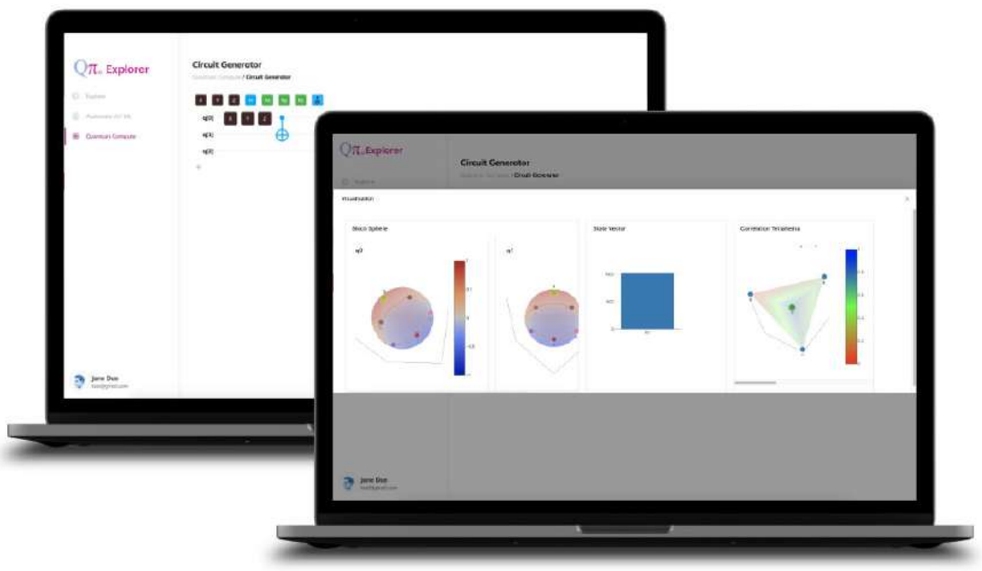
भारतीय विज्ञान संस्थान

Empower Yourself With AI & Quantum

Pave way to drive innovation with IISc & QpiAI

Why Learn With Us?



Access **Highly 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.

Quantum Foundation

Dip toes in the field of Quantum

Course Duration
3 Months

Explorer Access
6 Months

Course Fee
USD 499

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

Dive deep into Quantum

Course Duration
6 Months

Explorer Access
12 Months

Course Fee
USD 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

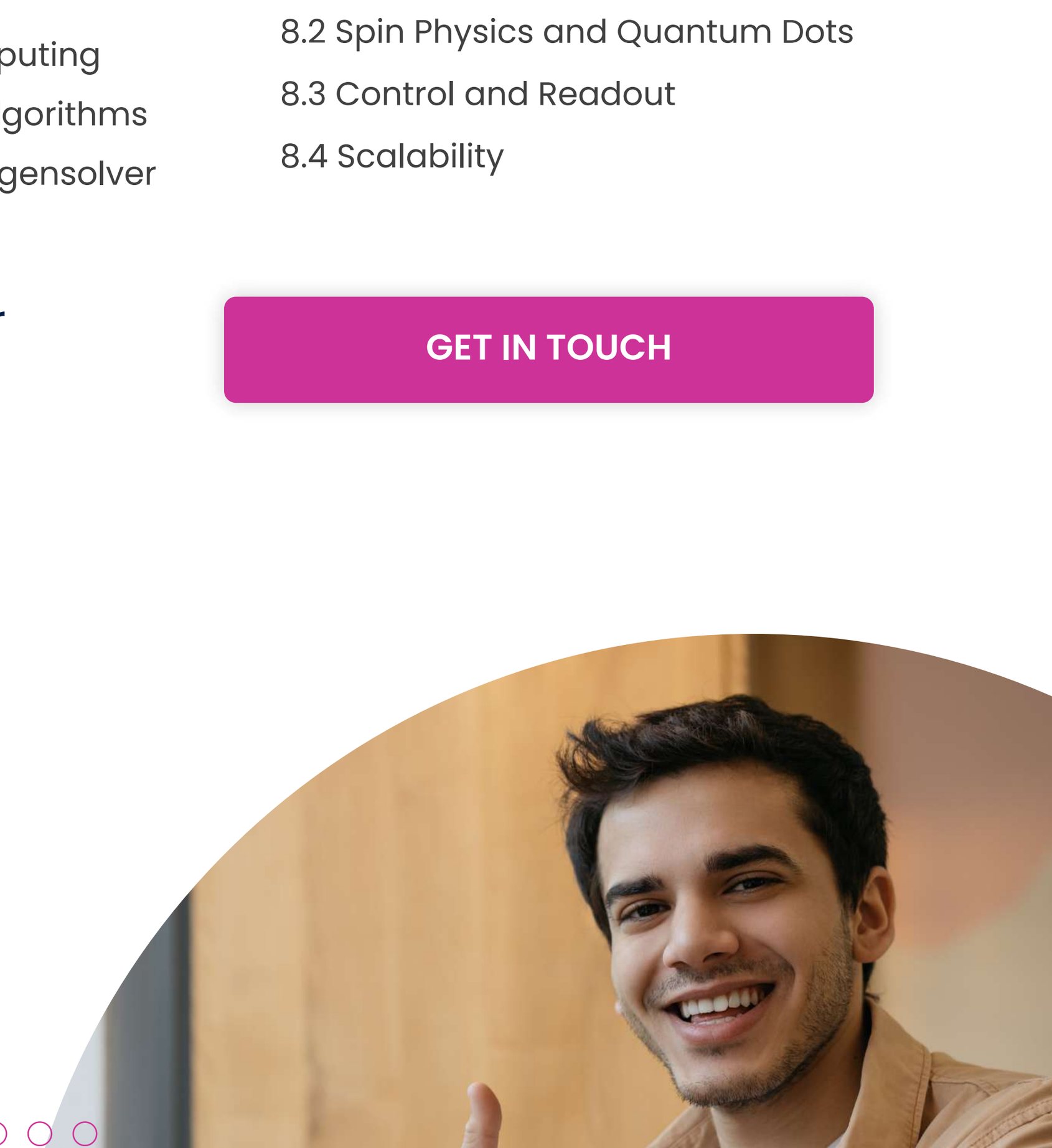
8.2 Spin Physics and Quantum Dots

8.3 Control and Readout

8.4 Scalability

Let’s set you up for success?

GET IN TOUCH



Chapter 7: Quantum Hardware: Superconducting Qubits

7.1 Introduction to physical qubits

7.2 Circuit Quantum Electrodynamics

7.3 Transmon and Coupled Qubits

7.4 Control and Readout

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

Course Wrap-up and Future Directions

Let’s set you up for success?

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

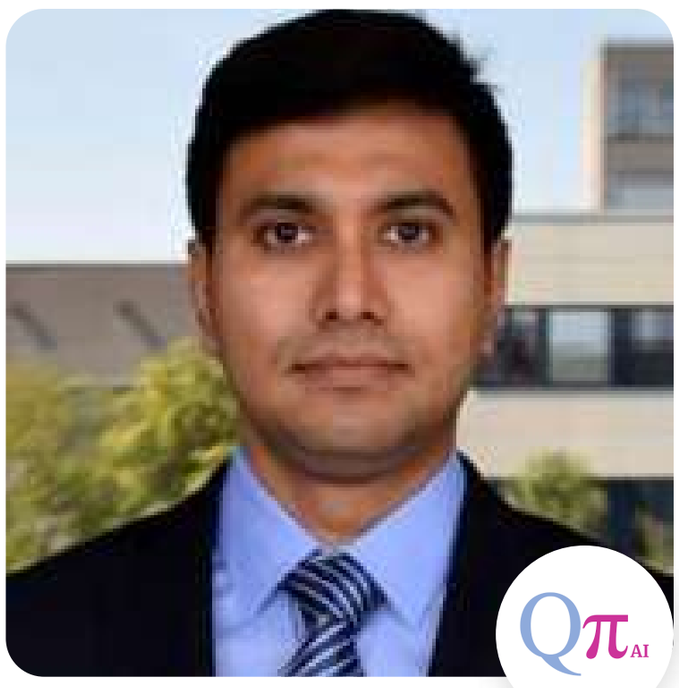
Assistant Professor, Indian Institute of Science, Bangalore.

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

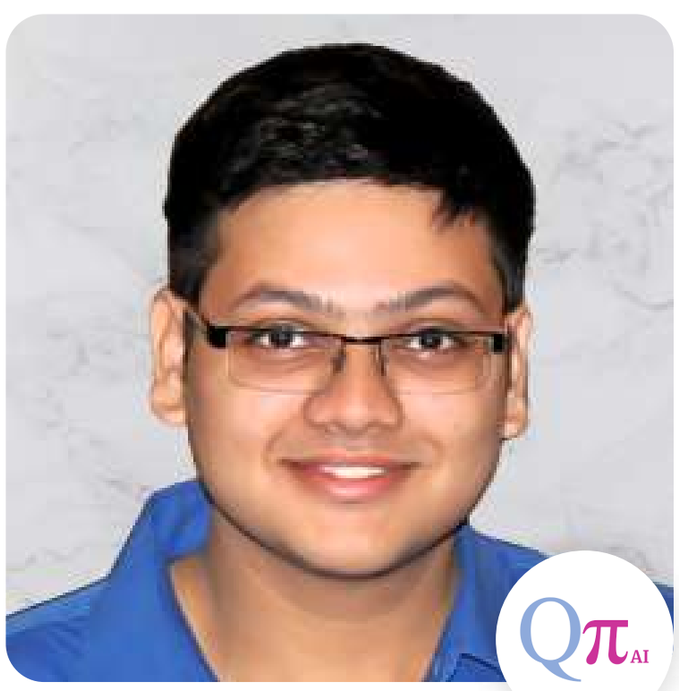
Quantum Research Scientist, QpiAI India.

PhD, National University of Singapore.

Pinakin Padalia

Director Quantum Circuits, QpiAI India.

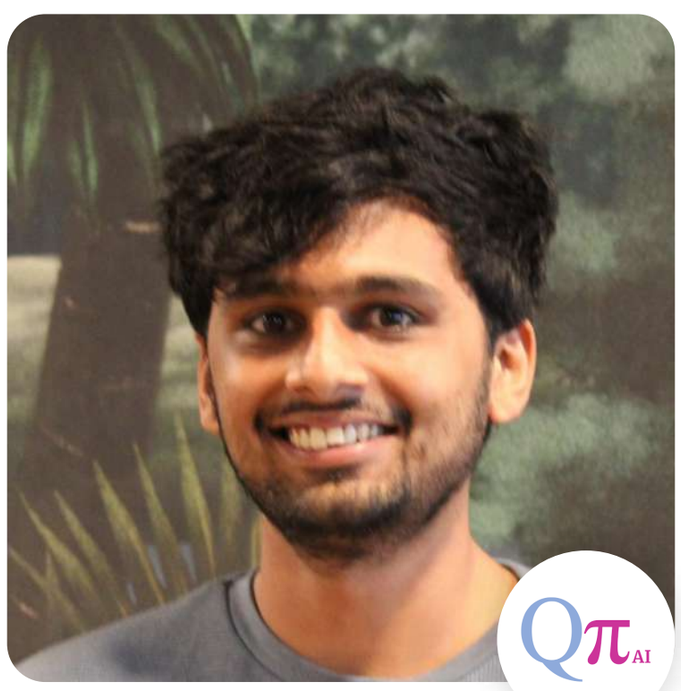
MS, TU Delft Netherlands.



Lakshya Priyadarshi

Software and Algorithms Researcher, QpiAI India.

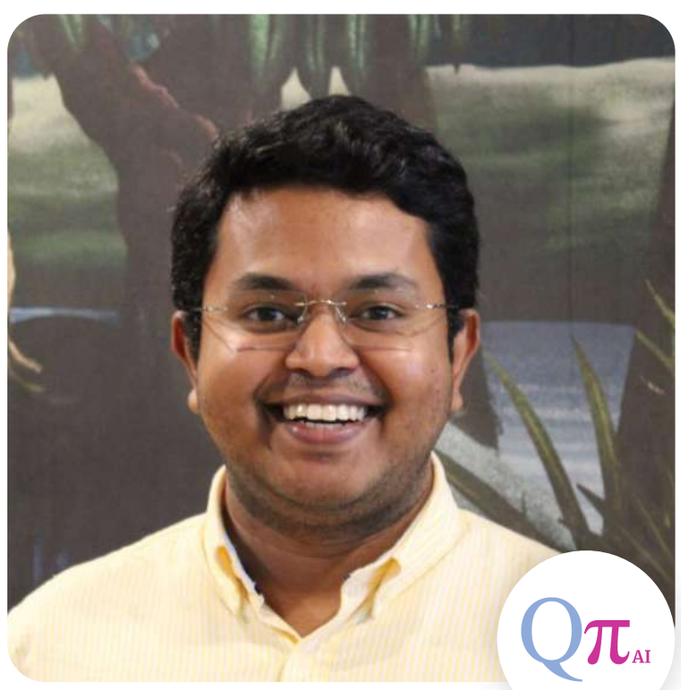
B.Tech, IET.



Aswanth Krishnan

Director Quantum Research, QpiAI India.

MSc, NIT Karnataka.



Sachin Kumar

Director of AI Research, QpiAI India.

B.Tech, NIT Trichy.

That's not all.

And more guest lecturers from India and Abroad.