Search for the

John and Elsie Martinez Endowed Chair in Biomedical Engineering

School of Science and Engineering

Tulane University

New Orleans, Louisiana

THE SEARCH

Tulane University, one of the nation's premier research institutions, seeks a collaborative and interdisciplinary scholar to serve as the John and Elsie Martinez Endowed Chair within the School of Science and Engineering's Department of Biomedical Engineering. As part of a significant investment in research and faculty excellence, the Martinez Chair will join a university on the rise with the opportunity to harness institutional momentum, leverage numerous assets and areas of strength, and drive world-class scholarship and technology development at the intersection of engineering and health sciences. Under the leadership of a new dean, the Martinez Chair will contribute to a new, exciting vision for an increasingly interdisciplinary and translational school, building faculty capacity and advancing research excellence in the areas of cognitive cyber nexus, precision health diagnostics and therapeutics, AI for all, space science and engineering, and resilient habitats and communities.

Tulane University provides a superb foundation for the position's success. Tulane is a member of the prestigious Association of American Universities (AAU), offering a rich and collaborative environment for interdisciplinary interactions; a strong public service theme; and a commitment to health science as a major thrust of research, scholarship, and education. Tulane possesses a unique constellation of health-related research and clinical resources, including the Schools of Medicine and Public Health and Tropical Medicine, the National Primate Research Center, as well as the Tulane Brain Institute, Tulane Cancer Center, and an NIH T32-supported PhD program in Bioinnovation. The city of New Orleans has a burgeoning biotechnology entrepreneurial ecosystem. The city further boasts the co-location of the Louisiana Cancer Research Consortium, the LSU Health Sciences Center, the New Orleans Bioinnovation Center, and the newly constructed University Medical Center and Veterans Administration Hospital. Tulane's Department of Biomedical Engineering, since its founding, has been a leader in interdisciplinary research and teamwork across Tulane and the broader healthcare community in New Orleans. The BME curriculum, research areas of excellence, and translational studies span the fields of biomaterials and tissue engineering, biomechanics and biotransport, device development, and medical imaging.

Tulane seeks individuals with great potential as well as superlative scholarly records of achievement and impact in their field in biomedical engineering who are energized by Tulane's vision and momentum. In addition to leadership in their own research area, the Martinez Chair will contribute to the department's overall strategic direction, ensuring that it is advancing new frontiers in the field and capitalizing on the strengths and assets of the university. This individual will be a catalyst for research, maintaining a high-

impact research agenda, mentoring faculty and students, attracting partnerships with industry, and strengthening the university's reputation as a hub for impactful interdisciplinary and translational scholarship in biomedical engineering. Candidates must have academic records commensurate with appointment with tenure and are expected to maintain an active externally-funded research program as well as contribute to the educational training and teaching missions.

Tulane has retained Isaacson, Miller, a national executive search firm, to assist in this recruitment. All inquiries, nominations, and applications should be directed in confidence as noted at the end of this document.

THE DEPARTMENT OF BIOMEDICAL ENGINEERING

Founded in 1977, the Department of Biomedical Engineering (BME) is a global leader in biomedical engineering education and scholarship. Its mission is to inspire and work with students to develop and apply engineering methods to address health science challenges. BME originated from joint research efforts among faculty in the School of Science and Engineering and the Schools of Medicine at Tulane and the Louisiana State University Medical Center in New Orleans. Over the past 45 years, BME research has expanded from a mechanics-oriented focus to a broader range of investigations, including biomechanics, biotransport, biomaterials, tissue engineering, medical imaging, and biomedical device and system design. The department expends approximately $2.33 million in research funding annually. BME is home to 13 core faculty who have developed a strong expertise in computational modeling and analysis with specific foci on investigations of pulmonary mechanics, blood physiology and biomechanics, microphysiological systems, cell therapies, medical imaging, and data science. Notably, the department was also recently recognized as one of the first recipients of the Biden Cancer Moonshot project, with $22.9 million in funding from the Advanced Research Projects Agency for Health (ARPAH) to support MAGIC-SCAN, a machine-learning-assisted imaging system capable of identifying even the tiniest remnant of cancer during surgery.

The BME undergraduate program has been ABET accredited continuously since 1981 and is one of the largest majors in the School of Science and Engineering, serving approximately 150 undergraduates and 50 graduate students in BSE, MS, and PhD degree programs. The department is characterized by its close-knit culture, emphasis on teamwork, and people-centric orientation.

BME is headquartered in the School of Science and Engineering (SSE) on Tulane's picturesque uptown campus, with office, laboratory, and engineering facilities located on that campus. The newly opened Steven and Jann Paul Hall provides advanced laboratory and instructional space. The BME department also leads Tulane's Institute of Integrated Engineering for Health and Medicine (TI2EHM) on the downtown Health Sciences Campus. TI2EHM is dedicated to interdisciplinary research and technology development, and provides BME faculty with exceptional laboratory and office space in close proximity to colleagues in the Schools of Medicine, Public Health and Tropical Medicine, and the New Orleans Bioinnovation Center (NOBIC). Finally, BME administers an interdisciplinary Bioinnovation PhD program that was founded by an NSF IGERT and is currently supported by an NIH T32 training grant. These initiatives position the department as a key leader in the newly endowed Tulane University Innovation

Institute.

More information about the Department of Biomedical Engineering can be found at: https://sse.tulane.edu/bme.

THE ROLE OF THE MARTINEZ CHAIR

The John and Elsie Martinez Endowed Chair in Biomedical Engineering was established in 2006 to honor John L. Martinez and his wife, Elsie. Professor John Martinez served Tulane for over 50 years in many capacities, and Elsie Brupbacher Martinez was an active volunteer for Tulane and Newcomb.

The successful candidate is expected to engage in world-class scholarship and technology development, advance departmental leadership in BME, leverage existing research areas, and strengthen connections with other academic units, local healthcare institutions, and industry. The Martinez Chair will be one of the first hires under SSE's new strategic plan and is expected to help shape further interest and investment in relevant research clusters. Tulane seeks candidates with demonstrable leadership initiative who will attract people across disciplines to solve problems that will help the greater region and society, as well as contribute to the highly collaborative and relational culture of the department. Candidates must have academic achievements commensurate with appointment with tenure in BME and will be expected to maintain an active externally-funded research program. The successful candidate will have an outstanding record of scholarly and impactful contributions to their field and will be expected to be actively involved in undergraduate and graduate programs, consistent with having a fundamental interest in training, mentoring, and research. Scholars with expertise in one of SSE's new strategic research areas, especially brain-machine interfaces, are of particular interest.

APPLICATIONS, INQUIRIES, AND NOMINATIONS

Tulane University has retained Isaacson, Miller, a national executive search firm, to assist the department in its identification and review of candidates. Screening of complete applications will begin immediately and continue until the completion of the search process. Inquiries, nominations, referrals, and CVs with letters of interest should be sent electronically and in confidence via the Isaacson, Miller website: https://www.imsearch.com/open-searches/tulane-university-school-science-and-engineering/john-and-elsie-martinez-endowed.

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Tulane University is an Equal Employment Opportunity/Affirmative Action institution committed to excellence through diversity. Tulane University will not discriminate based upon race, ethnicity, color, sex, religion, national origin, age, disability, genetic information, sexual orientation, gender identity or expression, pregnancy, marital status, military or veteran status, or any other status or classification protected by federal, state, or local law. All eligible candidates are encouraged to apply.

APPENDIX A: TULANE UNIVERSITY

Tulane traces its origins to 1834, when it was founded as the Medical College of Louisiana. It was renamed the University of Louisiana by the state legislature in 1847. The legislature subsequently transferred it to the Board of Administrators of the Tulane Education Fund in 1884. With that transfer, Tulane University was established as a private, nonsectarian university and named in honor of benefactor Paul Tulane, a wealthy merchant who donated more than $1 million in land, cash, and securities "for the promotion and encouragement of intellectual, moral, and industrial education." In 1886, the H. Sophie Newcomb Memorial College was established as Tulane's college for women. The unified Newcomb-Tulane College now enrolls all full-time undergraduates at the university.

Today, the university has an operating budget of just over $1 billion and an endowment of $2 billion. Tulane enrolls approximately 8,600 undergraduate and 5,900 graduate and professional students from every state in the U.S. and more than 85 nations worldwide. The Tulane faculty totals over 1,200 full-time members with a staff of approximately 2,900. The university is organized into ten academic divisions: Newcomb-Tulane College, A.B. Freeman School of Business, School of Architecture, School of Professional Advancement, School of Law, School of Liberal Arts, School of Medicine, Celia Scott Weatherhead School of Public Health and Tropical Medicine, School of Science and Engineering, and the School of Social Work. The mix of schools is an asset that is rich with opportunities for cross-school collaboration in research and education.

Tulane University is a member of the prestigious Association of American Universities, and the Carnegie Foundation for the Advancement of Teaching ranks Tulane as a university with "very high research activity." Tulane attracts an outstanding student body that is both intellectually curious and driven by community engagement. The university's 8:1 undergraduate student-to-faculty ratio allows Tulane undergraduates to receive the personalized attention of a smaller liberal arts college with the resources of a major research institution. In 2006, Tulane became the first major research institution to require public service as a graduation requirement for undergraduates, which led to the Carnegie Foundation recognizing Tulane with its Community Engagement Classification. Tulane is also the most national university in the country, with its undergraduates traveling further to attend college, on average than those of any other university. As such, it plays a valuable role in recruiting talent to New Orleans, as only 15% of Tulane's students are from New Orleans, and about 20% of all Tulane graduates stay in Louisiana after graduation.

For more information about Tulane University, please visit the Tulane website: https://tulane.edu/.

APPENDIX B: THE SCHOOL OF SCIENCE AND ENGINEERING

Created in 2006, the School of Science and Engineering (SSE) is unique as the only academic unit at a major research university to merge the behavioral sciences, physical sciences, life sciences, engineering, and mathematics, which provides an unusually rich environment for innovative programs and interdisciplinary research. SSE is a relatively young school that was developed strategically to capitalize on the natural

synergies between science and engineering disciplines. It has pioneered a new model for integrated science and engineering education and research and positioned Tulane to be a leader in the STEM disciplines. It recognizes the role that information technology, biotechnology, and nanotechnology play in today's global economy and aims to provide its students with the necessary skills to be leaders in discovery and innovation.

SSE provides an environment in which scientists and engineers work together in an integrated organization on problems of mutual interests, where current research in engineering is informed by current research in science and vice versa, and where students, regardless of their major field of study, have the opportunity to explore concepts and methods of both science and engineering. The school comprises eleven academic departments: Biomedical Engineering, Cell and Molecular Biology, Chemical and Biomolecular Engineering, Chemistry, Computer Science, Earth and Environmental Sciences, Ecology and Evolutionary Biology, Mathematics, Physics and Engineering Physics, Psychology, and River-Coastal Science and Engineering. Faculty from a broad array of disciplines regularly organize around important research themes in centers and institutes such as the Tulane Brain Institute and the Tulane Bywater Institute. In addition, the school houses the Neuroscience Program, a Bioinnovation interdisciplinary doctoral program, and a Biological Chemistry Interdisciplinary bachelor's degree.

SSE has been an extremely successful hub of research on the Tulane campus. The faculty of SSE expends approximately $30 million in research, generates over 500 articles in refereed journals, and files over 15 new patents annually. In addition, SSE supports numerous opportunities for undergraduate research activity and is home to flourishing graduate programs. SSE graduates the largest number of doctoral students at Tulane. Among the 140 tenure-track faculty are 15 endowed chairs and 19 endowed professors. Many of these endowed positions are affiliated with the university's interdisciplinary research centers that capitalize on the close-knit and collaborative Tulane environment.

As part of the mission to engage in the local community, SSE supports a K-12 STEM Education Outreach program. The program exposes young students to STEM in meaningful and appealing ways with projects such as the Robotics Bayou Regional Competition.

Dr. Hridesh Rajan joined the School of Science and Engineering at Tulane as dean in summer 2024. Before moving to Tulane, he was the Kingland Professor at Iowa State University, where he served as the Department Chair of Computer Science. As an academic, Dean Rajan is well-regarded for his contributions to software engineering and programming languages. He is the creator of the Ptolemy programming language, which improved modular reasoning about crosscutting concerns, and the Boa programming language, which simplifies data-driven software engineering. Educated at the University of Virginia, Dean Rajan holds a PhD and an MS in computer science. He earned his BTech in computer science and engineering from the Indian Institute of Technology, Varanasi. Dean Rajan is a Fellow of the American Association for the Advancement of Science (AAAS), a Fulbright Scholar, and an ACM Distinguished Scientist.

Dean Rajan has developed a strategic plan for his first 1,000 days to strategically focus SSE's efforts, which includes building faculty capacity and critical mass, investing in world-class core facilities, and forging

strategic partnerships. His vision to be an interdisciplinary-first, translational school of science and engineering organizes efforts around five new transdisciplinary grand challenge clusters, with the aim that each will eventually grow into a center of excellence or institute. Resilient Habitats and Communities will focus on growing the science and engineering fields needed to better understand and predict climate change and sustainability issues; then create biodiverse and resilient ecosystems, smart infrastructure, renewable energy systems, advanced and recyclable materials, and pollution mitigation/remediation platforms. Leveraging Tulane's proximity to NASA Michoud facility and Stennis Space Center, Space Science and Engineering will build on SSE's strengths in biomedical and biochemical systems (such as biomanufacturing) for space; energy and catalysis (both generation and storage of renewables and rocket fuel); and advanced materials for spacecraft, gear, and robotics. The Cognitive Cyber Nexus thrust will study the integration of human cognition, cyber systems, artificial intelligence, and physical environments. Precision Health Diagnostics and Therapeutics will focus on developing cutting-edge technologies that provide rapid diagnostic solutions and precise therapeutics for healthcare to enable early detection of diseases, personalized treatments, and improved patient outcomes. Development of next-generation tools and therapies will also leverage advances in biotechnology, nanotechnology, and artificial intelligence. And finally, the AI for All research thrust will explore how artificial intelligence can advance interdisciplinary research and education in SSE and beyond and will serve as a unifying force that amplifies the impact of all other research areas.

Additional information about the School of Science and Engineering can be found at: https://sse.tulane.edu/.

APPENDIX C: RESEARCH AND INNOVATION AT TULANE

Over the last decade, Tulane has seen a period of historic growth and has invested heavily in research, innovation, and entrepreneurship initiatives across the university. Tulane is committed to continuing strategic investments that deepen the university's commitment to world-class research. Nearly half of the $1.5 billion raised by Tulane's *Only the Audacious* fundraising campaign has been allocated to support research through investments in infrastructure and increasing the number of endowed faculty positions at the university. Building upon the success of the previous campaign, the next iteration, ***Always the Audacious***, will support 21st-century advances in climate, river, and coastal sciences, emerging infectious diseases, brain health, healthy aging, health equity, and much more while expanding and increasing lab spaces and infrastructure for translational research.

The university continues to make major investments in infrastructure to keep up with the extraordinary growth in research activity and the ambitions of Tulane's faculty. Areas of investment include data sciences, artificial intelligence, and coastal mitigation. Recently, longtime Tulane supporters Libby and Robert Alexander donated more than $12 million to advance a university-wide data science initiative that will transform teaching and research across all disciplines at Tulane and position the university as a leader in data pedagogy. Tulane's Data Hub, founded in 2021, will be renamed the Connolly Alexander Institute for Data Science and will foster data literacy and science through education, research, and service to the community. In addition, the U.S. Economic Development Administration has designated the Gulf Louisiana Offshore Wind Propeller (GLOW), a consortium that includes Tulane University, as one of its 31 new Tech

Hubs. Scientists, researchers, and scholars from Tulane's School of Science and Engineering, the A. B. Freeman School of Business, and the Tulane Center for Energy Law will all play a role in the Tech Hub. In partnership with Louisiana State University, Tulane University has been awarded $22 million by the National Academy of Science, Engineering, and Medicine to lead a 15-member consortium, the Mississippi River Delta Transition Initiative, to chart a new course for the Lower Mississippi River Delta and its fragile ecosystem.

Steadfast in its commitment to innovation, Tulane's downtown campus is home to the Tulane Innovation Institute, which will act as a combined technology and startup accelerator for faculty, researchers, staff, and students, as well as community members. By carefully assessing and investing in the commercial potential of basic and applied research, the Tulane Innovation Institute will "de-risk" discoveries and provide early-stage funding necessary to propel ideas to the next level, ultimately bringing new ventures to market, all while economically diversifying Greater New Orleans for future generations. Tulane also recently established the Tulane Ventures Fund, a $10 million fund to support business startups by women and minority entrepreneurs in New Orleans. These important efforts will help to transform the university's technological and entrepreneurial enterprises and will have a long-standing impact on the regional economy.