

Sonika Johri

Cupertino, CA

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Overview

Dr. Sonika Johri is Founder & CEO of Coherent Computing, a company focused on building software platforms to enable users to take advantage of the rapidly expanding capabilities of quantum hardware. As a Principal Researcher at IonQ, she led a team working on quantum applications R&D for clients including Hyundai, Fidelity Center for Applied Technology, GE Research, Goldman Sachs, Airbus, and Thompson Machinery. She has authored > 35 publications, recently focusing on cutting-edge quantum algorithm demonstrations in the areas of generative and discriminative machine learning, quantum chemistry, optimization, and condensed matter physics across a variety of quantum hardware platforms, as well as developing frameworks for quantum benchmarking.

In the quantum arena, principal interests are algorithms and software, resource estimation, applications roadmaps, projection and analysis of quantum advantage, hiring and training quantum teams

Work Experience

Coherent Computing

Cupertino, California

Founder & CEO

Jun 2023 - Dec 2025

- Founded company to build quantum software platforms to run applications on quantum computers
- Research on quantum algorithms and programming abstractions

IonQ Inc

Washington DC, USA

Lead Quantum Applications Research

Dec 2019 - Mar 2023

Principal Researcher (Dec 2020 - Mar 2023), Senior Researcher (Dec 2019 - Dec 2020)

- Hired and led 10 person team to develop applications for current and future generations of quantum computers
- Led engagements with several clients including Hyundai, Fidelity, GE, Goldman Sachs, and Airbus
- Hands-on research experience with developing quantum algorithms in the areas of generative and discriminative machine learning, condensed matter physics, quantum chemistry, and optimization
- Developed software tools for optimizing quantum circuits, error mitigation, testing hybrid quantum algorithms

Intel Corporation, Quantum Computing

Portland, Oregon

Senior Research Scientist

Dec 2015 - Dec 2019

- Development of applications and algorithms for near-term quantum computers
- Contributions to quantum software infrastructure including quantum compilers and simulators
- Co-design between quantum software and hardware based on superconducting and spin qubits

Intel Corporation, Computational Imaging

Portland, Oregon

Senior Imaging Scientist

Dec 2014 - Dec 2015

- Automation of large scale defect metrology using computer vision and machine learning algorithms

Education

Princeton University

Princeton, NJ

PhD in Theoretical Condensed Matter Physics

2009-2014

- Princeton Electrical Engineering Best Dissertation Award 2015
- 2014 Ray Grimm Memorial Prize in Computational Physics
- Porter Ogden Jacobus Fellowship, 2013-14 by the Princeton University Graduate School. (The Jacobus Fellowship is awarded to the top four final-year students among all graduate programs at Princeton University)
- Wu Prize for Excellence, 2013 by the School of Engineering & Applied Science, Princeton University

Indian Institute of Technology Delhi

Delhi, India

BTech in Engineering Physics

2005-2009

Publications, Patents & Conference Presentations

Google Scholar Link

- Over 35 publications in high impact-factor peer-reviewed journals including *Nature Quantum Information*, *PNAS*, and *Physical Review Letters*
- Over 15 patents applied and 4 granted in the area of near-term quantum computing
- Delivered over 50 talks in the last 5 years, at leading industry forums such as IQT (keynotes, 2021 and 2022), Quantum Tech (keynote, 2021), IEEE Quantum Week (keynote, 2020), and Q2B(2020, 2021, 2022), and invited talks at prestigious academic venues such as Quantum Computing Theory in Practice (2022), International Quantum Tensor Network (2022), Optica Quantum 2.0 (2022), Kavli Institute for Theoretical Physics (2022), University of California Santa Cruz (2022), Indian Institute of Science (2021), Nvidia GTC (2021), Institute of Science and Technology Austria (2021), Ohio State University (2021), Duke University (2021), Los Alamos National Lab (2020), Brown University (2020), Princeton University (2019). Publicly accessible talks are **here**

Quantum Community Contributions

- Program Chair for Quantum 2.0 2023 conference by Optica
- Quantum Algorithms Track Chair at IEEE Quantum Week 2022
- Member of advisory board for Unitary Fund (Feb 2023 - Present)
- Founding member of open-source **suite** of tools for quantum benchmarking released by the Quantum Economic Development Consortium
- Mentor, speaker and teacher for early-career scientists at the Korean Quantum Week, MIT iQuHack, Women in Quantum