Dr. Prasanna Date

Research Scientist

Computer Science & Mathematics
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ORNL Webpage
Personal Webpage

Profiles

LinkedIn
Twitter
ResearchGate
ORCID
Google Scholar
GitHub

Interests

- Artificial Intelligence
- Machine Learning
- Deep Learning
- Quantum Computing
- Neuromorphic Computing
- Applied Operations Research

Biography

Dr. Prasanna Date is a Research Scientist at the Oak Ridge National Laboratory (ORNL). He explores AI and machine learning techniques on non-conventional computing platforms such as quantum computing and neuromorphic computing. For his research, he was featured on the 2022 Forbes 30 Under 30 Asia list. He received the R&D 100 Award in 2023 for developing world's fastest simulator for neuromorphic computing called SuperNeuro. He also received an R&D 100 Award in 2024 for developing the MAQ software library, which can train certain machine learning models on quantum computers faster than what is possible on some classical computers. He obtained his Ph.D. in Computer Science at Rensselaer Polytechnic Institute in 2019. He is also an independent music artist and produces his songs from his home studio.

Experience

Sep 2019 – Present
Research Scientist — **Oak Ridge National Laboratory, Oak Ridge, TN**
- Part of the Computer Science and Mathematics Division (CSMD).
- Pursued research in quantum computing, neuromorphic computing, artificial intelligence and machine learning; organized conferences and workshops; led research projects, delivered talks, mentored students, took up editorship and peer review responsibilities etc.

May 2019 – Sep 2019, Aug 2018 – Dec 2018, May 2015 – Dec 2017
Research Assistant — **Rensselaer Polytechnic Institute, Troy, NY**
- Worked in the research group of Prof. Christopher D. Carothers.
- Pursued research in neuromorphic computing and deep learning: (1) CoNNTrA training algorithm for neuromorphic spiking neural networks; (2) Predicting supercomputer failures using neuromorphic computing; and, (3) Design index for deep neural networks.
- Highlights: 1 doctoral dissertation, 3 conference papers and 2 invited talks.

Jan 2018 – Aug 2018
Research Intern — **Oak Ridge National Laboratory, Oak Ridge, TN**
- Part of the Computational Data Analytics (CDA) Group, mentored by Dr. Robert M. Patton.
- Pursued research in quantum computing and machine learning.
- Highlights: 1 journal paper and 1 conference paper.

Education

2014–2019
Ph.D. Computer Science — **Rensselaer Polytechnic Institute, Troy, NY**
Dissertation: *Combinatorial Neural Network Training Algorithm for Neuromorphic Computing*
Advisor: Prof. Christopher D. Carothers
GPA: 3.9 / 4.0
Neuromorphic Computing | Deep Learning | HPC

2014–2019
M.S. Computer Science — **Rensselaer Polytechnic Institute, Troy, NY**
GPA: 3.9 / 4.0
Machine Learning | Data Mining | Randomized Algorithms

2014–2019
M.Eng. Industrial Engineering — **Rensselaer Polytechnic Institute, Troy, NY**
GPA: 3.8 / 4.0
Operations Research | Combinatorial Optimization

2010–2014
B.E. (Honors) Manufacturing Engineering — **BITS Pilani, India**
Thesis: *Development of Fuzzy PROMETHEE Algorithm for Evaluation of Indian World Class Manufacturing Organizations*
Supervisor: Prof. Abhijeet K. Digalwar
CGPA: 8.0 / 10.0
Algorithm Design | Fuzzy Logic | Supply Chain Management

Skills

Programming & Machine Learning:

- Python, C, C++
- TensorFlow
- Scikit-learn
- MATLAB, R

Quantum Computing:

- Google, IBM, D-Wave
- Rigetti, Xanadu

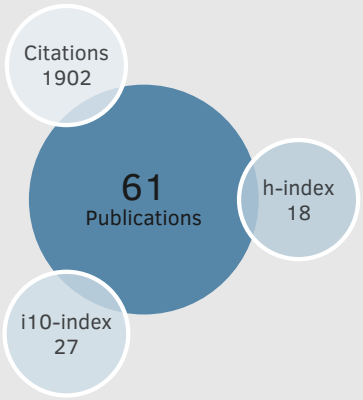
Neuromorphic Computing:

- Intel Loihi
- IBM TrueNorth

Web Development:

- HTML, CSS, JavaScript

Metrics



Memberships

ACM: Association for Computing Machinery

APS: American Physical Society

IEEE: Institute of Electrical and Electronics Engineers

INFORMS: Institute for Operations Research and the Management Sciences

Languages

English (Fluent)

Hindi (Fluent)

Marathi (Mother Tongue)

Projects

Jan 2025 – Present — **Quantum Benchmarking Initiative (QBI) by DARPA** — **ORNL**

- *Description*: Contributed to the QBI program as a evaluation expert in quantum machine learning, quantum algorithms, and quantum software. DARPA's QBI program aims to determine if any quantum computing approach can achieve utility-scale operation by 2033.

Jan 2022 – Present — **Spiking Graph Neural Networks (S-GNNs)** — **ORNL**

- *Description*: Developed novel spiking algorithms for implementing graph neural networks for node classification problems. This is instrumental for energy-efficient artificial intelligence.
- *Resources & Languages*: SuperNeuro neuromorphic simulator, Python

Oct 2020 – Jun 2021 — **General-Purpose Neuromorphic Computing** — **ORNL**

- *Description*: Proved Turing-completeness of neuromorphic computing. Developed theoretical models of neuromorphic computational complexity. Designed data encoding schemes and algorithms for general-purpose neuromorphic computing.
- *Resources & Languages*: SuperNeuro neuromorphic simulator, NEST neuromorphic simulator, Python

Jul 2020 – Sep 2021 — **Quantum Machine Learning** — **ORNL**

- *Description*: Demonstrate the efficacy of quantum computers to train machine learning models and compare performance to classical computers.
- *Resources & Languages*: IBM, Rigetti and Xanadu quantum computers, Google Cirq, IBM Qiskit, Rigetti Forest, Xanadu PennyLane

Apr 2020 – Sep 2020 — **Epidemiological Modeling using Neuromorphic Computing** — **ORNL**

- *Description*: Develop spike-based neuromorphic models for epidemiological simulations of global pandemics such as COVID-19.
- *Resources & Languages*: NEST neuromorphic simulator, Python

Sep 2019 – Jun 2020 — **Embedding for Adiabatic Quantum Computers** — **ORNL**

- *Description*: Developed an algorithm to embed (compile) programs on the D-Wave 2000Q adiabatic quantum computer. The programs are specified by a quadratic unconstrained binary optimization (QUBO) problem.
- *Resources & Languages*: D-Wave 2000Q quantum computer, Python

Awards & Grants

Aug 2024 — **2024 R&D 100 Award** — **R&D World Magazine**

- *Honor*: Awarded the Research & Development 100 Award for developing the 'MAQ: Machine Learning on Adiabatic Quantum Computers' software library.
- *Category*: Software/Services Category.
- *Details*: MAQ is an open-source software library written in Python containing methods to train widely used machine learning models such as linear regression, support vector machine (SVM), and k-means clustering on adiabatic quantum computers. On larger datasets, these methods are faster than some of the popular classical approaches such as those in the Scikit-learn library.

Aug 2023 — **2023 R&D 100 Award** — **R&D World Magazine**

- *Honor*: Awarded the Research & Development 100 Award for developing the SuperNeuro simulator, which at the time of release, was the world's fastest simulator for simulating spiking neural networks based on the leaky integrate and fire (LIF) neuron model.
- *Category*: Software/Services Category.
- *Details*: For developing SuperNeuro, world's fastest simulator for neuromorphic computing.

May 2022 — **2022 Forbes 30 Under 30 Asia Honoree** — **Forbes Magazine**

- *Honor*: Featured on the 2022 Forbes 30 Under 30 Asia list.
- *Category*: Healthcare and Science.
- *Details*: For contributions in quantum machine learning and neuromorphic computing.

Quantum Artificial Intelligence | Quantum Machine Learning | Quantum Neural Networks | Quantum Support Vector Machine | Quantum Regression

Dec 2021 **Promising Early-Career Researcher Award** **CSMD ORNL**
- *Details*: For contributions both broad and deep during his first two years as an ORNL staff member.
- *Division*: Computer Science and Mathematics Division

June 2021 **Winner, YSiaN 2021 Competition** **ORNL**
- *Competition*: Your Science in a Nutshell (YSiaN) 2021 is an intra-ORNL competition, where early career researchers compete against each other by presenting their research in 2 minutes. The best speaker wins the competition.
- *Talk Title*: Advancing Science using Quantum Machine Learning
- *Venue*: ORNL / Virtual

Mar 2021– Sep 2021 **Award Recipient, AWS Research Credits** **Amazon AWS**
- *Award*: Awarded **USD 10,000** worth of research credits, which grant access to some of the world's most advanced quantum computers, including D-Wave, Rigetti and IonQ.
- *Title*: Machine Learning Acceleration using Quantum Computing (MAQ)
- *Program*: Amazon AWS (Amazon Web Services) Cloud Credits for Research Program

Jul 2020 – Sep 2021 **Principal Investigator** **ORNL**
- *Title*: Machine Learning Acceleration using Quantum Computing (MAQ)
- *Program*: ORNL Laboratory Directed Research and Development (LDRD) Seed Program
- *Amount:* **USD 190,000**

Apr 2020 – Sep 2020 **Co-Principal Investigator** **ORNL**
- *Title*: Tracking COVID-19 in the Absense of Testing
- *Program*: ORNL Laboratory Directed Research and Development (LDRD) Seed Program
- *Amount*: **USD 190,000**

Leadership

Aug 2024–Jul 2025 **General Co-Chair** **ACM ICONS 2025**
- *Conference*: ACM International Conference on Neuromorphic Computing (ICONS) 2025
- *Details*: Served as the General Co-Chair for ICONS 2025. Secured sponsorships, facilitated hotel contract, oversaw budget, secured in-cooperation from IEEE, aided in the smooth organization of the conference.
- *Venue*: Seattle, Washington, USA

Jan 2025–Oct 2025 **Co-Chair** **IEEE QAI 2025 Workshop**
- *Conference*: IEEE International Conference on Quantum Computing and Engineering (IEEE Quantum Week)
- *Details*: Organized the sixth edition of the IEEE Quantum AI Workshop at the IEEE Quantum Week 2025.
- *Venue*: Albuquerque, New Mexico, United States

Mar 2025 **Session Chair** **APS Global Physics Summit 2025**
- *Conference*: American Physical Society (APS) Global Physics Summit 2025
- *Session*: Quantum Machine Learning for Applications
- *Venue*: Anaheim, California, United States

Aug 2023–Jul 2024 **General Co-Chair** **ACM/IEEE ICONS 2024**
- *Conference*: ACM International Conference on Neuromorphic Computing (ICONS) 2024
- *Details*: Served as the General Co-Chair for ICONS 2024. Secured sponsorships, facilitated hotel contract, oversaw budget, secured in-cooperation from IEEE, aided in the smooth organization of the conference.
- *Venue*: Washington DC, USA

Jan 2024–Oct 2024 **Tutorials Co-Chair** **IEEE Quantum Week 2024**
- *Conference*: IEEE International Conference on Quantum Computing and Engineering (IEEE Quantum Week)
- *Details*: Served as the Tutorials Co-Chair for IEEE Quantum Week 2024. Evaluated tutorial proposals and finalized tutorials for IEEE Quantum Week 2024.
- *Venue*: Montreal, Quebec, Canada

Jan 2024–Oct 2024 **Co-Chair** **IEEE QAI 2024 Workshop**
- *Conference*: IEEE International Conference on Quantum Computing and Engineering (IEEE Quantum Week)
- *Details*: Organized the fifth edition of the IEEE Quantum AI Workshop at the IEEE Quantum Week 2024.
- *Venue*: Montreal, Quebec, Canada

Aug 2023–June 2023 — **Track Chair** — **ACM SIGSIM PADS 2024**
- *Conference*: ACM SIGSIM Principles of Advanced Discrete Simulation
- *Details*: Served as the Track Chair, Quantum Simulation and Algorithms, for PADS 2024. Developed the track program, nominated the track-specific program committee members aided in the smooth organization of the conference.
- *Venue*: San Francisco, California, USA

June 2023–Dec 2023 — **Program Chair** — **IEEE ICRC 2023**
- *Conference*: IEEE International Conference on Rebooting Computing (ICRC) 2023
- *Details*: Served as the Program Chair for ICRC 2023. Nominated the program committee, developed the conference program, aided in the smooth organization of the conference.
- *Venue*: San Francisco, California, USA

Jan 2023–Oct 2023 — **Tutorials Co-Chair** — **IEEE Quantum Week 2023**
- *Conference*: IEEE International Conference on Quantum Computing and Engineering (IEEE Quantum Week)
- *Details*: Served as the Tutorials Co-Chair for IEEE Quantum Week 2023. Evaluated tutorial proposals and finalized tutorials for IEEE Quantum Week 2023.
- *Venue*: Seattle, Washington, USA

Jan 2023–Oct 2023 — **Organizing Committee Member** — **IEEE Quantum Week 2023**
- *Conference*: IEEE International Conference on Quantum Computing and Engineering (IEEE Quantum Week)
- *Details*: Aided in organizing the IEEE Quantum Week, the biggest conference on quantum computing.
- *Venue*: Seattle, Washington, USA

Jan 2023–Oct 2023 — **Co-Chair** — **IEEE QAI 2023 Workshop**
- *Conference*: IEEE International Conference on Quantum Computing and Engineering (IEEE Quantum Week)
- *Details*: Organized the fourth edition of the IEEE Quantum AI Workshop at the IEEE Quantum Week 2023.
- *Venue*: Seattle, Washington, USA

Oct 2023–Sep 2023 — **Organizing Committee Member (Webmaster & Treasurer)** — **ICONS 2023**
- *Conference*: International Conference on Neuromorphic Systems 2023
- *Details*: Served on the organizing committee of ICONS 2023.
- *Venue*: Santa Fe, New Mexico, USA

Sep 2022 — **Workshop Chair** — **IEEE QAI Workshop 2022**
- *Workshop*: Quantum Artificial Intelligence (QAI) Workshop, held as part of the IEEE Quantum Week: IEEE International Conference on Quantum Computing and Engineering (QCE) 2022
- *Venue*: Denver, Colorado and Virtual

Jul 2022 — **Organizing Committee Member** — **ICONS 2022 Conference**
- *Conference*: International Conference on Neuromorphic Systems (ICONS) 2022
- *Venue*: Knoxville, Tennessee

Oct 2021 — **Workshop Chair** — **IEEE QAI 2021 Workshop**
- *Workshop*: Quantum Artificial Intelligence (QAI) Workshop, held as part of the IEEE Quantum Week: IEEE International Conference on Quantum Computing and Engineering (QCE) 2021
- *Venue*: Virtual

Oct 2021 – Mar 2022 — **Leadership Engagement Chair** — **ORNL**
- *Organization*: The Future Leaders Network at ORNL, which connects early career researchers at ORNL through networking, training and leadership engagement opportunities
- *Responsibilities*: Organized Leadership Panel Series

Jul 2021 — **Organizing Committee Member** — **ICONS 2021 Conference**
- *Conference*: International Conference on Neuromorphic Systems (ICONS) 2021
- *Venue*: Virtual

Jul 2021 — **Session Chair: Lightening Talks on Hardware** — **ICONS 2021 Conference**
- *Conference*: International Conference on Neuromorphic Systems (ICONS) 2021
- *Venue*: Virtual

Oct 2020 — **Workshop Chair** — **IEEE AQAI 2020 Workshop**
- *Workshop*: Applied Quantum Artificial Intelligence (AQAI) Workshop, held as part of the IEEE Quantum Week: IEEE International Conference on Quantum Computing and Engineering (QCE) 2020
- *Venue*: Denver, Colorado / Virtual

Sep 2020 — **Breakout Session Facilitator** — **NITRD Extreme Heterogeneity Software**
- *Workshop*: Software in the Era of Extreme Heterogeneity
- *Venue*: Virtual

Quantum Artificial Intelligence

Quantum Machine Learning

Quantum Neural Networks

Quantum Support Vector Machine

Quantum Regression

Jul 2020 **Organizing Committee Member** **ICONS 2020 Conference**

- *Conference*: International Conference on Neuromorphic Systems (ICONS) 2020
- *Venue*: Chicago, Illinois / Virtual

Jul 2020 **Conference Session Chair** **ICONS 2020 Conference**

- *Conference*: International Conference on Neuromorphic Systems (ICONS) 2020
- *Session*: Poster Session
- *Venue*: Chicago, Illinois / Virtual

Mar 2020 **Workshop Track Co-Chair** **DOE 5GEEIW Workshop**

- *Workshop*: U.S. Department of Energy 5G Enabled Energy Innovation Workshop (5GEEIW)
- *Track*: Software Architectures
- *Venue*: Chicago, Illinois

Nov 2018 **Conference Session Chair** **IEEE SSCI 2018 Conference**

- *Conference*: IEEE Symposium Series on Computational Intelligence (SSCI) 2018
- *Session*: Symposium on Neuromorphic Cognitive Computing
- *Venue*: Bangalore, India

Aug 2018 – Jul 2019 **Graduate Curriculum Committee (GCC) Member** **RPI CS Department**

- Elected into GCC by about 100 graduate students in the Computer Science (CS) department at Rensselaer Polytechnic Institute (RPI).
- Improved curriculum, degree requirements and policies for masters and doctoral programs in Computer Science.
- Assisted graduate students with curriculum-related and degree requirements issues.

Publications

Journal Publications

1. Delgado, Andrea and **Prasanna Date**. "Defining quantum-ready primitives for hybrid HPC-QC supercomputing: a case study in Hamiltonian simulation." *Frontiers in Computer Science* 7 (2025): 1528985.
2. **Date, Prasanna**, and Wyatt Smith. "Quantum discriminator for binary classification." *Nature Scientific Reports* 14, 1 (2024). https://doi.org/10.1038/s41598-023-46469-2.
3. **Date, Prasanna**, Shruti Kulkarni, Aaron Young, Catherine Schuman, Thomas Potok, and Jeffrey Vetter. "Encoding Integers and Rationals on Neuromorphic Computers using Virtual Neuron." *Nature Scientific Reports* 13, 10975 (2023). https://doi.org/10.1038/s41598-023-35005-x.
4. Vetter, Jeffrey S., **Prasanna Date**, Farah Fahim, Shruti R. Kulkarni, Petro Maksymovych, A. Alec Talin, Marc Gonzalez Tallada et al. "Abisko: Deep codesign of an architecture for spiking neural networks using novel neuromorphic materials." *The International Journal of High Performance Computing Applications* (2023): 10943420231178537.
5. Chen, Jie, **Prasanna Date**, Nicholas Chancellor, Mohammed Atiquzzaman, and Cormac Sreenan. "Controller-Based Energy-Aware Wireless Sensor Network Routing Using Quantum Algorithms." *IEEE Transactions on Quantum Engineering* 3 (2022): 1-12.
6. Aimone, James, **Prasanna Date**, Gabriel Fonseca-Guerra, Kathleen Hamilton, Kyle Henke, Bill Kay, Garrett Kenyon et al. "A review of non-cognitive applications for neuromorphic computing." Neuromorphic Computing and Engineering (2022).
7. Schuman, Catherine D., Shruti R. Kulkarni, Maryam Parsa, J. Parker Mitchell, **Prasanna Date** and Bill Kay. "Opportunities for neuromorphic computing algorithms and applications." Nature Computational Science 2, no. 1 (2022): 10-19.
8. **Date, Prasanna**, and Thomas Potok. "Adiabatic quantum linear regression." Scientific Reports 11, no. 1 (2021): 1-10.
9. Arthur, Davis, and **Prasanna Date**. "Balanced k-means clustering on an adiabatic quantum computer." *Quantum Information Processing* 20, no. 9 (2021): 1-30."
10. **Date, Prasanna**, Davis Arthur, and Lauren Pusey-Nazzaro. "QUBO formulations for training machine learning models." *Scientific Reports* 11, no. 1 (2021): 1-10.
11. **Date, Prasanna**, Robert Patton, Catherine Schuman, and Thomas Potok. "Efficiently embedding QUBO problems on adiabatic quantum computers." *Quantum Information Processing* 18, no. 4 (2019): 117.
12. Digalwar, Abhijeet K., and **Prasanna A. Date**. "Development of fuzzy PROMETHEE algorithm for the evaluation of Indian world-class manufacturing organisations." *International Journal of Services and Operations Management* 24, no. 3 (2016): 308-330.

Conference Publications

1. Kenne, Modeste Mefenya, **Prasanna Date**, Ronald T. Eguchi, ZhengHui Hu, Julie Rousseau, and Nalini Venkatasubramanian. "iFair: Achieving Fairness in the Allocation of Scarce Resources for Senior Health Care." In *2024 IEEE International Conference on Smart Computing (SMARTCOMP)*, pp. 22-30. IEEE, 2024.
2. Cong, Guojing, Shruti Kulkarni, Seung–Hwan Lim, **Prasanna Date**, Shay Snyder, Maryam Parsa, Dominic Kennedy, and Catherine Schuman. "Hyperparameter Optimization and Feature Inclusion in Graph Neural Networks for Spiking Implementation." In *2023 International Conference on Machine Learning and Applications (ICMLA)*, pp. 1541-1546. IEEE, 2023.
3. Maheshwari, Disha, Aaron Young, **Prasanna Date**, Shruti Kulkarni, Brett Witherspoon, and Narsinga Rao Miniskar. "An FPGA-Based Neuromorphic Processor with All-to-All Connectivity." In *2023 IEEE International Conference on Rebooting Computing (ICRC)*, pp. 1-5. IEEE, 2023.
4. Wurm, Ahna, Rebecca Seay, **Prasanna Date**, Shruti Kulkarni, Aaron Young, and Jeffrey Vetter. "Arithmetic Primitives for Efficient Neuromorphic Computing." In *2023 IEEE International Conference on Rebooting Computing (ICRC)*, pp. 1-5. IEEE, 2023.
5. Li, Jinyang, Zhepeng Wang, Zhirui Hu, **Prasanna Date**, Ang Li, and Weiwen Jiang. "A novel spatial-temporal variational quantum circuit to enable deep learning on nisq devices." In *2023 IEEE International Conference on Quantum Computing and Engineering (QCE)*, vol. 1, pp. 272-282. IEEE, 2023.
6. Hamilton, Kathleen, Mayanka Chandra Shekar, John Gounley, Dhanvi Bharadwaj, **Prasanna Date**, Eduardo Antonio Coello Pérez, In-Saeng Suh, and Georgia Tourassi. "Characterizing Quantum Classifier Utility in Natural Language Processing Workflows." In *2023 IEEE International Conference on Quantum Computing and Engineering (QCE)*, vol. 2, pp. 369-370. IEEE, 2023.
7. **Date, Prasanna**, Chathika Gunaratne, Shruti Kulkarni, Robert Patton, Mark Coletti, and Thomas Potok. "SuperNeuro: A Fast and Scalable Simulator for Neuromorphic Computing." In *International Conference on Neuromorphic Systems (ICONS) 2023*. ACM, 2023.
8. R. Kulkarni, Shruti, Aaron Young, **Prasanna Date**, Narasinga Rao Miniskar, Jeffrey Vetter, Farah Fahim, Benjamin Parpillon et al. "On-sensor data filtering using neuromorphic computing for high energy physics experiments." In Proceedings of the 2023 International Conference on Neuromorphic Systems, pp. 1-8. 2023.
9. **Date, Prasanna**, Shruti Kulkarni, Aaron Young, Catherine Schuman, Thomas Potok, and Jeffrey S. Vetter. "Virtual Neuron: A Neuromorphic Approach for Encoding Numbers." In *2022 IEEE International Conference on Rebooting Computing (ICRC)*, pp. 100-105. IEEE, 2022.
10. Arthur, Davis, and **Prasanna Date**. "Hybrid Quantum-Classical Neural Networks." In *2022 IEEE International Conference on Quantum Computing and Engineering (QCE)*, pp. 49-55. IEEE, 2022.
11. **Date, Prasanna**, Thomas Potok, Catherine Schuman, and Bill Kay. "Neuromorphic computing is Turing-complete." In *Proceedings of the International Conference on Neuromorphic Systems 2022*, pp. 1-10. 2022.
12. Cong, Guojing, Seung-Hwan Lim, Shruti Kulkarni, **Prasanna Date**, Thomas Potok, Shay Snyder, Maryam Parsa, and Catherine Schuman. "Semi-Supervised Graph Structure Learning on Neuromorphic Computers." In *Proceedings of the International Conference on Neuromorphic Systems 2022*, pp. 1-4. 2022.
13. Quiroga, David, **Prasanna Date** and Raphael Pooser, "Discriminating Quantum States with Quantum Machine Learning," 2021 International Conference on Rebooting Computing (ICRC), 2021, pp. 56-63, doi: 10.1109/ICRC53822.
14. **Date, Prasanna**, Bill Kay, Catherine Schuman, Robert Patton, and Thomas Potok. "Computational Complexity of Neuromorphic Algorithms." In *International Conference on Neuromorphic Systems 2021*, pp. 1-7. 2021.
15. Kay, Bill, Catherine Schuman, Jade O'Connor, **Prasanna Date**, and Thomas Potok. "Neuromorphic Graph Algorithms: Cycle Detection, Odd Cycle Detection, and Max Flow." In *International Conference on Neuromorphic Systems 2021*, pp. 1-7. 2021.
16. Patton, Robert, Catherine Schuman, Shruti Kulkarni, Maryam Parsa, J. Parker Mitchell, N. Quentin Haas, Christopher Stahl, Spencer Paulissen, **Prasanna Date**, Thomas Potok and Shay Sneider. "Neuromorphic Computing for Autonomous Racing." In *International Conference on Neuromorphic Systems 2021*, pp. 1-5. 2021.
17. **Date, Prasanna**, Christopher D. Carothers, John E. Mitchell, James A. Hendler, and Malik Magdon-Ismail. "Training Deep Neural Networks with Constrained Learning Parameters." In *IEEE International Conference on Rebooting Computing (ICRC) 2020*.
18. Hamilton, Kathleen, Tiffany Mintz, **Prasanna Date**, and Catherine D. Schuman. "Spike-based graph centrality measures." In *International Conference on Neuromorphic Systems 2020*, pp. 1-8. 2020.
19. Hamilton, Kathleen, **Prasanna Date**, Bill Kay, and Catherine Schuman D. "Modeling epidemic spread with spike-based models." In *International Conference on Neuromorphic Systems* 2020, pp. 1-5. 2020.
20. Schuman, Catherine D., J. Parker Mitchell, J. Travis Johnston, Maryam Parsa, Bill Kay, **Prasanna Date**, and Robert M. Patton. "Resilience and robustness of spiking neural networks for neuromorphic systems." In *2020 International Joint Conference on Neural Networks (IJCNN)*, pp. 1-10. IEEE, 2020.
21. Parsa, Maryam, Catherine D. Schuman, **Prasanna Date**, Derek C. Rose, Bill Kay, J. Parker Mitchell, Steven R. Young et al. "Hyperparameter optimization in binary communication networks for neuromorphic deployment." In *2020 International Joint Conference on Neural Networks (IJCNN)*, pp. 1-9. IEEE, 2020.
22. **Date, Prasanna**, Catherine Schuman, Robert Patton, and Thomas Potok. "A classical-quantum hybrid approach for unsupervised probabilistic machine learning." In *Future of Information and Communication Conference*, pp. 98-117. Springer, Cham, 2019.

23. **Date, Prasanna**, Christopher D. Carothers, James A. Hendler, and Malik Magdon-Ismail. "Efficient classification of supercomputer failures using neuromorphic computing." In *2018 IEEE Symposium Series on Computational Intelligence (SSCI)*, pp. 242-249. IEEE, 2018.
24. **Date, Prasanna**, James A. Hendler, and Christopher D. Carothers. "Design index for deep neural networks." *Procedia Computer Science* 88 (2016): 131-138.

Workshop Publications

1. Robert Patton, **Prasanna Date**, Shruti Kulkarni, Chathika Gunaratne, Seung-Hwan Lim, Guojing Cong, Steven R Young, Mark Coletti, Thomas E Potok, Catherine D Schuman. "Neuromorphic Computing for Scientific Applications." In *2022 IEEE/ACM Redefining Scalability for Diversely Heterogeneous Architectures Workshop (RSDHA)*, pp. 22-28. IEEE, 2022.
2. Schuman, Catherine D., Bill Kay, **Prasanna Date**, Ramakrishnan Kannan, Piyush Sao, and Thomas E. Potok. "Sparse Binary Matrix-Vector Multiplication on Neuromorphic Computers." In *2021 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)*, pp. 308-311. IEEE, 2021.
3. Kay, Bill, **Prasanna Date**, and Catherine Schuman. "Neuromorphic Graph Algorithms: Extracting Longest Shortest Paths and Minimum Spanning Trees." In Proceedings of the *Neuro-inspired Computational Elements Workshop*, pp. 1-6. 2020.

Other

1. **Date, Prasanna**, Dong Jun Woun, Kathleen E. Hamilton, Eduardo Antonio Coello Pérez, Mayanka Chandra Shekar, Francisco Rios, John Gounley, In-Saeng Suh, Travis S. Humble, and Georgia D. Tourassi. "Training Support Vector Machines on Adiabatic Quantum Computers." In *APS March Meeting* Abstracts, vol. 2024, pp. Z49.002. 2024.
2. **Date, Prasanna**, Dong Jun Woun, Kathleen E. Hamilton, Eduardo Antonio Coello Pérez, Mayanka Chandra Shekar, Francisco Rios, John Gounley, In-Saeng Suh, Travis S. Humble, and Georgia D. Tourassi. "Adiabatic Quantum Support Vector Machines." arXiv:2401.12485 (2024).
3. Woun, Dong Jun, and **Prasanna Date**. "Adiabatic Quantum Support Vector Machines." In *2023 IEEE International Conference on Quantum Computing and Engineering (QCE)*, vol. 2, pp. 296-297. IEEE, 2023.
4. **Prasanna Date**. "Adiabatic quantum linear regression." *APS March Meeting 2023*. Las Vegas, Nevada, United States.
5. Perez, Eduardo, In-Saeng Suh, **Prasanna Date**, John Gounley, Mayanka Chandra Shekar, Kathleen Hamilton. "Quantum natural language processing applications on high-performance computing systems and quantum devices." *APS March Meeting 2023*. Las Vegas, Nevada, United States.
6. Delgado, Andrea, Kathleen E. Hamilton, **Prasanna Date** Jean-Roch Vlimant, Duarte Magano, Yasser Omar, Pedrame Bargassa, Anthony Francis et al. "Quantum Computing for Data Analysis in High-Energy Physics." arXiv preprint arXiv:2203.08805 (2022).
7. Humble, Travis S., Andrea Delgado, Raphael Pooser, Christopher Seck, Ryan Bennink, Vicente Leyton-Ortega, Joseph Wang, Eugene Dumitrescu, Titus Morris, Kathleen Hamilton, Dmitry Lyakh, **Prasanna Date** et al. "Snowmass White Paper: Quantum Computing Systems and Software for High-energy Physics Research." arXiv preprint arXiv:2203.07091 (2022).
8. Hamilton, Kathleen, Bill Kay, **Prasanna Date**, Raphael Pooser, Travis Humble, and Catherine Schuman. "Simulating network dynamics with neuromorphic hardware." In *2022 Joint Mathematics Meetings (JMM 2022)*. AMS, 2022.
9. Quiroga, David, **Prasanna Date**, and Raphael Pooser. "Discriminating Quantum States with Quantum Machine Learning." In 2021 IEEE International Conference on Quantum Computing and Engineering (QCE), pp. 481-482. IEEE, 2021.
10. Chen, Jie, **Prasanna Date**, Nicholas Chancellor, Atiquzzaman Mohammed, Hongjian Sun, Cormac Sreenan, and Viv Kendon. "Energy Efficient Mobile Network Routing using Hybrid Quantum Algorithm." In APS March Meeting Abstracts, vol. 2021, pp. A34-008. 2021.
11. Pusey-Nazzaro, Lauren and **Prasanna Date**. "Adiabatic Quantum Optimization Fails to Solve the Knapsack Problem." *arXiv preprint arXiv:2008.07456* (2020).
12. **Date, Prasanna**. "Combinatorial Neural Network Training Algorithm for Neuromorphic Computing." PhD diss., Rensselaer Polytechnic Institute, 2019.

Intellectual Property

1. **Open-Source Software Copyright**: NeuroCoreX, an FPGA-based neuromorphic processor designed and implemented using VHDL. GitHub: NeuroCoreX.
2. **Open-Source Software Copyright**: MAQ, Machine Learning on Adiabatic Quantum Computers, a quantum machine learning library for training widely used machine learning models such as linear regression, support vector machine (SVM), and k-means clustering on adiabatic quantum computers. At the time of release, MAQ methods trained machine learning models faster than some popular classical approaches. It won the 2024 R&D 100 Award in the Software/Services Category. GitHub: MAQ.

3. **Open-Source Software Copyright**: SuperNeuroMAT, a matrix-based neuromorphic computing simulator. At the time of release, SuperNeuroMAT was the fastest simulator for neuromorphic computing. It was part of the SuperNeuro Neuromorphic Simulator, which won the 2023 R&D 100 Award in the Software/Services Category. GitHub: SuperNeuroMAT.
4. **Open-Source Software Copyright**: SuperNeuroABM, an agent-based modeling-based neuromorphic computing simulator. It was part of the SuperNeuro Neuromorphic Simulator, which won the 2023 R&D 100 Award in the Software/Services Category. GitHub: SuperNeuroABM

Invited Talks & Presentations

Invited Talks

1. **Invited Talk**: "A Paradigm Shift in Quantum Machine Learning" at the University of Tennessee and University of Georgia QuanTRASE seminar series. Virtual.
2. **Invited Talk**: "A Paradigm Shift in Quantum Machine Learning" at the 2023 Texas Symposium on Computing with Emerging Technologies (ComET). October 2023. University of Texas, Dallas, Texas.
3. **Invited Panelist**: Panel discussion on "Life As An Early Career Professional at ORNL," catered towards the Pathways to Computing Internship (PCIP) students, hosted by ORNL's Computing and Computational Sciences Directorate (CCSD). June 2023. Oak Ridge, TN.
4. **Invited Talk**: "Virtual Neuron: A Neuromorphic Approach for Encoding Numbers" at the 2023 International Symposium on Roadmapping Devices and Systems (ISRDS). May 2023. Virtual.
5. **Invited Talk**: "Computability and Complexity of Neuromorphic Computing" at the Society of Brain Mapping and Therapeutics (SBMT) 20th Annual World Congress. February 2023. Los Angeles, California, United States.
6. **Guest Lecture**: "Linear Algebra for Data Science" at the Indian Institute of Management (IIM) Mumbai (formerly, National Institute of Industrial Engineering (NITIE) Mumbai). August 2022, virtual.
7. **Invited Talk**: "Quantum Machine Learning Techniques" at University of Washington at Seattle, as part of the Computational Research Leadership Council (CRLC) Seminar Series, hosted by the Sustainable Horizons Institute (SHI), a non-profit organization dedicated to building sustainable and inclusive scientific communities. October 2021, virtual.
8. **Invited Talk**: "Advancing Science using Quantum Machine Learning" at ORNL Computing and Computational Sciences Directorate (CCSD) Science Research Seminar. Hosted by Dr. Barney Maccabe, Division Director at ORNL. July 2021, virtual.
9. **Guest Lecture**: "Introduction to Quantum Computing" at RPI Summer School on Advanced Cyberinfrastructure Training for Modeling Physical Systems. Joel Giedt, Professor at RPI. July 2021, virtual.
10. **Guest Lecture**: "Introduction to Neuromorphic Computing" at RPI Summer School on Advanced Cyberinfrastructure Training for Modeling Physical Systems. Joel Giedt, Professor at RPI. July 2021, virtual.
11. **Guest Lecture**: "Quantum Artificial Intelligence" at RPI Summer School on Advanced Cyberinfrastructure Training for Modeling Physical Systems. Hosted by Prof. Joel Giedt, Professor at RPI. July 2020, virtual.
10. **Invited Talk**: "Adiabatic Quantum Linear Regression" at ORNL's Quantum Machine Learning (QML) Club. Hosted by Dr. Ryan Bennink. July 2019, virtual.
11. **Invited Talk**: "A Classical-Quantum Hybrid Approach for Unsupervised Probabilistic Machine Learning" at 120th Topical Symposium of the APS New York State Section: Physics of Artificial Intelligence. Hosted by Dr. Abram Falk, Research Staff Member at IBM. April 2019, Yorktown Heights, New York.
12. **Invited Talk**: "A Classical-Quantum Hybrid Approach for Unsupervised Probabilistic Machine Learning" at RPI Physics Department Seminar. Hosted by Prof. Joel Giedt. Spring 2019, Troy, New York.

Presentations

1. **Conference Presentation**: "A Paradigm Shift in Quantum Machine Learning" at the APS Global Physics Summit 2025. March 2025, Anahiem, California, United States.
2. **Conference Presentation**: "Adiabatic Quantum Linear Regression" at the South East Section of the American Physical Society (SESAPS) Fall 2023 Meeting. November 2023, Richmond, Kentucky, United States.
3. **Conference Presentation**: "Adiabatic Quantum Linear Regression" at American Physical Society (APS) March Meeting. March 2023, Las Vegas, Nevada, United States.
4. **Conference Presentation**: "Virtual Neuron: A Neuromorphic Approach for Encoding Numbers" at IEEE International Conference on Rebooting Computing (ICRC). December 2022, San Francisco, California, United States.
5. **Conference Presentation**: "Neuromorphic Computing is Turing-Complete" at International Conference on Neuromorphic Systems (ICONS) 2022. July 2022, Knoxville, Tennessee, United States.
6. **Conference Presentation**: "Computational Complexity of Neuromorphic Algorithms" at International Conference on Neuromorphic Systems (ICONS) 2021. July 2021, virtual.
7. **Conference Presentation**: "Training Deep Neural Networks with Constrained Learning Parameters" at IEEE International Conference on Rebooting Computing (ICRC) 2020. October 2020, virtual.

8. **Workshop Presentation**: "Quantum Encrypted Communication over 5G Networks for Autonomous Vehicles" at U.S. Department of Energy (DOE) 5G Enabled Energy Innovation Workshop (5GEEIW). March 2020, Chicago, Illinois.
9. **Conference Presentation**: "A Classical-Quantum Hybrid Approach for Unsupervised Probabilistic Machine Learning" at Future of Information and Communication Conference 2019. March 2019, San Francisco, California.
10. **Conference Presentation**: "Efficient Classification of Supercomputer Failures using Neuromorphic Computing" at IEEE Symposium Series on Computational Intelligence (SSCI) 2018. November 2018. Bangalore, India.
11. **Conference Presentation**: "Efficiently Embedding QUBO Problems on Adiabatic Quantum Computers" at D-Wave Qubits North America Quantum Computing Users Conference. September 2018, Knoxville, Tennessee.
12. **Conference Presentation**: "Design Index for Deep Neural Networks" at Biologically Inspired Cognitive Architectures (BICA) 2016. July 2016, New York City, New York.

Posters and Abstracts

1. "A Classical-Quantum Hybrid Approach for Unsupervised Probabilistic Machine Learning" at D-Wave Qubits North America Quantum Computing Users Conference. September 2018, Knoxville, Tennessee.
2. "Efficient Classification of Supercomputer Failures" at International Conference on Neuromorphic Systems (ICONS) 2018. July 2018, Knoxville, Tennessee.

Editorship & Review

Editorship

1. *Associate Editor*: **Transactions on Neural Networks and Learning Systems** | Impact Factor: 14.3
2. *Guest Editor*: **Nature Scientific Reports collection on Quantum Machine Learning** | Impact Factor: 5.0
3. *Editorial Board Member*: **Nature Scientific Reports** | Impact Factor: 5.0
4. *Editorial Board Member*: **Springer Nature Discover Computing** | Impact Factor: 1.7
5. *Review Editor*: **Frontiers in Systems Neuroscience** | Impact Factor: 3.8
6. *Review Editor*: **Frontiers in Neuromorphic Photonics and Photonic Computing** | Impact Factor: Not Applicable

Proposal Review

1. *Proposal Reviewer*: **U.S. Department of Energy** Exploratory Research for Extreme-Scale Science (EXPRESS) 2025
2. *Proposal Reviewer*: **U.S. Department of Energy** Early Career Research Program (ECRP) 2025
3. *Proposal Reviewer*: **Oak Ridge National Laboratory (ORNL)** Laboratory Director Research & Development (LDRD)
4. *NSF Review Panelist*: **National Science Foundation (NSF)** Emerging Frontiers in Research and Innovation (EFRI) Brain-Inspired Dynamics for Engineering Energy-Efficient Circuits and Artificial Intelligence (BRAID)
5. *Reviewer*: **Dutch Research Council (NWO)** Domain Applied and Engineering Sciences (AES)
6. *Advisor*: **Electric Power Research Institute (EPRI)** Quantum Challenge 2022

Dissertation Committee

1. *Dissertation Committee Member*: **Polytechnic University of Milan**, Milan, Italy, 2023. "Quantum Machine Learning Methods for Anomaly Detection in Telecommunication and Quantum Compiling" by Lorenzo Moro.

Peer Reviewed Journals

1. *Reviewer*: **IEEE Transactions on Neural Networks and Learning Systems (TNNLS)** | Impact Factor: 14.3
2. *Reviewer*: **Physical Review Letters** | Impact Factor: 9.2
3. *Reviewer*: **Nature Communications Physics** | Impact Factor: 6.5
4. *Reviewer*: **Nature Scientific Reports** | Impact Factor: 5.0
5. *Reviewer*: **Public Library of Science (PLOS) One** | Impact Factor: 3.8
6. *Reviewer*: **IEEE Transactions on Computers** | Impact Factor: 3.2
7. *Reviewer*: **Physical Review A** | Impact Factor: 3.0
8. *Reviewer*: **Physical Review E** | Impact Factor: 2.7
9. *Reviewer*: **IEEE Transactions on Quantum Engineering (TQE)** | Impact Factor: 2.5
10. *Reviewer*: **Frontiers in Computer Science** | Impact Factor: 2.4
11. *Reviewer*: **Springer Quantum Information Processing (QIP)** | Impact Factor: 2.0
12. *Reviewer*: **World Scientific International Journal of Quantum Information (IJQI)** | Impact Factor: 1.0

Conferences

1. *Program Committee Member*: **International Conference on Neuromorphic Systems (ICONS) 2023**
2. *Program Committee Member*: **IEEE International Conference on Quantum Computing and Engineering (QCE) 2023**
3. *Program Committee Member*: **International Conference on Neuromorphic Systems (ICONS) 2022**
4. *Reviewer*: **International Conference on Machine Learning (ICML) 2022**
5. *Program Committee Member*: **International Conference on Neuromorphic Systems (ICONS) 2021**
6. *Program Committee Member*: **International Conference on Neuromorphic Systems (ICONS) 2020**
7. *Program Committee Member*: **International Conference on Neuromorphic Systems (ICONS) 2018**
8. *Reviewer*: **IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS) 2021**

Workshops

1. *Program Committee Member*: **International Workshop on Quantum Data Science and Management** held as part of International Conference on Very Large Data Bases 2023
2. *Program Committee Chair*: **IEEE Applied Quantum Artificial Intelligence (AQAI) Workshop 2020**
3. *Program Committee Member*: **International Workshop on COmputing using EmeRging EXotic AI-Inspired Systems (CORtEX 22)**

Teaching

Aug 2022 — **Guest Lecturer** — **NITIE, Mumbai, India**
- *Topic*: Linear Algebra for Data Science
- *Platform*: As part of the 'Data Science for Business Applications' course taught at the National Institute of Industrial Engineering (NITIE), Mumbai.
- *Host*: Prof. Hema Date

Jul 2021 — **Guest Lecturer** — **Rensselaer Polytechnic Institute, Troy, NY**
- *Topic*: Introduction to Quantum Computing
- *Platform*: Summer School on 'Advanced Cyberinfrastructure Training for Modeling Physical Systems 2021'
- *Host*: Prof. Joel Giedt

Jul 2021 — **Guest Lecturer** — **Rensselaer Polytechnic Institute, Troy, NY**
- *Topic*: Introduction to Neuromorphic Computing
- *Platform*: Summer School on 'Advanced Cyberinfrastructure Training for Modeling Physical Systems 2021'
- *Host*: Prof. Joel Giedt

Jun 2020 — **Guest Lecturer** — **Rensselaer Polytechnic Institute, Troy, NY**
- *Topic*: Quantum Artificial Intelligence
- *Platform*: Summer School on 'Advanced Cyberinfrastructure Training for Modeling Physical Systems 2020'
- *Host*: Prof. Joel Giedt

Jan 2019 – May 2019, Aug 2014 – May 2015 — **Teaching Assistant** — **Rensselaer Polytechnic Institute, Troy, NY**
- *Courses*: Parallel Computing, Big Data Analytics, Optimization Algorithms and Applications, Decision Focussed Systems Engineering
- *Duties*: Graded assignments, conducted office hours, mentored graduate and undergraduate students

Mentoring

Jun 2023 – Jan 2024 — **Research Mentor** — **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Pracheta Harlikar, New Mexico State University
- *Project*: Designing an FPGA-based Neuromorphic Computer
- *Program*: Sustainable Horizons Institute (SHI) Sustainable Research Pathways (SRP) Program

May 2023 – Dec 2023 — **Research Mentor** — **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Dong Jun Woun, University of Tennessee, Knoxville
- *Project*: Adiabatic Quantum Support Vector Machines; Quantum Discriminator
- *Program*: U.S. Department of Energy Science Undergraduate Laboratory Internship (SULI)

Quantum Artificial Intelligence

Quantum Machine Learning

Quantum Neural Networks

Quantum Support Vector Machine

Quantum Regression

Aug 2023 – Dec 2023 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: David Joy, Auburn University
- *Project*: Quantum Evolutionary Optimization
- *Program*: U.S. Department of Energy Science Undergraduate Laboratory Internship (SULI)

Jan 2023 – Dec 2023 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Students*: Ahna Wurm & Rebecca Seay, Oak Ridge High School
- *Project*: Linear Regression on a Neuromorphic Computer
- *Program*: ORNL High School Internship Program

Jun 2023 – Aug 2023 **Lightening Talk Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Daniel Adams, Oak Ridge National Laboratory
- *Project*: Modeling Building Use to Advance the Science of Saving Lives. Daniel won third place out of 14 participants in this competition.
- *Competition*: Your Science in a Nutshell (YSiaN) 2023 Competition

May 2023 – Jul 2023 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Disha Maheshwari, Purdue University
- *Project*: Designing an FPGA-based Neuromorphic Computer
- *Program*: ORNL Pathways to Computing Internship Program (PCIP)

May 2022 – Aug 2022 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Amish Mishra, Florida Atlantic University
- *Project*: Quantum Topological Data Analysis. Amish won the Ignite-Off 2022 competition at the national level for the research work pursued during his internship.
- *Program*: NSF Mathematical Sciences Graduate Internship (MSGI) program

May 2022 – Aug 2022 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Modeste Kenne, University of California, Irvine
- *Project*: Neuromorphic Computing for Optimization Problems
- *Program*: The National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (GEM) Fellowship

May 2022 – Aug 2022 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Dong Jun Woun, University of Tennessee, Knoxville
- *Project*: Adiabatic Quantum Support Vector Machines (QSVM)
- *Program*: U.S. Department of Energy Science Undergraduate Laboratory Internship (SULI)

Jun 2021 – Aug 2021 **Tech Talk Coach** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Students*: Joseph Schmidt, University of Texas at Austin; Clarice Phelps, University of Tennessee at Knoxville; Edward Ruiz, Columbia University; Amy Moreno, New York University
- *Task*: Coached four GEM students in preparing their research talks for a 5-minute Tech Talk competition held at ORNL.
- *Program*: The National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (GEM) Fellowship

Jun 2021 – Aug 2021 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Wyatt Smith, University of Tennessee, Knoxville
- *Project*: Supervised Learning using the Quantum Discriminator
- *Program*: Pathways to Computing Internship Program (PCIP) at ORNL

Jun 2021 – Aug 2021 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Davis Arthur, Auburn University, Alabama
- *Project*: Empirical Evaluation of Quantum Neural Networks (QNN)
- *Program*: Virtual Undergraduate Research Summer Internship (vURSI) at ORNL

Jun 2021 – Aug 2021 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Devon Delgado, University of Chicago
- *Project*: Empirical Evaluation of Adiabatic Quantum Support Vector Machines (QSVM)
- *Program*: U.S. Department of Energy Science Undergraduate Laboratory Internship (SULI)

Jun 2021 – Aug 2021 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Lucas Moynihan, University of Texas, Austin
- *Project*: Review of Support Vector Machines (SVM) on Universal Quantum Computers
- *Program*: U.S. Department of Energy Science Undergraduate Laboratory Internship (SULI)

Jun 2020 – Aug 2020 **Research Mentor** **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: David Quiroga, Universidad de Antioquia, Columbia
- *Project*: Clustering quantum states for efficient quantum signal propagation
- *Program*: U.S. Department of Energy Science Undergraduate Laboratory Internship (SULI)

Jun 2020 – Aug 2020 **Research Mentor** — **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Benjamin Hansen, Brigham Young University, Idaho
- *Project*: Financial portfolio optimization using quantum computing
- *Program*: U.S. Department of Energy Science Undergraduate Laboratory Internship (SULI)

Jun 2020 – Aug 2020 **Research Mentor** — **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Davis Arthur, Auburn University, Alabama
- *Project*: Balanced k-Means Clustering on an Adiabatic Quantum Computer
- *Program*: U.S. Department of Energy Science Undergraduate Laboratory Internship (SULI)

Jun 2020 – Aug 2020 **Research Mentor** — **Oak Ridge National Laboratory, Oak Ridge, TN**
- *Student*: Lauren Pusey-Nazzaro, Washington University in St. Louis, Missouri
- *Project*: Adiabatic Quantum Optimization Fails to Solve the Knapsack Problem
- *Program*: U.S. Department of Energy Science Undergraduate Laboratory Internship (SULI)

Licenses & Certifications

Sep 2022 **Music Business Specialization** — **Coursera**
- Successfully completed the Music Business Specialization on Coursera, which comprised of 4 courses: (1) Music Business Foundations; (2) Building Your Career in Music: Developing a Brand and Funding Your Music; (3) Copyright Law in the Music Business; and (4) Creativity and Entrepreneurship
- *Grades*: 97.73%, 100%, 100%, and 100% respectively
- *University*: Berklee College of Music, Boston, Massachusetts, United States

Sep 2022 **The Business of Music Production Specialization** — **Coursera**
- Successfully completed The Business of Music Production Specialization on Coursera, which comprised of 4 courses: (1) Music Business Foundations; (2) The Art of Music Production; (3) Copyright Law in the Music Business; and (4) Pro Tools Basics
- *Grades*: 97.73%, 100%, 100%, and 100% respectively
- *University*: Berklee College of Music, Boston, Massachusetts, United States

Sep 2022 **Music Production Specialization** — **Coursera**
- Successfully completed the Music Production Specialization on Coursera, which comprised of 4 courses: (1) The Art of Music Production; (2) The Technology of Music Production; (3) Pro Tools Basics; and (4) Music Production Capstone
- *Grades*: 100%, 97.73%, 100%, and 100% respectively
- *University*: Berklee College of Music, Boston, Massachusetts, United States

Sep 2022 **The Art of Vocal Production Course** — **Coursera**
- Successfully completed The Art of Vocal Production Course on Coursera
- *Grade*: 100%
- *University*: Berklee College of Music, Boston, Massachusetts, United States

Mar 2013 **Fundamentals of Personal Financial Planning** — **Coursera**
- Successfully completed the Fundamentals of Personal Financial Planning Course on Coursera
- *Grade*: 86.65%
- *University*: University of California, Irvine, California, United States

Volunteering

July 2023 – December 2023 **Government Task Force Member** — **IEEE CIS IGA**
- Recruited webinar speakers; identified government keynote speakers for CIS conferences; authored articles for the Computational Intelligence Magazine (CIM) columns
- *Organizer*: IEEE Computational Intelligence Society (CIS) Industry and Government Activities (IGA)

July 2023 – December 2023 **Quantum Interest Group Member** — **EPRI**
- Facilitated discussions and collaborations between experts in the quantum computing industry and the energy industry to accelerate the deployment of quantum solutions in the energy industry
- *Organizer*: Electric Power Research Institute (EPRI)

July 2021 – September 2021 **IEEE Computer Society EITBoK Reviewer** — **IEEE**
- Reviewed the IEEE Computer Society's Enterprise Information Technology Body of Knowledge (EITBoK), which defines the key knowledge areas for the IT profession and embodies concepts that are recognized as good practice in the IT domain and that are applicable to most IT efforts
- *Organizer*: IEEE Computer Society EITBoK

June 2021 – Present
IEEE.tv Ambassador — **IEEE**
- Promoted, publicized and contributed to the IEEE.tv internet television network
- *Organizer*: IEEE.tv, which is an award winning internet television network by IEEE

June 2021 – Present
IEEE Puzzlers Volunteer — **IEEE**
- Designed math, logic and verbal puzzles for the IEEE Puzzlers Program
- *Organizer*: IEEE Puzzlers Program

March 2021
Back-Up Moderator — **Tennessee Science Bowl (TSB)**
- Served as the Back-Up Moderator in the 2021 edition of the Tennessee Science Bowl (TSB).
- *Organizer*: Oak Ridge Institute for Science and Education (ORISE)

Oct 2020 – Dec 2020
Co-Leader, Movie/TV/Streaming Community Group — **Oak Ridge National Laboratory, Oak Ridge, TN**
- Virtually led the Movie/TV/Streaming Community Group, comprising of 20 people at ORNL during COVID-19.
- Conducted discussion sessions about movies, TV and streaming, organized weekly meetings, supervised fun activities such as movie-related quizzes.

Miscellaneous

Jan 2021 – Present
Independent Music Artist & Producer — **Worldwide**
- Writes and produces music.
- Links: YouTube, YouTube Music, Spotify, Apple Music, Amazon Music etc.

Jan 2021 – Present
Blog Writer — **Medium.com**
- Writes about life, philosophy, career, computer science, food and other interesting topics.
- Link: https://prasannadate.medium.com/

Oct 2018
Brown University Ballroom Competition — **Providence, RI**
- *Award*: **Second Place** in Ballroom Dancing Team Event
- *Organizer*: Brown University

Oct 2018
Princeton Ballroom Competition — **Princeton, NJ**
- *Award*: **Third Place** in Latin Rumba
- *Organizer*: Princeton University

Oct 2018
Princeton Ballroom Competition — **Princeton, NJ**
- *Award*: **Fourth Place** in Rhythm Rumba
- *Organizer*: Princeton University

Oct 2018
Princeton Ballroom Competition — **Princeton, NJ**
- *Award*: **Fifth Place** in Latin Jive
- *Organizer*: Princeton University

Oct 2018
Princeton Ballroom Competition — **Princeton, NJ**
- *Award*: **Seventh Place** in Rhythm Chacha
- *Organizer*: Princeton University

May 2017 – Dec 2017
President, Cricket Club — **Rensselaer Polytechnic Institute, Troy, NY**
- Led the Cricket Club, comprising of 50 people at Rensselaer Polytechnic Institute.
- Scheduled practices, managed budget, procured equipment, organized club outing events and represented the club in RPI student union.

June 2017
Cricket All-Stars Mayor's Cup — **Albany, NY**
- *Award*: **Winner** of 2017 CDCA All-Stars Mayor's Cup
- *Organizer*: Capital District Cricket Association (CDCA)

Sep 2015
137th New York State Chess Championship — **Albany, NY**
- *Award*: **Top Scoring Unrated Player** (Under 1200 Section)
- *Organizer*: United States Chess Federation (USCF)

Jun 2013 – Aug 2013
Summer Intern — **Larsen & Toubro Limited, Mumbai, India**
- Designed an automation system comprising of a robotic arm for TIG welding.
- Resulted in 15% improvement in productivity. Received a job offer based on that.

Aug 2012 – Dec 2012
President, Department of Music — **BITS Pilani, India**
- Led the department of 50 people in conducting music workshops, organizing music performances and participating in music competitions.
- Generated revenue, managed finances, procured equipment and organized music events.

Jun 2012 – Aug 2012
Summer Intern — **Thermax Limited, Pune, India**
- Created Standard Operating Procedures (SOP) for drum shop and panel shop, which were used in manufacturing bi-drum boilers.