

MeitY Quantum Computing Applications Lab

List of Selected Proposals from **Cohort-2** [Call for Proposals published dated 14th September 2022]

Sr	State/UT	Name of PIs	Institution	Proposal Title	duration months
1	Andhra Pradesh	Dr. Kolla Bhanu Prakash	Koneru Lakshmaiah Education Foundation	Optimize Quantum Machine Learning Parameters to Solve Differential Equations	21
2	Assam	Dr Anish Kumar Saha	NIT Silchar	Graph theory & its heuristic algorithm in quantum annealing and computing	24
3	Assam	Dr Anupam Biswas	NIT Silchar	Quantum Machine Learning for Social Network Analysis Applications	24
4	Chandigarh	Dr Aparna Akula	CSIR-CSIO	Study and Investigations of Quantum Machine Learning algorithms for Computer Vision Applications In and Beyond Visible Spectrum	24
5	Delhi	Dr Monika Aggarwal	IIT Delhi	Quantum Image Processing for Various Applications	24
6	Delhi	Mr KP Pariselvan	NIC	Quantum Secured Cryptography for Permissioned Blockchain	24
7	Haryana	Mr V. Raghavendra	Qkrishi Quantum Pvt. LTD	Harnessing the Power of Variational Quantum Algorithms for Practical Quantum Finance	24
8	Haryana	Dr. Sandeep Kumar Sood	NIT Kurukshetra	Quantum Computing-inspired Vehicular Route Optimization for Industrial Applications	12
9	Jharkhand	Dr. Gauri Shankar	IIT(ISM) Dhanbad	Quantum Algorithms for Power Systems & Grid Security.	24
10	Karnataka	Dr Gururaj Kudur Jayaprakash	Nitte Meenakshi Institute of Technology	Applications of Quantum chemical models to understand catalysis of lactic acid tailored graphene interface for sensing heavy metal ions.	24
11	Karnataka	Dr Arun Sehrawat	QpiAI India Pvt. Ltd.	Hybrid quantum-classical algorithms for combinatorial optimization problems across industries including manufacturing, supply chain,	12

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				logistics, healthcare, and financial services	
12	Karnataka	Dr Arun Sehrawat	QpiAI India Pvt. Ltd.	Quantum Machine Learning Algorithms for Financial Fraud Detection, AML, and Credit Default Prediction	11
13	Karnataka	Mr Gopal Krishna U Nayak	Quanfluence Pvt. Ltd.	Validation of Measurement Based Quantum Computing (MBQC) and error correction architectures	48
14	Karnataka	Prof. Vidya Niranjana	R V College of Engineering	Development of novel quantum computing algorithm for prediction of protein 3D structure incorporating intrinsic disordered-ness	18
15	Karnataka	Prof. Satyadhyana Chickerur	KLE Technological University	Quantum Software Development Lifecycle for Diabetic Retinopathy Classification using AI	24
16	Karnataka	Dr Vivekananda Bhat K	Manipal Institute of Technology	Detection of Cardiovascular Diseases in ECG Images Using Hybrid Quantum Convolution Neural Network Model	24
17	Karnataka	Dr Bhawana Rudra	NIT Surathkal	Implementation of Quantum Support Vector machine and Quantum Naive Bayes System for the Detection of Spam and Non Spam Mails.	24
18	Karnataka	Palem Benny Sudhakar	CDAC Bangalore	Quantum algorithms for power flow	24
19	Kerala	Dr Panchami V	IIT Kottayam	Study on impact of Quantum Algorithms on Classical Lightweight Cryptosystems for Internet of Things	24
20	Kerala	Dr Joseph Suresh Paul,	University of Digital Sciences & IT	Machine Learning based Scalable Magnetic Resonance Image Quality Transfer at Low-Field Strengths	24
21	Kerala	Dr Anil Shaji	IISER	New basis sets and operator	24

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			Thiruvananthapuram	mappings for simulating molecules and quantum fields on NISQ devices	
22	Maharashtra	Dr M Sasikumar	CDAC Mumbai	Quantum Optimization in Transportation Sector	24
23	Maharashtra	Prof. Siddhartha Santra	IIT Bombay	Development of feedback-based quantum optimization methods for classically-hard objective minimization in financial portfolio optimization.	24
24	Maharashtra	Dr Dileep Singh	Arqanum Technologies	Experimental implementation of Dicke state and its utility in Quantum secret sharing protocols	12
25	Maharashtra	Mr Himanshu Ravindra Vaidya	Vishwakarma Institute of Information Technology, Christ University	State-of-the-art Hybrid Quantum Classical AI Algorithms for Astrophysics and Cosmology	24
26	Maharashtra	Amit Saxena	CDAC Pune	Implementation of Variational Quantum Eigensolver (VQE) for MD problems using Amazon Braket	24
27	Maharashtra	Dr Anindita Banerjee	CDAC Pune	Testing and Benchmarking quantum algorithms on different quantum hardware platforms and simulators	24
28	Maharashtra	Dr Anindita Banerjee	CDAC Pune	Simulation of QKD protocols in Photonic Quantum Processor	24
29	Maharashtra	Dr Anindita Banerjee	CDAC Pune	Quantum computation in Medical Image processing	24
30	Puducherry	Dr T. Chithralekha	Pondicherry University	Quantum Cryptographic System.	24
31	Puducherry	Dr Alok Sharan	Pondicherry University	Quantum computation of ground state and excited states of solids and their time evolution.	24

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32	Puducherry	Dr SVM Satyanarayana	Pondicherry University	Quantum teleportation over a network of nodes as a quantum computing resource for quantum internet application.	24
33	Punjab	Dr Ajay Kumar	Thapar Institute of Engineering and	A framework for finding bug patterns, quality assurance and benchmarking of Gate based Quantum Computing	24
34	Rajasthan	Dr Jyoti Prakash Naidu	JK Lakshmipat University	Application of AWS for Crop Digital Twin: bio/physiology monitoring-as-a-service for insurance	24
35	Rajasthan	Dr Tribeni Roy	BITS Pilani	Quantum computing for accelerated materials discovery for high-performing energy storage devices	18
36	Tamil Nadu	Dr Hemanand.D	S.A. Engineering College	Quantum machine learning algorithms for traffic management in big cities.	24
37	Tamil Nadu	Dr S.Sridevi	Amrita Vishwa Vidyapeetham	Development of efficient hybrid classifier built with custom Quantum transfer learning framework synergized with Quantum support vector machine for remote sensing applications with hyperspectral/multispectral imagery	20
38	Tamil Nadu	Prof Anil Prabhakar	IIT Madras	Benchmarking Quantum Gate versus Annealers 1) Quantum Finance 2) Cryptographic Boolean Search	18
39	Tamil Nadu	Dr Natarajan Venkatachalam	SETS	Formal Verification of Post Quantum Crypto Algorithms using Quantum systems	24
40	Tamil Nadu	Dr V.P. Gladis Pushparathi	Velammal Institute of Technology	Quantum Computing in Agriculture Using Data Analytics	24
41	Tamil Nadu	Dr S P	Vellore	Quantum Machine Learning	24

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		Meenakshi	Institute of Technology	and Deep learning model Development for Autonomous System Level Internet Backbone Event Detection and Healthcare Prognosis Priority area and sub-area: Quantum Computing and Quantum machine learning.	
42	Tamil Nadu	Dr Bala Murugan MS	Vellore Institute of Technology	Numerical weather prediction using Quantum Computing	21
43	Tamil Nadu	Dr R. D. Eithiraj	Vellore Institute of Technology	Design of 2D Materials for Photocatalysis Application based on density functional theory computations	24
44	Tamil Nadu	Dr Reena Monica P	Vellore Institute of Technology	Quantum Computing Driven New Materials Discovery for Energy Storage	24
45	Tamil Nadu	Dr Shridevi.S	Vellore Institute of Technology	A Comparative Study of Cooperative Quantum-Classical Multi-Agent Reinforcement Learning Algorithms for Empty Container Repositioning in Marine Transportation Networks	18
46	Tamil Nadu	Dr Shridevi. S	Vellore Institute of Technology	A comparative study of Medical Image classification between QCNN, Quantvolutional Neural network and CNNs	12
47	Tamil Nadu	Dr Kalaipriyan	Vellore Institute of Technology	Uncertain behavioral analysis of chemical compounds in identifying suitable electrolyte to replace traditional solid conducting materials using Quantum Supremacy	24
48	Tamil Nadu	Dr J.P. Ananth	Sri Krishna College of Engg. and Technology	Leveraging Quantum Algorithms in Business Analytics for Revenue Security”	12

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49	Tamil Nadu	Dr P.C.Karthik	SRM Institute of Science and Technology	Harnessing the Power of Quantum Algorithms for Television Advertisements scheduling	24
50	Tamil Nadu	Dr Prakash Muthuramalingam	SRM Institute of Science and Technology	The Investigation of Anticancer Drugs for Triple-Negative Breast Cancer (TNBC) by QM, QM/MM, and Molecular Dynamics Simulations Guided Virtual Screening	24
51	Tamil Nadu	Dr A. Suresh	SRM Institute of Science and Technology	An Efficient Quantum Blind Signature Technique for Improving the Security against Quantum Computer Attacks in Indian Army	21
52	Tamil Nadu	Dr M. Vijayalakshmi	Thiagarajar College of Engineering, Madurai	Quantum-Safe Cloud Storage Security Solution for Healthcare Services	24
53	Telangana	Dr Nagarajan Ganapathy	IIT Hyderabad	Development of Quantum Neural Networks for Smart Mental Healthcare	21
54	Uttar Pradesh	Dr Shiroman Prakash	Dayalbagh Educational Institute	Aspects of Fault Tolerant Quantum Computing	24
55	Uttar Pradesh	Prof. Ashish Mani	Amity University	Implementation of Evolutionary Algorithms on NISQ Devices in Hybrid Mode to Solve Routing Problems	17
56	Uttar Pradesh	Prof. Anirban Pathak	Jaypee Institute of Information Technology	Solving complex real world problems using quantum computers	24
57	Uttar Pradesh	Dr Hari Prabhat Gupta	IIT Varanasi	Exploring the Applicability of Quantum Machine Learning in Smart Cities	24
58	Uttar Pradesh	Dr Abhishek Tiwari	CDAC, Noida	Hybrid Quantum Machine Learning with Heterogeneous Quantum devices	24
59	Uttarakhand	Dr Sandeep	IIT Roorkee	Analysis of Software Design	24

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		Kumar		and Development Practices for Quantum Systems	
60	West Bengal	Dr Debashis De,	Maulana Abul kalam Azad University of Technology	Federated Quantum Neural Network for Privacy-Preserving Classification of Retinal Images	24
61	West Bengal	Dr Srinivasa Prasanna V	TCG CREST	Variational Quantum Algorithms: applications to quantum chemistry and traffic control	24
62	West Bengal	Dr Amlan Chakrabarti	University of Calcutta	Analyzing diversified Quantum Algorithms to estimate different cost metrics and possible error for different physical machine in Noisy Intermediate Scale Quantum (NISQ) era	15

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