



Position Specification

Rice University

Dean of the George R. Brown School of Engineering

Private and Confidential

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Rice University

Rice University seeks nominations and applications for the next Dean of the George R. Brown School of Engineering. Reporting to the Provost, the Dean will be an accomplished leader with the vision to build upon and enhance the school's existing strengths, to develop new opportunities for the school, and to lead it into the future in the rapidly evolving worlds of engineering research and higher education.

Working with the University's leadership, the Dean of Engineering will foster collaboration among the schools, in particular with the Wiess School of Natural Sciences, and thereby play an important role in the growth and advancement of the University. She or he will work with the faculty of the school to articulate a vision for the school and work with the Provost and President of the University to implement that vision. This will require actively participating in fundraising efforts, recruiting and retaining outstanding faculty, strengthening undergraduate and graduate educational programs, and creating a research environment that supports the creativity and innovation of faculty. The Dean is also responsible for the school's programs and budgets, review of faculty appointments, and administration and development of financial support.

About the George R. Brown School of Engineering

Engineering has been an integral part of Rice University since it opened as the Rice Institute in 1912. Rice is ranked 15th in the country according to U.S. News and World Report; the undergraduate engineering program is ranked 18th and the bioengineering program is ranked 8th. As reported in the ASEE's 2015 annual survey of engineering schools, in 2014, Rice engineering ranked first in the nation for percentage of master's degrees awarded to women, 4th in the percentage of Ph.D.'s awarded to women, and 8th in the percentage of bachelor's degrees awarded to women.

The Brown School enjoys a strong reputation for research-based engineering education. The school has ~125 tenured and tenure-track faculty lines, an undergraduate enrollment of approximately 1,500, a full-time graduate enrollment of approximately 950, a staff of approximately 300 administrative, technical, and research positions, a budget of over \$45 million, and externally funded research expenditures of over \$61 million. The Brown School of Engineering faculty includes seven current and four *emeritus* members of the National Academy of Engineering, four members of the National Academy of Science, three members of the National Academy of Medicine, and seven members of the American Academy of Arts and Sciences.

Research

Rice Engineering is recognized for its excellence in many areas of research, including high performance computing, digital signal processing, tissue engineering, medical imaging, cancer detection and treatment, nanotechnology, robotics, high-speed wireless communication, neuroengineering, water treatment, and much more. Recently the university embarked on two major research initiatives in data science and molecular nanotechnology, both of which will have major impacts on faculty hiring and research directions in the school. The Rice Electron Microscopy Center has recently acquired and installed a state-of-the-art FEI Titan Themis TEM and Helios 660 SEM/FIB. The university is also well into

the planning and construction of a new ~3,100 sf clean room with ~7,900 sf of associated support spaces.

Rice takes advantage of multi- and cross-disciplinary approaches to research and has unusually low barriers to collaboration across departments and schools. Rice has developed a number of vital research institutes and centers that engage faculty from different disciplines to address high impact research areas. For example, the Ken Kennedy Institute for Information Technology (K2I) is dedicated to the advancement of applied interdisciplinary research in the areas of computing technologies, computational engineering, and information processing. From its roots in computer science, electrical and computer engineering, computational and applied mathematics, and statistics, K2I has grown to encompass roughly 150 faculty and senior researchers from most of the school's departments and most of the other schools at Rice. Other examples are the Smalley-Curl Institute, named after two Rice faculty who received the Nobel Prize for their discovery (with Sir Harold Kroto) of the carbon fullerenes (including C60, or the buckyball, as it is often called). A complete list of institutes/centers and links to their web pages that provide additional information can be found at: engineering.rice.edu/research.

Collaboration also reaches across Main Street, involving colleagues in the institutions of the Texas Medical Center (TMC), and beyond. The TMC is the largest concentration of medical institutions in the world, and offers our faculty and students the opportunity to work with Baylor College of Medicine, The University of Texas Health Science Center – Houston, the University of Texas M.D. Anderson Cancer Center, Texas Children's Hospital, Methodist Hospital, TMCx, The Texas Heart Institute, TIRR Memorial Hermann, UTMB, and The Texas A&M Health Science Center's Institute of Biosciences and Technology, among others. Much of the collaborative work with the TMC is centered in Rice's Bioscience Research Collaborative (BRC), with 477,000 square-feet on 10 floors. The Gulf Coast Consortia, located in the BRC, draws from across TMC and beyond to bring together interdisciplinary research teams and training programs in biological sciences with the computational, chemical, mathematical, and physical sciences and engineering.

Education

The Brown School of Engineering has traditionally provided our graduates with the skills and experience that they need to be competitive in the job market, to obtain admission to top graduate schools across the nation, and to continue to learn throughout their careers. In 2009 and 2010 we instituted two game changers that give our students hands-on engineering design experience and prepare them to be leaders in their fields.

The Oshman Engineering Design Kitchen (OEDK) is a 20,000 sq. ft. space for engineering undergraduates that provides access to design tools, prototyping equipment, computational facilities, meeting rooms, and space for prototype design and development. The OEDK represents a shift in the culture of engineering design at Rice, bringing together students to collaborate on multidisciplinary teams. Modeling real-world working groups, these teams conceive, design and test prototypes to solve design challenges, many of which have the potential to impact the community. Design projects cover, among other things, sustainable energy, oil field operations, medical devices, community water delivery

systems, chemical process design, image analysis, global health technologies, and electronic technology innovations.

The second of the two game changers is the Rice Center for Engineering Leadership (RCEL), which was founded with a \$15 million gift from engineering alumni John ('73, '74) and Ann ('75, '76) Doerr. RCEL's mission is to "prepare engineers to become inspiring leaders, effective communicators, and bold entrepreneurs." RCEL offers undergraduate students theory-based and hands-on courses in engineering leadership, as well as the first four-year Engineering Leadership Certificate program in the country. At the graduate level, engineering students can take courses in leading teams and managing technology development and can receive professional coaching. RCEL is currently launching an online certificate program in engineering leadership and will be introducing a professional master's degree in leadership in the near future.

Entrepreneurship

The discoveries, disclosures, and patented technologies that emerge from our labs have found their way into a range of commercial markets. Technology developed in the school is being utilized in clinical trials for cancer therapy; in the manufacture of low cost solar cells; in the wireless research and educational efforts of more than 50 research groups around the world; in drug discovery and regenerative medicine; and in numerous other market sectors.

These technologies are developed not just by faculty, but by engineering graduate and undergraduate students as well, often in collaboration with researchers in the natural sciences, the Jones Graduate School of Business, and the Texas Medical Center. A key component of taking these products to market has been the Rice Alliance for Technology & Entrepreneurship, which supports the creation of technology-based companies (more than 250 since it was founded in 2000) and facilitates commercialization of new technologies in Houston and in the Southwest. Annually, the Alliance hosts the Rice Business Plan Competition, the largest and richest in the world. The Jones Graduate School of Business at Rice has been ranked in the top 10 for Best U.S. Graduate Entrepreneurship Programs for the past eight years by Princeton Review and Entrepreneurship magazine. In addition to Rice Alliance, earlier this year, engineering alumnus Frank Liu and his family endowed the Liu Idea Lab for Innovation & Entrepreneurship (Lilie) with a gift to Rice of \$16.5 million. Lilie is introducing new and expanded entrepreneurship courses, as well as project funds with the goal of encouraging Rice students to pursue and achieve success in their entrepreneurial undertakings.

About Rice University

Rice University, located in Houston, Texas is an independent, coeducational, nonsectarian, private research university dedicated to undergraduate and graduate education, research, and professional training in selected disciplines. In the Fall of 2015, the University had an undergraduate student population of 3,900, a graduate and professional student population of 2,800 and a full-time faculty of 665. Rice is organized into eight academic schools: The School of Architecture, The Glasscock School of Continuing Studies, The Brown School of Engineering, The School of Humanities, The Jones Graduate School of Business, the Shepherd School of Music, The Wiess School of Natural Sciences, and The School

of Social Sciences. The undergraduate student-to-faculty ratio is 6-to-1, and the Rice endowment was valued at \$5.3 billion for the fiscal year ending June 30, 2016.

Rice University aspires to path-breaking research, unsurpassed teaching, and contributions to the betterment of our world. It fulfills this mission by cultivating a diverse community of learning and discovery that produces leaders across the spectrum of human endeavor. The Princeton Review's 2017 edition of "The Best 381 Colleges" ranked Rice No. 1 for happiest students and for race/class interaction. From its beginning in 1912, Rice has been dedicated to excellence in all regards.

The Role

The Dean of Engineering will report to Rice's Provost, Marie Lynn Miranda, and will work closely with President David Leebron, who has led Rice since 2005. The evolution of the George R. Brown School of Engineering is guided by the goals put forth in the "Vision for Rice University's Second Century" (<http://professor.rice.edu/images/professor/vision.pdf>). These include to:

- Visibly and substantially increase our commitment to our research mission and raise our research and scholarship profile
- Provide a holistic undergraduate experience that equips our students with the knowledge, the skills, and the values to make a distinctive impact in the world
- Strengthen our graduate and postdoctoral programs to attract and recruit high-caliber students and young researchers
- Aggressively foster collaborative relationships with other institutions to leverage our resources
- Become an international university, with a more significant orientation toward Asia and Latin America than now characterizes our commitment
- Fully engage with the city of Houston — learning from it and contributing to it — as a successful partnership with our home city is an essential part of our future

The school has a strong tradition of interdisciplinary engagement, which is crucial for today's engineering environment. The Dean will be expected to continue this tradition, working to enhance collaboration between the schools of the university and with partners outside the university. The location of the Brown School in Houston, the nation's fourth largest city, the proximity of the Texas Medical Center, and a strong commitment to cooperation have resulted in a myriad of partnerships for research and education.

Qualifications for the Next Dean of the Brown School of Engineering

The next Dean of Engineering must have qualifications and personal characteristics that are well matched with the University's values, achievements, aspirations, and potential. These include:

- Significant leadership experience, demonstrated with a proven track record of success as a department head, dean, director of a research institute, or similar leadership role.
- A distinguished record of research.
- A strong commitment to diversity and inclusion and a demonstrated ability to foster teamwork and collaboration, both within the school and with other schools of the University.

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- A global perspective, appreciation of the character of 21st century engineering and engineering education, and the ability to motivate others to develop the resources necessary to achieve the goals of the school as a whole.
 - The ability to establish excellent working relationships with a diverse set of departments, spanning traditional engineering (Bioengineering, Chemical and Biomolecular Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Materials Science and NanoEngineering, Mechanical Engineering) and computational science departments (Computational and Applied Mathematics, Computer Science, Statistics).
 - The ability to work effectively with the University leadership — the President, Provost, Deans of other schools, Directors of University Centers and Institutes, and the administrative units of the University — to realize the goals of the school and the University.

Additionally, she or he must:

- Be adept at communication, while engaging with and engendering the trust of the entire community — faculty, department chairs, staff, students, alumni, friends, neighbors, and partners in education, industry, business, and government — in enthusiastic support of Rice’s vision for the future of engineering.
- Appreciate the strengths and opportunities provided by our undergraduate and graduate programs and create and nurture opportunities to raise funds, to recruit and retain high quality faculty, and to enhance graduate student quality.
- Have a proven ability in strategic and budgetary planning, and demonstrated organizational leadership.
- Have the boldness, high energy, optimism, and perseverance to bring initiatives to fruition.

Applications and nominations will be accepted until the new Dean is selected. Interested parties may submit their materials or nominations:

Mirah Horowitz
Consultant to the Search Committee
Russell Reynolds Associates
RiceUniversityDeanofEngineering@russellreynolds.com

Rice University is an Equal Opportunity Employer with commitment to diversity at all levels, and considers for employment qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national or ethnic origin, genetic information, disability, or protected veteran status.