My Quantum journey

July 22

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This is a summary of my four years journey towards achieving the required experience, trainings and skills in quantum technologies, key one being completion of three courses in quantum information science from MIT

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Sl.No	Name of the task	Task Type	Date completed	Task Details	Related Link
1	Quantum Computing, the Easy Way	Certificate	Apr 16, 2019	My first quantum certificate	https://www.slideshare.net/Vijaymohire/quantum-computing-udemy
2	Bhadale group of companies - quantum technology programs catalogue	Catalogues	Apr 24, 2019	Our first programs catalogue related to quantum technology	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-technology-programs-catalogue
3	Master research catalogue v1.1	Catalogues	Aug 3, 2020	Research offerings in areas of AI,ML, and emerging technologies for various industries	https://www.slideshare.net/Vijaymohire/master-research-catalogue-v11
4	LinkedIn posts related to quantum technologies	Social	Aug 15, 2020	This is my contributions to the society by way of posting quantum related posts that enlighten my network and the general public at large. An average Impression of 250,000 was the annual performance of my posts , with top post impressions of 11,000 and a minimum of 1,000 impressions	https://www.linkedin.com/in/vijaymohire
5	AWS data science capstone project	Training	Nov 16, 2020	This is my AWS training course project with AWS ML, Python, and Jupyter Notebook with AWS S3 bucket. The project enabled using various ML algorithms to train model to predict films that would be nominated for Oscar award	https://www.slideshare.net/Vijaymohire/aws-data-science-capstone-proj
6	Architecting big data applications real time application engineering	Training	Nov 16, 2020	This course offers insights of how to analyze a problem, draw an architectural outline, choose the right technologies, and finalize the solution. Offers best practices for real-time streaming, predictive analytics, parallel processing, and pipeline management. Technologies used are Spark, Kafka, hazelcast, MySql, sentiment analysis packages and other popular big-data products	https://www.slideshare.net/Vijaymohire/architecting-big-data-applications-real-time-application-engineering
7	Become a data scientist	Certificate	Dec 14, 2020	LinkedIn Learning path that offers the fundamental stages of data science	https://www.slideshare.net/Vijaymohire/become-a-data-scientist-240102384

				8work, from Statistics and Systems Engineering to Data Mining and Machine Learning, source, explore, and communicate with data through graphs and statistics.	
8	Introduction to quantum computing	Certificate	Jun 13, 2021	This is a course certificate related to quantum computing	https://www.slideshare.net/Vijaymohire/introduction-to-quantum-computing-249339041
9	Bhadale group of companies- Quantum Tech Research catalogue	Catalogues	Jun 26, 2021	This is our research catalogue for quantum technologies	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-tech-research-catalogue
10	Quantum circuit example in Qiskit	Code	Jul 3, 2021	This is a simple quantum circuit simulator example in Qsikit. This was run using Anaconda and Jupyter Notebook. This example demonstrates the first level of quantum circuit design	https://www.slideshare.net/Vijaymohire/quantum-circuit-example-in-qiskit
11	Qsam simulator in IBM Quantum Lab cloud	Code	Jul 4, 2021	This uses Aer's qasm_simulator, H and CNOT gates to run a 2 qubits circuit	https://www.slideshare.net/Vijaymohire/qsam-simulator-in-ibm-quantum-lab-cloud
12	Multi qubit entanglement	Code	Jul 10, 2021	This sample offers insights of how qubit superposition and entanglements are possible and how these are represented in state vectors, block sphere and amplitudes	https://www.slideshare.net/Vijaymohire/multi-qubit-entanglement
13	Quantum neural network	Code	Jul 11, 2021	Generic quantum neural network (QNN) implementations provided in Qiskit Machine Learning	https://www.slideshare.net/Vijaymohire/quantum-neural-network-249685998
14	Hybrid quantum classical neural networks with pytorch and qiskit	Code	Jul 11, 2021	Classical neural network can be partially quantized to create a hybrid quantum-classical neural network, that seeks to classify images of two types of hand drawn digits (0 or 1) from MNIST dataset	https://www.slideshare.net/Vijaymohire/hybrid-quantum-classical-neural-networks-with-pytorch-and-qiskit
15	Grover's Algorithm	Code	Jul 14, 2021	Grover's algorithm using 2 qubits to test the working model of the Qiskit under simulated and real IBM quantum machine	https://www.slideshare.net/Vijaymohire/grovers-algorithm-249731648

16	Quantum Fourier Transform	Code	Jul 19, 2021	The quantum Fourier transform is a part of many quantum algorithms, notably Shor's algorithm for factoring and computing the discrete logarithm, the quantum phase estimation algorithm for estimating the eigenvalues of a unitary operator, and algorithms for the hidden subgroup problem	https://www.slideshare.net/Vijaymohire/quantum-fourier-transform
17	Bhadale group of companies quantum ml services catalogue	Catalogues	Jul 27, 2021	We offer unique solutions that enable clients to leverage on the vendor platforms in areas of quantum IaaS or in-house assembly of quantum computers, software toolchain for digital noisy intermediate-scale quantum (NISQ) systems, Shor's, Grover's and quantum random walks	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-ml-services-catalogue
18	Bhadale group of companies quantum ml industrial solutions catalogue	Catalogues	Jul 29, 2021	We offer optimized end-to-end quantum machine learning solutions that enable better integrated quantum cloud systems, for real time responses and handling mission critical problems.	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-ml-industrial-solutions-catalogue
19	IEEE P2995 – Trial use quantum algorithms design and development standard	Standard	Sept, 2021- till date	As a member, I contributed to the design and development of the quantum algorithms, related models, frameworks and lifecycle, along with QEC based quantum circuit design, optimization and speedup of the primitives and a trials framework to conduct tests for side-by-side comparison of the different versions	https://sagroups.ieee.org/quadd/
20	Azure quantum workspace	Code	Jan 14, 2022	This is a demo of getting starting with Azure quantum workspace for developing quantum projects. Included in the file is the demonstration of running a simple random number generator code using Q# and Jupyter Notebook	https://www.slideshare.net/Vijaymohire/azure-quantum-workspace

21	Azure Quantum with IBM Qiskit and IonQ QPU	Code	Jan 18, 2022	This is a simple demo of the setup and running of Azure Quantum with IBM Qiskit for quantum circuit and IonQ QPU using Jupyter Notebook	https://www.slideshare.net/Vijaymohire/azure-quantum-with-ibm-qiskit-and-ionq-qpu
22	Solutions to simple quantum circuits	Code	Feb 03, 2022	This is a set of quantum circuits, code, IDE, tools and related questions with answers using popular libraries and simple circuits	https://www.slideshare.net/Vijaymohire/solutions-to-simple-quantum-circuits
23	Quantum Development Kit project	Code	Feb 20, 2022	Project in QDK using VS Code and /or Jupyter Notebook in Azure portal.	https://www.slideshare.net/Vijaymohire/quantum-development-kit-project
24	Azure Quantum Trophy	Certificate	Feb 23, 2022	This is a trophy awarded for completing 8 courses, 5 hours in Azure Quantum, involved hands-on in VS Code and Azure Quantum Jupyter Notebooks running in IonQ QPU	https://www.slideshare.net/Vijaymohire/azure-quantum-trophy
25	Quantum Physics- Find Eigen values in Python	Code	Apr 22, 2022	Computing Eigen values and functions using Python, normalizing the values and plotting them using their energy levels and wave functions. Using Numerical shooting method	https://www.slideshare.net/Vijaymohire/quantum-physics-find-eigen-values-in-pythonpdf
26	Quantum Physics from Beginner to Expert	Certificate	May 2, 2022	Quantum basics, Solving the Schrödinger equation, Quantum computing and relativistic quantum mechanics, quantum mechanics, electron spin, Dirac equation, etc, 13 hours effort.	https://www.slideshare.net/Vijaymohire/quantum-physics-from-beginner-to-expertpdf
27	Bhadale Group of Companies-Quantum Services catalogue	Catalogues	Jun 8, 2022	This is our services offered to the quantum projects based on our quantum stacks, frameworks, models, processes and our expertise	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companiesquantum-services-catalogue
28	Bhadale Group of Companies -Quantum Products catalogueV1.0	Catalogues	Jun 13, 2022	We offer product related material like design, kits, adaption roadmaps, accelerator kits, migration kit, related tool guides, architecture and technology related artifacts etc	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-products-cataloguev10pdf

29	Quantum Computing Notes Ver1.0	Notes	Jun 17, 2022	It offers quantum circuits, quantum algorithms, matrix operations, Kronecker, dot products, derivation of Pauli's X, Y , Z gates , preparation of Bell state using Hadamard and CNOT, and finally defines the six quantum states for a qubit	https://www.slideshare.net/Vijaymohire/quantum-computing-notes-ver10
30	Bhadale Group of Companies -Quantum Software Engg Services catalogue-Ver1.0	Catalogues	Jul 10, 2022	We offer a wide range of quantum ecosystems based services for the convenience of our clients based on their business needs, and startup mission	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-software-engg-services-cataloguever10pdf
31	Bhadale Group of Companies -Quantum Systems Engg Services catalogue - Ver1.0	Catalogues	Jul 11, 2022	We offer a wide range of quantum ecosystems based services for the convenience of our clients based on their business needs, and startup mission	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-systems-engg-services-catalogue-ver10
32	Bhadale Group of Companies -Quantum Enterprise Modernisation Services catalogue - Ver1.0	Catalogues	Jul 11, 2022	We offer a wide range of quantum ecosystems based services for the convenience of our clients based on their business needs, and startup mission	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-enterprise-modernisation-services-catalogue-ver10
33	Quantum_Safe_with_IBM_z16_Sales_Foundation_Badge	Certificate	Jul 11, 2022	IBM course certificate for IBM post-quantum cryptography offer (Quantum-Safe).	https://www.slideshare.net/Vijaymohire/quantumsafewithibmz16salesfoundationbadge
34	Bhadale Group of Companies -Quantum Defense Enterprise Services catalogue - Ver1.0	Catalogues	Jul 12, 2022	Quantum Military alliance based integration for end nodes (trapped ion qubits, Si qubits) and quantum repeaters (rare-earth-based memories, atomic gases, quantum dots) and integration of both subsystems	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-defense-enterprise-services-catalogue-ver10
35	Bhadale Group of Companies -Quantum BFSI Enterprise Services catalogue -Ver1.0	Catalogues	Jul 13, 2022	Quantum for modernization for stock trade, fraud detection, risk assessment, portfolio analysis and stock recommendation, insurance analysis, parametric Neural Network, validation, verification, anti hacking algorithms,	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-bfsi-enterprise-services-catalogue-ver10

				fuzzy AI expert system, lending credit analysis, prediction for various KPA, Monte Carlo simulations	
36	Bhadale Group of Companies -Quantum Software Engg Products-Ver1.0	Catalogues	Jul 13, 2022	Using UAF, KDM, UML, SysML, a meta-platform that allows clients to reuse our existing assets like platform models, frameworks, processes that allow rapid design, develop, customization, configuration, and deployment of the product for various use cases, business needs and industrial setups	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-software-engg-productsver10
37	Bhadale Group of Companies -Quantum Systems Engg Products-Ver1.0	Catalogues	Jul 14, 2022	We offer Infra-as-a-Code concept with tools to virtualise, containerize, and cloudify the assets and offer streamline to industry frameworks and standards like INCOSE, MITRE, SEBoK, DoD, UAF, OMG, IEEE, NIST etc	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-systems-engg-productsver10
38	Bhadale Group of Companies -Quantum Enterprise Products-Ver1.0	Catalogues	Jul 14, 2022	We leverage the concepts from OMG, CMMI, TOGAF, Zachman, INCOSE frameworks in designing the products

 Enterprise Engineering = Software Engineering+ System Engineering+ Strategy + Multi-Engineering disciplines + Quantum paradigm | https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-enterprise-productsver10 |
39	Bhadale Group of Companies -Quantum Development platform -Ver1.0	Catalogues	Jul 27, 2022	Quantum projects need some base level templates and guidance that ensures work starts with an inventory asset enabling rapid development work	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-development-platform-ver10
40	Quantum Computing Notes Ver. 1.2	Notes	Aug 2, 2022	This is my second version of the quantum notes collected as part of my study.	https://www.slideshare.net/Vijaymohire/quantum-computing-notes-ver-12
41	Quantum Computing Notes Ver. 1.3	Notes	Aug 2, 2022	This is my third version of the quantum notes collected as part of my study.	https://www.slideshare.net/Vijaymohire/quantum-computing-notes-ver-13

42	Bhadale Group of Companies -Universal Quantum Computer System Services catalogue	Catalogues	Aug 14, 2022	Building a Universal Quantum Computer is a big project and it needs co-operation, design optimizations, Co-design that ensures the future computer systems are truly of hi-fidelity and that offers greater performance	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-universal-quantum-computer-system-services-catalogue-253869528?next_slideshow=253869528
43	Bhadale Group of Companies -Quantum Cluster Development catalogue	Catalogues	Aug 15, 2022	This catalogue offers our services for Cluster Development of a group of industries that serve a common purpose of inter related goals, visions and missions in areas of quantum technology design, development and manufacturing	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-cluster-development-catalogue
44	Bhadale Group of Companies -Quantum Systems Manufacturing catalogue	Catalogues	Aug 15, 2022	Nanoscale, atomic level design, fabrication and production of quantum chip are indeed a very big challenge and are limited by the available stat-of-the art technologies. There is a need to make design level changes to accommodate the various limitations. We offer co-design facility and tie-ups with various national and international institutes like IEEE, NIST, ISO and partners who make it possible to develop blue prints and manufacture atomic scale chips	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-systems-manufacturing-catalogue
45	Majorana zero modes	Code	Aug 19, 2022	This is a simple demonstration of the Majorana zero modes using a Kitave Chain toy model. This offers a python notebook based model design and plotting the Majoranas that are generated at zero modes	https://www.slideshare.net/Vijaymohire/majorana-zero-modes
46	Bhadale Group of Companies - Modernization of Electronic era systems using Quantum Tech	Catalogues	Sept 18, 2022	Develop blue prints and manufacture atomic scale chips ,ASIC, FPGA, Different quantum storage memory chips, Digital Analog Chips, Adiabatic and Digital technology, Firmware, Data Control, memory addressing schemes,	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-modernization-of-electronic-era-systems-using-quantum-tech-catalogue

	catalogue			error correction at chip level, security in the chip at hardware level, Space, time, gravity dimensions using various second quantization and theories like string theory, M-theory, Lorentz transformation, de sitter space etc ,faster than light transmission(FTL), entanglement based far off remote operations, dark energy, use of axions, tachyons, singulatrons, warp features	
47	Gamma_Function	Code	Oct 24, 2022	One of the key maths functions used in quantum technology. It is often referred to as the generalized factorial, this is a standard as per NIST Digital Library of Mathematical Functions https://dlmf.nist.gov/5.2#E1	https://www.slideshare.net/Vijaymohire/gammafunction
48	Bhadale Group of Companies -Quantum Systems Manufacturing catalogue	Catalogues	Oct 29, 2022	This is our systems services for the product manufacturing processes, frameworks, engineering, plant upgrades, overlay networks, and use of partners foundries where specialized design of ASIC and photonic Integrated chips,	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-systems-manufacturing-catalogue-253869472
49	Bhadale Group of Companies -Universal Quantum Computer System Services catalogue	Catalogues	Oct 29, 2022	Migration/upgrade services from NISQ to FTQC paradigm. Quantum safe, quantum cryptography, quantum information management and algorithms, primitive services. Offers enable use of latest redesigned computer components, hardware, software and various control planes, improvised trial standards, etc	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-universal-quantum-computer-system-services-catalogue-253869528?next_slideshow=253869528
50	Boson Sampling	Code	Oct 30, 2022	Boson sampling using Strawberry fields, quantum linear optics, the multimode linear interferometer, which is decomposed into two-mode beamsplitters (BSgate) and single-mode phase shifters (Rgate), allowing for a translation into a Continuous Variable	https://www.slideshare.net/Vijaymohire/boson-sampling

				quantum circuit.	
51	Bhadale Group of Companies -Universal Quantum Computer System Design catalogue	Catalogues	Dec 6, 2022	Upgrade design , transform designs from NISQ based various paradigms to a truly multi-body system design using highly precise, highly reliable, logical qubits based out of the high quality physical qubits derived from the closed loop real time NN based polar molecules accurately trapped, arranged , and measured with precision using lasers, MOT and various technologies	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-universal-quantum-computer-system-design-catalogue-254772386
52	Bhadale Group of Companies -Quantum Engineering Technologies catalogue	Catalogues	Jan 17, 2023	We offer re-engineering, remodeling, various engineering tools, scientific estimates, roadmap for clients to look into the systems engineering works apart from the software engineering up-gradation	https://www.slideshare.net/Vijaymohire/bhadale-group-of-companies-quantum-engineering-technologies-catalogue
53	Quantum Defense Enterprise Services catalogue -Ver1.0	Catalogues	Mar 12, 2023	Below are few of our service offerings: 1. Quantum defense enterprise adoption ecosystems planning 2. Defense Business Use case based quantum enterprise design 3. Open and proprietary quantum and classical defense ecosystems & integration 4. Partner ecosystems based defense solutions 5. Quantum cloud defense ecosystems implementation 6. Industrial domain specific quantum enterprise defense services 7. Defense Project specific services 8. Custom defense ecosystems services	https://www.slideshare.net/Vijaymohire/quantum-defense-enterprise-services-catalogue-ver10
54	Defense Academy-Quantum research	Catalogues	Mar 12, 2023	This is our offering for the Defense college and related service offerings	https://www.academia.edu/98375341/Defense_Academy_Quantum_research
55	MIT Quantum Information Science 1, Part 1	Course	May 6, 2023	This is my self-study course report at the end of the first course at MIT Open Learning Library, MIT 8.370.1x; C grade	https://www.slideshare.net/Vijaymohire/my-course-report-mit-83701x

56	MIT Quantum Information Science 1, Part 2	Course	Jun 4, 2023	This is my self-study course report at the end of the first course at MIT Open Learning Library, MIT 8.370.2x; B grade	https://www.slideshare.net/Vijaymohire/course-report-mit-83702x
57	MIT Quantum Information Science 1, Part 3	Course	Jun 26, 2023	This is my self-study course report at the end of the first course at MIT Open Learning Library, MIT 8.370.3x; B grade	https://www.slideshare.net/Vijaymohire/course-report-mit-83703x
58	Social feeds	ORCID	2021 onwards	Posted various quantum related catalogues and work samples	https://orcid.org/0000-0002-0647-4130
59	Social feeds	Academia	2022 onwards	Posted various quantum related training materials and catalogues	https://ksoumysore.academia.edu/vijaymohire
60	Social feeds	GitHub	2021 onwards	Repository of my quantum training with code samples and results	https://github.com/vijaymohire/quantum