# Curtis Priem Professor of Quantum Computing and Constellation Endowed Chair
## Rensselaer Polytechnic Institute
### Troy, New York

## THE OPPORTUNITY

Rensselaer Polytechnic Institute (RPI or Rensselaer), the first university in the world to house an IBM utility-scale quantum computer on its campus, seeks an innovative and accomplished scholar to serve as the Curtis Priem Professor of Quantum Computing and Constellation Endowed Chair in the new Curtis Priem Quantum Constellation, an endowed center for collaborative research. The new research constellation, made possible by a donation from Curtis R. Priem '82, visionary inventor and co-founder of NVIDIA Corporation, will help transform quantum computing research at RPI.

In April 2024, RPI and IBM unveiled the world's first-ever IBM Quantum System One on a university campus. Located in the historic Voorhees Computing Center Chapel, the IBM Quantum System One has significantly enhanced educational and research opportunities for RPI, as well as other academic institutions and organizations across the Capital Region of New York. Faculty, students, research scientists, and collaborators accessing the system will advance quantum computing research, including the search for quantum algorithms that could fundamentally change the computing field.

Reporting directly to the provost, the constellation chair is an endowed position at the full professor rank and will have an appointment, or multiple appointments, in the appropriate academic unit or units. The endowed chair will leverage the IBM Quantum System One and build upon existing strengths in related areas across the university to lead multidisciplinary quantum computing research. The endowed chair will have the opportunity to grow quantum computing capacity at RPI, including leading the establishment of the Curtis Priem Quantum Constellation, which will include two additional endowed professors of quantum computing. With an IBM Quantum System One on its campus, RPI has a unique opportunity to develop new quantum curricula and educational programs.

RPI has retained Isaacson, Miller to assist with this important recruitment. All inquiries, nominations, and applications should be directed to the search firm as indicated at the end of this document.

## Institute-Wide Research in Computational Science and Engineering

Rensselaer has a broad, collaborative, and vibrant research community that is focused on the growing interface of the basic sciences and engineering. One area of emphasis, computational science and engineering, supports research and innovation across a broad spectrum of disciplines, including high-performance computing, neuromorphic and quantum computing, big data, data analytics, and artificial intelligence.

Rensselaer faculty, research scientists and engineers, and students at all levels engage in leading scholarship and significant research with industry and government. This research spans across many institute-wide research platforms and centers and includes:

Center for Computational Innovations (CCI)
Institute for Data Exploration and Applications (IDEA)
Future of Computing Institute (FOCI)
Network Science and Technology Center (NeST)
Scientific Computation Research Center (SCOREC)

### Quantum Computing and Quantum Information Research

*RPI's Quantum System One in Voorhees Computing Center Chapel*

Quantum Computing and Quantum Information Research at RPI are underpinned by the recently installed 127-qubit IBM Quantum System One quantum computer on campus, around which RPI is building extensive additional expertise in quantum algorithm and application development. It is powered by a 127-qubit IBM Quantum 'Eagle' processor to offer RPI's network of researchers, students, and partners free, dedicated access to a utility-scale quantum computer.

RPI and IBM have a long-standing and storied history of collaboration to advance technology. As IBM and RPI build initiatives to prepare the future talent base of technology workers, the organizations expect their joint learnings to influence global workforce development and skills-building programs.

### High-Performance Computing

Support for high-performance computing is provided via operations at the Center for Computational Innovations located at the Rensselaer Technology Park. An essential component of a collaboration between IBM, Empire State Development, and NY CREATES, the Artificial Intelligence Multiprocessing Optimized System, or AiMOS, is an eight-petaflop IBM POWER9-equipped supercomputer configured to enable users to explore new AI applications. Named in honor of Rensselaer co-founder Amos Eaton, AiMOS uses a heterogeneous system architecture that includes IBM POWER9 CPUs and NVIDIA GPUs. AiMOS supports the work of Rensselaer faculty, students, and staff, who are engaged in a number of ongoing collaborations that employ and advance AI technology.

AiMOS also serves as the test bed for the IBM Research AI Hardware Center, which is located at the Albany NanoTech Complex. The AI Hardware Center aims to advance the development of computing chips and systems that are designed and optimized for AI workloads to push the boundaries of AI performance. AiMOS provides the modeling, simulation, and computation necessary to support the development of this hardware.

## CURTIS PRIEM ENDOWED PROFESSOR OF QUANTUM COMPUTING AND CONSTELLATION ENDOWED CHAIR

In 2023, the Priem Family Foundation provided a significant donation for the new Curtis Priem Quantum Constellation. Rensselaer research constellations are endowed centers for collaborative research. The Center for Biotechnology and Interdisciplinary Studies (CBIS) innovated this organizational structure to bring groundbreaking faculty together to perform multidisciplinary research and encourage blue-sky thinking with highly targeted research. In addition to the new Quantum Computing Constellation, RPI has established research constellations around the following key research areas: Biocatalysis and Metabolic Engineering, Biocomputation and Bioinformatics, Integrated Systems Biology, Future Chips Constellation, Functional Tissue Engineering and Regenerative Medicine, Physics, Information Technology, and Entrepreneurship, and the Tetherless World Constellation.

Reporting to the provost, the Curtis Priem Endowed Professor of Quantum Computing and Constellation Endowed Chair will lead RPI's new Curtis Priem Quantum Constellation. The endowed chair will leverage the IBM Quantum System One and build upon existing strengths in related areas across the university to lead multidisciplinary, highly targeted quantum computing research. The endowed chair will have the opportunity to grow quantum computing capacity at RPI, including assisting in building the Curtis Priem Quantum Constellation, which will include two additional endowed professors of quantum computing.

## KEY OPPORTUNITIES AND CHALLENGES

**Define a vision for quantum computing at RPI to establish a cross-cutting Curtis Priem Quantum Constellation.**

The endowed chair will work with leaders and colleagues to define a bold vision for quantum computing at RPI. They will attract and assist in recruiting two additional endowed chairs to establish a cross-cutting quantum computing research constellation serving all related disciplines, including undergraduate, graduate, and professional education. The endowed chair will initiate a university-wide planning effort to optimize ways in which the Curtis Priem Quantum Constellation can intersect with and support institute goals and find synergies that will enable the research constellation. They will work to develop networks across campus to attract interest and engagement with students, faculty, and staff.

The endowed chair will create a strategy to utilize and leverage existing domain expertise and infrastructure to advance quantum computing research and education at RPI.

**Identify, pursue, and capitalize on opportunities for interdisciplinary research, programming, and collaboration.**

The endowed chair will drive the development of a robust infrastructure that supports collaborative, multidisciplinary research in quantum computing. They will foster partnerships across multiple disciplines—spanning computer science, engineering, physics, and other related fields—to build a sustainable research ecosystem that supports interdisciplinary research, cutting-edge experimentation, and long-term innovation that will lead to groundbreaking research initiatives and innovative programming. The collaborative ecosystem will integrate researchers, educators, and industry experts, enabling immediate breakthroughs and long-term advancements in the field.

**Strengthen and expand local, regional, national, and global partnerships to increase visibility and impact.**

The endowed chair will amplify RPI's visibility and influence within the rapidly advancing quantum technology landscape. They will drive strategic outreach and relationship-building with academic institutions, government agencies, industry leaders, and international research consortia to position RPI as a leader in quantum computing research and innovation. These partnerships will foster cross-disciplinary research, facilitate access to funding and resources, and provide avenues for collaborative initiatives that elevate RPI's impact in academia and industry. The endowed chair will advocate for RPI's strengths in quantum computing on the local, regional, national, and global stage, ensuring the institution's contributions are recognized and integrated into the worldwide scientific and technological discourse.

## QUALIFICATIONS AND CHARACTERISTICS

The successful candidate will possess broad intellectual insights, a strategic vision for the future of quantum computing at RPI, and the ability to lead and manage teams of faculty and staff. Ideally, the successful candidate will bring many of the following experiences, skills, and qualities. While some of the requirements may appear to be tailored to academics, applicants who may have spent a significant period of their career in industry or national labs are also encouraged.

- A distinguished record in scholarship, teaching, and service consistent with the expectations of the rank of tenured full professor;
- An accomplished researcher and scholar; an exceptional record of scholarly achievement in quantum computing;
- An earned doctorate in a relevant science or engineering field;
- A powerful and visionary advocate for quantum computing;
- A creative and inspiring leader, able to think broadly and work collaboratively to identify new strategic intellectual and technical opportunities;
- Commitment to high-quality and innovative research and teaching at the undergraduate and graduate levels;
- Talent for inspiring enthusiasm, energizing supporters, and influencing and motivating others; and
- Integrity and the highest standards of ethical behavior.

## APPLICATIONS, INQUIRIES, AND NOMINATIONS

The review of complete applications will begin immediately and continue until the search process is complete. Inquiries, nominations, referrals, and CVs with cover letters should be sent via the Isaacson, Miller website. Electronic submission of materials is strongly encouraged.

Kate Barry, Partner
Amy Gillespie, Senior Associate
Kaitlin Cruz, Senior Search Coordinator
Isaacson, Miller

*Rensselaer is committed to the cultivation of a community that is welcoming, inclusive, and above all values learning. We welcome candidates who bring a variety of perspectives to Rensselaer's work and campus communities. Rensselaer Polytechnic Institute is an Equal Opportunity Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation or gender identity, national origin, disability status, protected veteran status, or other characteristic protected by law.*

## RENSSELAER POLYTECHNIC INSTITUTE

Founded in 1824 to apply science to the common purposes of life, RPI is the first technological research university in the United States. Today, it is recognized as a premier university, and it is noted for its robust and holistic learning community that connects creativity with science and technology. The institute's operating budget is about $440 million, with an approximately $1 billion endowment.

RPI is comprised of five schools: the Lally School of Management, the School of Architecture, the School of Engineering, the School of Humanities, Arts, and Social Sciences, and the School of Science (which includes Information Technology and Web Science).

As a top-tier technological research university, RPI invests in strategic partnerships, talented researchers, and sophisticated research platforms to address the most pressing global challenges of the 21st century. Rensselaer's research enterprise comprises approximately $104 million in research expenditures annually. RPI supports a diverse array of research centers and platforms and ensures the advancement of interdisciplinary research.

The new Rensselaer Forward Plan, which will guide RPI for the next 10 years and have a significant impact on RPI's future as one university, will be released in February 2025. New research initiatives target interdisciplinary fields of research critical to the future and will include the Center for Engineering and Precision Medicine in partnership with the Icahn School of Medicine at Mount Sinai in Manhattan; the Institute for Energy, the Built Environment, and Smart Systems; the planned Global Freshwater Institute; and the Future of Computing Institute.

The Rensselaer Technology Park campus in North Greenbush, New York, has over 300,000 square feet of space managed by industry partners. A fundamental objective of the Rensselaer Technology Park is to develop interactions between tenant companies and the university to enrich the educational environment of RPI and help the companies stay on the leading edge of their technologies. RPI has additional key research activities in Lake George at the Darrin Fresh Water Institute and in Brooklyn at The Center for Architecture Science and Ecology.

RPI is one of seven founding institutions of Empire AI, a national model for responsible AI technology. Launched in April 2024 by Governor Kathy Hochul, Empire AI is a bold partnership of New York's leading public and private universities coming together to establish a state-of-the-art artificial intelligence computing center housed at SUNY's University at Buffalo. Empire AI is already facilitating statewide innovation, research, and development of AI technologies. The Empire AI consortium includes six additional founding institutions: Columbia University, Cornell University, CUNY, New York University, SUNY, and the Flatiron Institute.

## Leadership

### President

**Martin A. Schmidt**, the 19th President of Rensselaer Polytechnic Institute (RPI), took office on July 1, 2022. Prior to joining RPI, Schmidt served as the provost of Massachusetts Institute of Technology (MIT) since 2014 and was also MIT's senior academic and budget officer. He was responsible for the Institute's educational programs, as well as for the recruitment, promotion, and tenuring of faculty. As provost, he worked closely with MIT's deans to establish academic priorities, and with other members of the Institute's senior team to manage financial planning and research support. He also had oversight of MIT's international engagements.

Schmidt was a member of MIT's Department of Electrical Engineering and Computer Science faculty since 1988, and also served as director of MIT's Microsystems Technology Laboratories from 1999 to 2006 and as associate provost from 2008 to 2013. He was also the Ray and Maria Stata Professor of Electrical Engineering and Computer Science, and is a fellow of the Institute of Electrical and Electronics Engineers (IEEE), an international organization aimed at advancing technology.

### Provost

**Rebecca W. Doerge** is responsible for all academic portfolios at the Institute, and, in collaboration with the Vice President for Research, works to strengthen the research missions of the Institute. She also plays a significant role in fundraising and external relations.

Prior to joining Rensselaer, Dr. Doerge was the Glen de Vries Dean of the Mellon College of Science and a member of the Dietrich College of Humanities and Social Sciences' Department of Statistics and Data Science and the Mellon College of Science's Department of Biological Sciences. As dean, she launched a future of science initiative to bring together Carnegie Mellon's strengths in automation, artificial intelligence, machine learning, and data analytics with the foundational sciences. The initiative includes construction of the Richard King Mellon Hall of Sciences and the Carnegie Mellon University Cloud Lab, the first such lab at a university.

## RPI Student Life and Support

Student life at RPI is active, with more than 60% of the undergraduate student population living on campus and over 80% of students participating in sports and recreational activities. To enrich classroom and lab experiences, student life is focused on leadership and support on campus and in the local community. Student research is encouraged, and many undergraduate students have directly participated in research that has traveled to the International Space Station. Rensselaer's ongoing support and co-curricular activities are known as CLASS (Clustered Learning, Advocacy, and Support for Students). With intentional

programs and resources available at each stage of a student's academic journey, these resources span the classroom and residence halls to ensure a holistic approach to community support. Students' academic progression is also unique to Rensselaer and called "the Arch." Students take a full semester's worth of classes the summer after their second year, paving the way to spend a semester away through an internship, co-op, or study abroad opportunity. Given this unique academic, cultural, and hands-on professional experience, Rensselaer students are better prepared to assume leadership roles in the coming years after graduation.

## Location

RPI is located in Troy, New York, on the western edge of Rensselaer County, on the eastern bank of the scenic Hudson River. It is a quick drive to Albany with easy access to public transit, Albany International Airport, and Amtrak. The city of Troy is a blend of historical and contemporary urban community settings with boutiques, cafes, farmers' markets, and restaurants that serve the RPI community and the many families and professionals who call Troy home and appreciate its affordability and community feel. Moreover, the Capital Region of New York is experiencing exciting economic growth and development from both government and private-sector investment due, in part, to the passage of the federal CHIPS Act, offering tremendous opportunities for community engagement between the University and local business and industry.