Aman Ganeju

Bhaktapur, Nepal

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Summary

BSc.(Physics) Graduate aspiring for MSc. or PhD. Interested in Quantum Computation and information, Quantum Field Theory, and High energy physics - open for research projects in the field of quantum computing and high energy physics

Education

Khwopa College, Tribhuvan University *Bhaktapur, Nepal*

BSc in Physics *Dec 2017- Nov 2021*

- Major- Physics, Minor- Mathematics, Statistics
- **Project Work/Thesis:** Integer factorization using Shor's algorithm and its implementation on a quantum computer.
  Advisor: Dibakar Sigdel, Ph.D

Research/Work Experience

ICTP Physics Without Frontiers, Holographic Himalaya *Nepal*

Research Student *Jan - Jun 2023*

- Advisor: Kiran Adhikari, Ph.D
- **Project:** Holographic super-dense coding protocol via traversable wormholes [Ongoing]

Teach Me Codes *Texas, USA*

Intern(online) *Jan - Jun 2022*

- Prepare course material like lecture notes and animations relating to Quantum Computation and Information

Workshop on Quantum Computing *Nepal*

Instructor and Mentor *July 2021*

- Organized by LOCUS 2021, Pulchowk Engineering Campus, Nepal
- Lecture on 'Density Matrix and Pure/mixed states'
- Lecture on 'Shor's Algorithm for Integer Factorization'

Skills

Programming	Python (Qiskit, Pandas, PyTorch, NumPy, etc.),C ,MATLAB ,Julia(Bloqade), .
Miscellaneous	LaTeX (Overleaf),Git , Microsoft Office,Linux, Google Colab, VSCode, Adobe Lighroom, Adobe Photoshop, Davinci Resolve.
Soft Skills	Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation.

Achievements

2022	**IBM Certified Associate Developer,** Quantum Computation using Qiskit v0.2X	*IBM*
2022	**103/120**, Test of English as a Foreign Language (TOEFL) - 28L,28R, 21R,26W	*ETS*

BADGES

IBM Quantum Challenge: Spring 2023 *Badge: Advanced*

IBM Quantum *May 2023*

- dynamic circuits within Qiskit, iterative phase estimation, quantum teleportation, and error correction.

IBM Quantum Challenge: Spring/Fall 2022 *Badge: Advanced*

IBM Quantum *May/Nov 2022*

- Spring: Quantum simulation, Trotterization, many-body, and fermionic systems
- Fall: Quantum Machine learning- Quantum Classifier, Quantum optimization, Quantum chemistry using Qiskit Nature

IBM Quantum Challenge: Fall 2021 *Badge: Advanced*

IBM Quantum *Nov 2021*

- Fall: QAOA, battery revenue optimization problem, machine learning

Qiskit Challenge India *Certificate of Proficiency*

IBM Quantum *Sep 2020*

- Classical machine learning, Variational Quantum Classifier

IBM Quantum Challenge *Badge: Advanced*

IBM Quantum *May 2020*

- Quantum circuits, single and multiplexed qubit rotations, deconstruction of arbitrary unitary

Publication and Conferences

Quantum optimization of coherent chaotic systems: A case for buses of Kathmandu. *Preprint Paper*

Adhikari, K., Ganeju, A., Lamichhane, I. K., Bhattarai, R., Limbu, M., Bhattarai, N., Deppe, C. (2023).

https://arxiv.org/abs/2311.13119v1 *2023*

ANPA CONFERENCE 2020 *Online Presentation*

Association of Nepali Physicists in America (ANPA) *Jul 2020*

- **Implementation of Quantum Fourier Transform in Shor's Algorithm**
  Aman Ganeju, Dibakar Sigdel

7th National Conference on Mathematics and Its Application *Poster Presentation*

Nepal Mathematical Society *Jul 2019*

- **Integration using numerical method**
  Aman Ganeju, Rajkumar Dhakal

Certification and Participation

Quantum Computation

Quantum computing mentor at Qubit-Nepal

Qubit-Nepal *Jul 2023*

- Promoting and exploring quantum computation in Nepal
- Prepare, teach, and guide quantum computing materials to enthusiasts
- Coordinated, mentored, and hosted quantum computing workshop: "QBRONZE115 - Quantum Computing Workshop"

2021 Qiskit Global Summer School on Quantum Machine Learning *online*

IBM Quantum *Jul 2021*

- Received "Certificate of Quantum Excellence" for completion of exercises

2020 Qiskit Global Summer School *online*

IBM Quantum *Jul 2020*

- Received "Certificate of Quantum Excellence" for completion of exercises

Workshop on Quantum Computing

Winter Lecture Series in Natural Science, Central Department of Physics, Tribhuvan University, Nepal *Dec 2019*

Physics

Tesla Coil, Vande Graff Generator, and Camera Obscura

Khwopa College *May 2020*

- Build these projects for College Exhibition

Organized Solar Eclipse Observation Program

Khwopa College, Nepal *Dec 2019*

- Gave talks on Solar Eclipses to high school and college students, eclipse observation using solar eclipse glasses

All-Nepal Asteroid Search Campaign

Nepal Astronomical Society, International Astronomical Search Collaboration (IASC) *Jan 2018*

- Preliminary detection of objects using Astrometrica software

Hobby

Hiking	I enjoy nature and love hiking through forests and springs
Photography	I have professional wedding and lifestyle photography experience. Also, I like making travel films on hikes and treks

References

Om K. Suwal
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Relationship: Professor

Dibakar Sigdel, Ph.D.
Principal Data Scientist
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Relationship: BSc Thesis Supervisor/ Mentor

Kiran Adhikari
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Relationship: Guide/supervisor at Holographic Himalaya