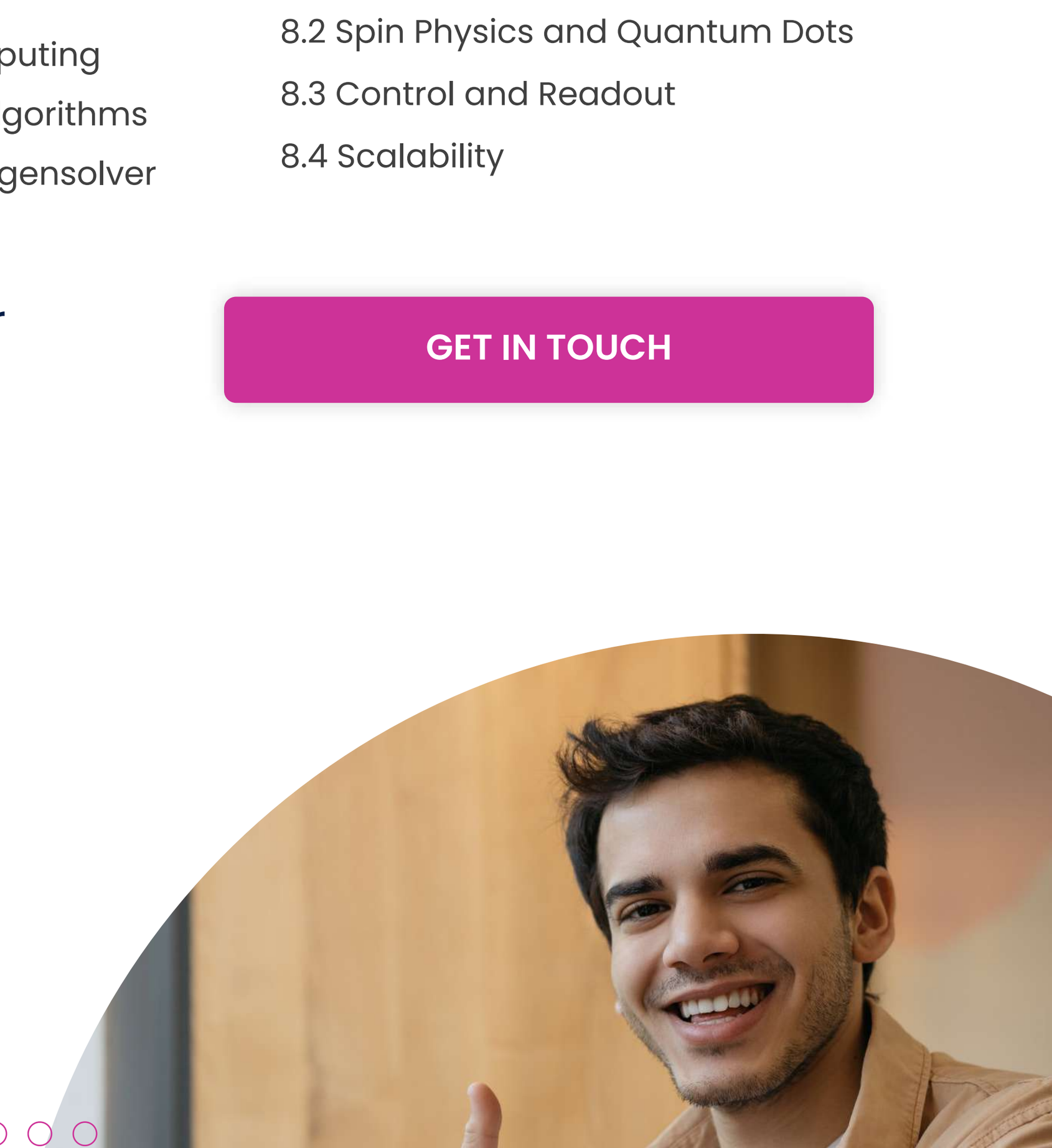

Joint AI & Quantum Expert

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Explorer Access
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Course Fee
INR 69,999

All Chapters in AI Expert+

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Course Wrap-up and Future Directions

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GET IN TOUCH

Learn In-Demand Skills From Global Leaders

Prof. Shalabh Bhatnagar

Professor, Dept. of Computer Science and Automation.

Indian Institute of Science, Bangalore.

Dr. Nagendra Nagaraja

CEO & Founder, QpiAI India.

PhD, Coventry University UK.

Prof. Ujjwal Sen

Professor, Quantum Information & Computation Group.

Harish-Chandra Research Institute, Allahabad.

Dr. Madhu Thalakulam

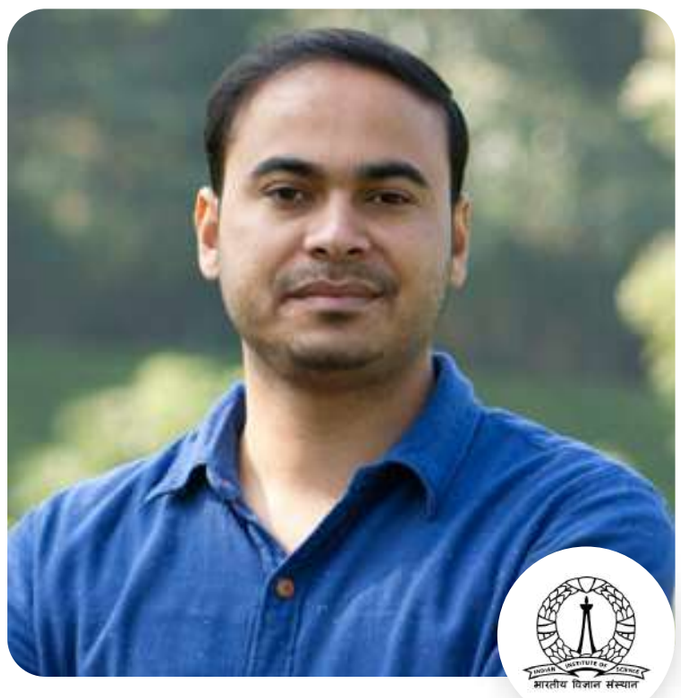
Associate Professor (Physics), IISER, Thiruvananthapuram.

PhD, Rice University, Houston.

Dr. Baladitya Suri

Assistant Professor, Indian Institute of Science, Bangalore.

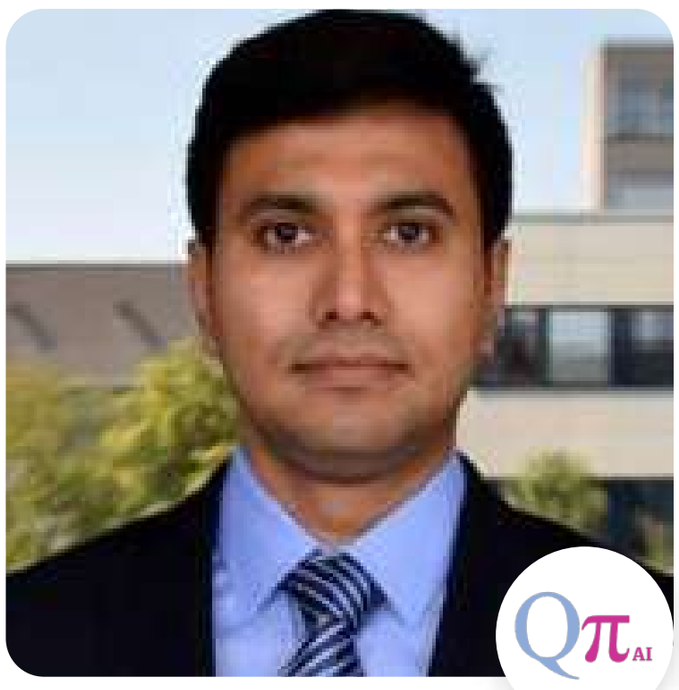
PhD, University of Maryland, USA.



Dr. Vibhor Singh

Assistant Professor, Department of Physics.

Indian Institute of Science, Bangalore.



Dr. Amlan Mukherjee

Director Quantum Hardware Research, QpiAI India.

PhD, TIFR India.

Dr. Arun Sehrawat

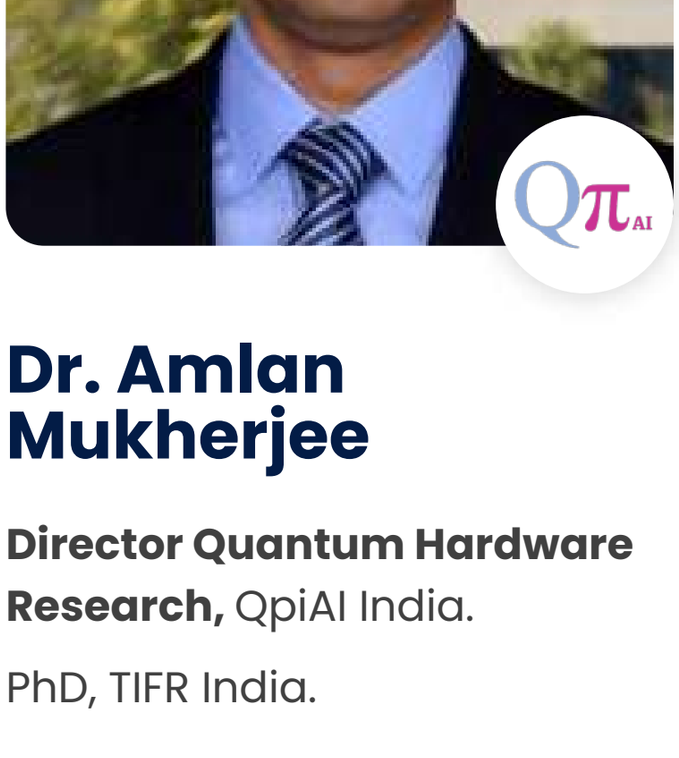
Quantum Research Scientist, QpiAI India.

PhD, National University of Singapore.

Sachin Kumar

Director of AI Research, QpiAI India.

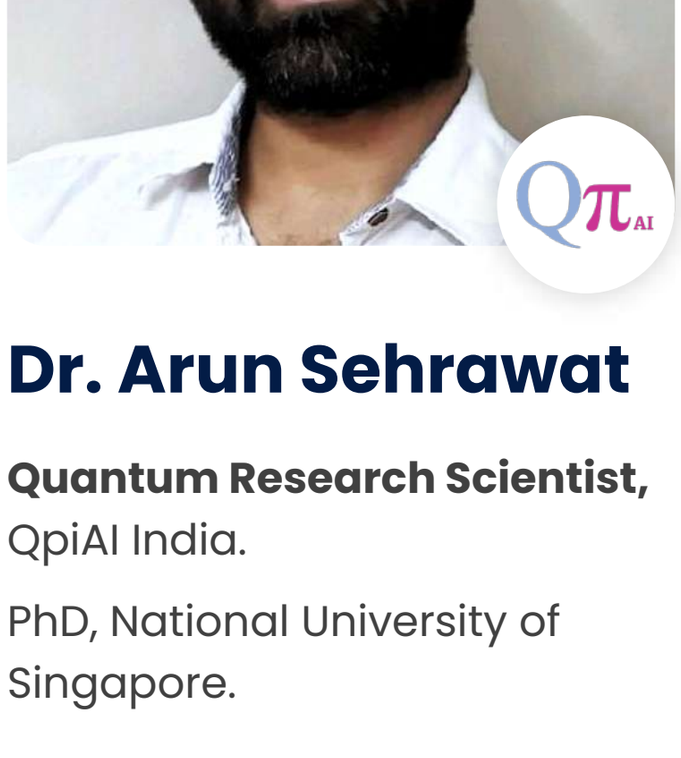
B.Tech, NIT Trichy.



Lakshya Priyadarshi

Software and Algorithms Researcher, QpiAI India.

B.Tech, IET.



Aswanth Krishnan

Director Quantum Research, QpiAI India.

MSc, NIT Karnataka.

That's not all.

And more guest lecturers from India and Abroad.

Course Fee

Quantum Foundation With Amazon Braket

24 hours of learning material

INR 59,999

Quantum Expert With Amazon Braket

36 hours of learning material

INR 83,999

Joint AI & Quantum Foundation With Amazon Braket

44 hours of AI + 36 hours of Quantum

INR 1,39,999

All set to get AI and Quantum ready?

GET IN TOUCH NOW

certification@qpiai.tech

+91 74063 79548

www.qpiai-explorer.tech

Course Fee

AI Foundation
28 hours of learning material

INR 29,999

Quantum Foundation
24 hours of learning material

INR 29,999

AI Expert
44 hours of learning material

INR 41,999

Quantum Expert
36 hours of learning material

INR 41,999

AI Pro
44 hours of learning material +

1300 hours of QpiAI Pro

INR 1,09,999

Joint AI & Quantum Expert
44 hours of AI + 36 hours of Quantum

INR 69,999

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