1. Personal

Chancellor
Distinguished Professor of Computer & Information Science
The University of Mississippi
123 Lyceum
Box 1848
University, MS 38677-1848 USA

Email: jsv@olemiss.edu
Web: cs.OleMiss.edu/vitter, Twitter: @JeffVitter
Tel.: +1 (662) 832-4937

Born in New Orleans, Louisiana.
Married, two daughters and one son.

2. Biography

Jeff Vitter is a Distinguished Professor of Computer & Information Science at the University of Mississippi (a.k.a. UM and Ole Miss). He is an internationally known computer scientist with research expertise in big data and data science, especially the algorithmic aspects of processing, compressing, and communicating massive amounts of information. On January 1, 2016, he began the leadership role as the 17th chancellor of UM, and he has announced plans to step down as chancellor in early January 2019.

UM was founded in 1848 and is the flagship and largest university in the state of Mississippi, with about 2,200 faculty members, 10,600 staff, 23,250 FTE students, and an annual budget of $2.5 billion. It is ranked by the Carnegie Foundation in its top category, R1: Doctoral Universities — Very high research activity, which represents the top 21% of colleges and universities nationally. UM is a comprehensive institution of 17 colleges and schools, spanning the main campus in Oxford, the UM Medical Center in Jackson, and satellite campuses in Booneville, Grenada, Tupelo, and Southaven.

The UM Medical Center (UMMC) is the state of Mississippi’s only academic medical center. Besides academic units, UMMC also houses the University Hospitals and Health System and the University Physicians medical practice plan, with the state’s only Level 1 trauma hospital and Children’s Hospital. UMMC includes the teaching hospitals for the medical educational programs and serves as a diagnostic and treatment referral center for the entire state. Each year UMMC has over 1 million patient visits. Its telemedicine program is one of two Federally designated centers of excellence and is ranked in the top 10 nationally.

UM is a sea-grant and space-grant institution. It houses the field station in Abbeville, Sally M. Barksdale Honors College, Haley Barbour Center for Manufacturing Excellence, Trent Lott Leadership Institute, Center for Intelligence and Security Studies, Chinese Language and Arabic Language Flagship Programs, Croft Institute for International Studies, Institute of Child Nutrition, National Center for Natural Products Research, National Center for Physical Acoustics, and Gertrude Ford MIND Research Center.

Fueled by his belief in the power of higher education to transform lives, communities, and the world, Dr. Vitter has charted the university’s momentum through a dynamic strategic plan FlagshipForward.OleMiss.edu to achieve ever greater heights. Ole Miss is continuing its legacy of leadership in academic excellence with a $1 billion building program and capital planning, creation of superlative networks of faculty called Flagship Constellations, major engagement with communities through M Partner and the McLean Institute, and annual Technology Summits. Dr. Vitter has provided leadership to achieve a healthier Mississippi through greater capacity and reach of the University of Mississippi Medical Center.
Dr. Vitter has relished his role as leader and voice of the university. Since arriving at UM, he has greatly expanded communication and connectivity via town halls, informational blogs, and robust use of social media. He and his wife Sharon are often seen around campus, in the Grove, at athletic events, in the State Capitol, and at restaurant counters throughout Mississippi, getting to know people the old-fashioned way.

From 2010–2015, Dr. Vitter was the provost, executive vice chancellor, and Roy A. Roberts Distinguished Professor at the University of Kansas, an AAU institution comprising about 2,800 faculty members, 7,200 staff, 28,100 students, and an annual budget of $1.2 billion, serving the main campus in Lawrence (with 10 colleges and schools), the Edwards campus in Overland Park, and the Medical Center campuses in Kansas City, Wichita, and Salina. As provost, Dr. Vitter was the chief academic and operations officer for the Lawrence and Edwards campuses. He initiated and co-led the campus-wide development of KU’s strategic plan, Bold Aspirations, www.provost.ku.edu/planning. The plan is KU’s transformative roadmap as a top-tier public international research university. Dr. Vitter’s accomplishments include the first-ever university-wide KU Core curriculum; major facilities construction; expansion of the Schools of Engineering, Business, and Pharmacy; a hiring for excellence program that simultaneously enhanced excellence and diversity; boosting multidisciplinary research and funding around four strategic initiatives; alumni outreach and furthering the goals of the capital campaign; major growth of technology commercialization and corporate partnerships; incentivizing innovation; and administrative reorganization and efficiency.

Previously Dr. Vitter was on the faculty in the Department of Computer Science and Engineering at Texas A&M University. From 2008–2009, he served at Texas A&M as provost and executive vice president for academics, where he was chief academic officer for an AAU university of roughly 2,700 faculty members, 5,500 staff, 48,000 students, and an annual budget of $1.2 billion, comprising 10 colleges and schools. Besides the main campus in College Station, Texas, he oversaw the campuses in Galveston, Texas and Doha, Qatar. Dr. Vitter led the campus-wide development of the Academic Master Plan and launched several collaborative recruiting and faculty initiatives, involving faculty start-up allocations, multidisciplinary priorities, balanced scorecard reviews and recognition, and diversity.

From 2002–2008, Dr. Vitter served as the Frederick L. Hovde Dean of the College of Science and Professor of Computer Science at Purdue University, an AAU institution. As dean, he was the chief academic officer of the College of Science. The college comprised seven departments, 325 faculty, 550 staff, 1,000 graduate students, and 2,800 undergraduate majors, with an annual budget of $130 million. Several programs were nationally ranked. College courses accounted for about a quarter of the university’s 1 million student credit hours. Dr. Vitter led the collaborative development of two college strategic plans — emphasizing both core excellence and multidisciplinarity — and led the college’s fundraising efforts in the capital campaign. The college grew by two major new buildings and 61 faculty members net, several hired under the innovative COALESCE faculty program targeting global priorities. He launched a comprehensive study of the undergraduate program; the resulting new curriculum was the college’s first significant curricular change in 40 years. He developed the L.E.A.D. peer mentoring diversity initiative that was adopted university-wide, and with help from his Dean’s Leadership Council he initiated the Science Business Partners Program, Science Journalism Laureates program, and innovative hiring processes.

From 1993–2002, Dr. Vitter held a distinguished professorship at Duke University, an AAU institution, where he was the Gilbert, Louis, and Edward Lehman Professor. He served at Duke as chair of the Department of Computer Science in the College of Arts and Sciences from 1993–2001 and as co-director and founding member of Duke’s Center for Geometric and Biological Computing from 1995–2002. As chair, he led the department to significant improvements in stature — characterized by a top-20 ranking, stellar faculty hires, dynamic strategic plans, culture of inclusiveness, curriculum redesign, administrative reorganization, substantial growth in both undergraduate and graduate programs, creation of a successful industry partners program, and rise in sponsored research expenditures to 250%.

From 1980–1992, Dr. Vitter rose through the faculty ranks and in leadership roles in the Department of Computer Science at Brown University, an AAU institution. He earned tenure in 1985 at the age of 29.

Dr. Vitter serves on the boards of Innovate Mississippi, Mississippi Association of Colleges and Universities, the National Graphene Association, the Center for Massive Data Algorithmics, and the Institute of Fundamental Research on Data, as well as in roles for the Association of Public and Land-grant Universities (APLU). He has served on the Advisory Committee of the National Science Foundation (NSF) Directorate for Computer & Information Science & Engineering, and on committees for the Association of American Universities (AAU). He was on the Board of Directors of the Computing Research Association and co-chaired its Government Affairs Committee. He is an emeritus member of the Board of Advisors of
the School of Science and Engineering at Tulane University. He chaired ACM SIGACT, the Special Interest Group on Algorithms and Computation Theory of the world’s largest computer professional organization, the Association for Computing Machinery. He served on the executive council of the European Association for Theoretical Computer Science. Sabbatical sites include the Mathematical Sciences Research Institute in Berkeley; INRIA in Rocquencourt, France; Ecole Normale Supérieure in Paris; Bell Labs in Murray Hill, NJ; and INRIA in Sophia Antipolis, France.

Dr. Vitter has been named a Guggenheim Foundation Fellow, a Fellow of the National Academy of Inventors (NAI), a Fellow of the American Association for the Advancement of Science (AAAS), a Fellow of the Association for Computing Machinery (ACM), a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), a National Science Foundation Presidential Young Investigator, a Fulbright Scholar, and an IBM Faculty Development Awardee. He has served on numerous nonprofit boards and has consulted widely for corporations, including AT&T, Bell Labs, Google, IBM, Institute for Defense Analyses, Microsoft, Universities Space Research Association, and Xerox PARC. He has well over 300 book, journal, conference, and patent publications and has given over 200 invited presentations worldwide. His Google Scholar h-index is in the 70s, and he is an ISI highly cited researcher.


His educational degrees include a B.S. with highest honors in mathematics in 1977 from the University of Notre Dame; a Ph.D. in computer science under Donald Knuth in 1980 from Stanford University; and an M.B.A. in 2002 from the Fuqua School of Business at Duke University. He was born and raised in New Orleans, Louisiana (as everyone who knows him knows!).

Dr. Vitter’s wife Sharon is a native Kansan and pharmacy alumna of KU. Their three children Jillian, Scott, and Audrey were born in Providence, RI and are Notre Dame alumni. Jillian received her medical degree from Georgetown University and is an assistant professor of anesthesiology at the University of Colorado. Scott, a former U.S. Army Ranger, earned a PhD in mechanical engineering at the University of Texas at Austin and works for Bain & Company in Chicago. Audrey holds a master’s degree in supply chain management from Pennsylvania State University and works for G.E. Aviation near Boston. The Vitters are passionate about the arts and genealogy and are huge sports fans.

### 3. Research Interests

In his research, Jeff Vitter exploits the rich interdependence between computing theory and practice. Beginning with his thesis on coalesced hashing, a widely used search method, Dr. Vitter has made many contributions to the design and analysis of algorithms, using mathematical analysis and asymptotics to derive precise estimates for resource requirements.

Dr. Vitter works primarily in four key subfields dealing with big data. He is perhaps best known as a founder of the field of external memory algorithms, which focuses upon alleviating the I/O communication bottleneck between fast internal memory and slow external storage (such as disk), which is important for a variety of data-intensive applications. His 2008 book, *Algorithms and Data Structures for External Memory*, is a reference for the field. His approach for utilizing parallel independent disks, using the notion of read/write duality, has led to state-of-the-art sorting methods. He has contributed to algorithm engineering via the TPIE system (Transparent Parallel I/O programming Environment) developed by a former student.

A second area of big data is compressed data structures, with numerous applications in bioinformatics and computational biology. The goal is to operate directly upon compressed representations of data and still achieve fast response time. Dr. Vitter co-developed the wavelet tree data structure (not to confuse
with wavelets discussed two paragraphs below), which is an elegant structure for coding sequences from a multicharacter alphabet; it is a key component in modern indexing and compression. Until this century, fast data structures for text indexing (such as suffix trees and suffix arrays) required much more space than the data being indexed! Based upon a recursive decomposition of the suffix array, Dr. Vitter and colleagues invented the compressed suffix array — the first fast index provably shown to require only linear space, and then later the first ever whose size per character was proven to be asymptotic (i.e., with constant of proportionality 1) to the higher-order entropy of the text. The index can reconstruct the original text in a random access manner, and thus the original text can be discarded. The net effect is that the text can be completely replaced by an index structure that is fast to query and has small size.

In a third aspect of big data, Dr. Vitter has done fundamental work on data compression for text, images, and video. He is noted for his analytical bent. A provably efficient algorithm for adaptive Huffman coding bears his name. With a former student, Dr. Vitter developed and analyzed practical methods for arithmetic coding. They invented the FELICS algorithm for lossless image compression, later implemented in hardware as part of NASA’s Mars Reconnaissance Orbiter. It introduced a low-cost prediction framework that influenced algorithms adopted into the Lossless JPEG standard. In video compression, Dr. Vitter and group proposed the paradigm of minimizing the combined measure of rate plus distortion to significantly improve motion estimation coding; rate-distortion optimization has since been incorporated into the H.264/MPEG-4 AVC standard’s reference encoder, used widely in the computing and communications industry.

Fourth, Dr. Vitter and collaborators were the first in the database and systems communities to apply wavelets and compression techniques as key tools for summarizing, approximating, and predicting data. Wavelets have since become widely used in database optimization, data warehousing, data streams, image processing, and data mining. For his work on wavelets, he and coauthor received the 2009 ACM SIGMOD Test of Time award, which recognizes the SIGMOD paper from 10 years earlier that had the most subsequent impact in research, products, and methodology. Dr. Vitter co-developed novel machine learning and prediction mechanisms based upon data compression, using the principle that the more compressible a sequence is, the more predictable it is. His universal prediction algorithms for online prefetching are provably asymptotically optimal (i.e., with constant of proportionality 1). They predict as well as special-purpose methods tuned to the characteristics of the sequence. His learning work includes algorithms for prefetching, caching, data streams, database query optimization, data mining, and power management in mobile devices.

Dr. Vitter has well over 300 book, journal, conference, and patent publications. Several of them are available electronically from his online publication library, which is reachable via a link from his web page chancellor.OleMiss.edu under the tab About/Jeff’s Research Activities.

4. Education

B.S. (with highest honors), mathematics, University of Notre Dame, 1977.

Ph.D., computer science, Stanford University, 1980.

Dissertation topic: Analysis of Coalesced Hashing (supervised by Donald E. Knuth).


5. Appointments and Administrative Accomplishments

At the University of Mississippi

2016–present Chancellor and Distinguished Professor of Computer & Information Science.

Major administrative accomplishments at Ole Miss:

- Leadership of the University of Mississippi as a comprehensive public international research university — Mississippi’s flagship and largest university, reauthorized in December 2018 by the Carnegie Foundation in its top category, “R1: Doctoral Universities — Very high research activity.”

- Engage extensively and transparently with the university and business communities via personal relationships and appearances, communications, town halls, blogs, letters, and social media.
• Close work with key stakeholders and government leaders at local, state, and federal levels to achieve major initiatives, such as the Healthcare Collaboration Act, federal projects, and state bond funding.

• Oversaw UM’s strongest three-year period of fundraising. Hired UM’s first vice chancellor for development to centralize fundraising across the entire university and to plan for a major comprehensive capital campaign. UM has raised over $100 million in philanthropy for each of the last seven years.

• Hired the university’s first vice chancellor for diversity and community engagement.

• Facilitated strong, trusted relationships between the Board of Trustees of the State Institutions of Higher Learning (IHL) and all components of the university.

• Led development of the UMMC Partnership & Affiliation Review Committee (PARC) to provide an effective process for the IHL board and the UM Medical Center to collaboratively vet initiatives.

• Launched updated campus master plan and introduced a strategic process for capital planning.

• Led strategic development of the university-wide vision, mission, and transformative initiatives that form the basis of the strategic plan Flagship Forward, FlagshipForward.OleMiss.edu.

• Launched the transformative initiative Flagship Constellations — building multidisciplinary research communities across the university addressing key societal challenges in our state, nation, and world and contributing to UM’s Carnegie R1 status.

• Launched the transformative initiative of engaged scholarship called M Partner, initially with three pilot communities in Mississippi, involving collaborations of faculty, staff, and students across the university with community members and external partners to build long-term community vibrancy.

• Launched the Ole Miss International pathway program with an external partner to enhance UM’s global environment and to significantly increase enrollments from abroad over the next six years.

• Engaged the broader Ole Miss community in a highly-regarded process to contextualize sites and southern symbols on campus, so as to acknowledge the problems of the past, learn from them, and create a welcoming and inclusive environment.

• Advocacy for healthy relationships in line with the UM Creed, including hiring the university ombuds, developing student wellness center, and deterring sexual violence, alcohol abuse, and Greek life hazing.

• Initiated review and restructuring of athletics compliance and worked toward NCAA case resolution.

At the University of Kansas

2010–2015        Provost and executive vice chancellor (chief academic officer and chief operations officer for the Lawrence and Edwards campuses).
2011–2015        Roy A. Roberts Distinguished Professor.
2010
        Professor, Department of Electrical Engineering and Computer Science.

Major administrative accomplishments at KU:

• Collaboration with KU community, medical center, and external partners on KU’s mission and vision.

• Oversight of broad community development and phased implementation of KU’s transformative strategic plan Bold Aspirations, www.provost.ku.edu/planning. Data-driven goals and metrics.

• Creation of KU’s first-ever university-wide undergraduate curriculum, the KU Core, kucore.ku.edu.

• Highly productive and collaborative team of vice provosts and deans. Regular leadership meetings and retreats, emphasizing innovation, synergies, data-driven methodology, and all-funds budgeting.

• Served as vice chair of board of Kansas Athletics, Inc. and on its Finance and Audit Committee.

• Served as chair of board of KU Innovation and Commercialization, kuic.ku.edu, KU’s highly functioning technology commercialization arm. Most incubator space in region. Substantial growth in licensing, startups, corporate partnerships and philanthropy, and collaborations with KU Medical Center.
• 10-year Higher Learning Commission reaccreditation planning, successful visit, and affirmative report.

• Restructure of student affairs, academic affairs, study abroad, and enrollment management. Revamped recruiting practices to grow enrollment. Four-year scholarships. Regents approval of new admission standards. Growth in engineering, business, pharmacy, online programs, and international students.

• Significant new efforts in First-Year Experience (firstyear.ku.edu), course redesign, advising, and use of data analytics to improve retention and graduation rate.

• Initiated discussion of Regents systemwide reverse transfer policy, now in place.

• 3× doctoral fellowship funding. Recruitment best practices. Transparent graduate program profiles.

• State funding for 12 distinguished (foundation) professorships and expansion of engineering. Work closely with Board of Regents, Governor’s Office, state legislators, and business leaders.

• Four campus-wide multidisciplinary strategic initiatives in research, developed through grass roots proposals. Stellar faculty hired in the strategic initiatives via cluster faculty hires and foundation professorships. Vigorous seed funding to build program success and sustainability.

• Significant rankings improvements in external research funding, engineering, business, and law.

• Worked closely with senate governance (university, faculty, staff, and student) and advisory groups. Annual visits to faculty/staff meetings in nearly every unit. Biweekly ennewsletters. Highly visible in community and at campus academic and athletics events.

• Development and campus-wide deployment of Hiring for Excellence program, which helps identify and recruit the very best faculty and staff and simultaneously leads to significant growth in diversity.

• Elevation of chief diversity officer position and coordination of student organizations with faculty and staff diversity efforts. Comprehensive campus climate study and task force on sexual assault underway.

• Initiation of rigorous capital planning process. Oversaw Campus Master Plan based upon Bold Aspirations. In 2015 over $350 million of construction actively in progress, including Innovation Way.

• Personal fundraising focus and mentoring of deans in support of Far Above capital campaign.

• Changing for Excellence program to restructure and improve administrative services in 11 areas and identify savings that can be invested in Bold Aspirations and Campus Master Plan.

At Texas A&M University

2008–2010   Professor, Department of Computer Science and Engineering.
2008–2009   Provost and executive vice president for academics (chief academic officer with oversight for the main campus in College Station and the Galveston and Qatar campuses).

Major administrative accomplishments at TAMU:

• Collaboration with the TAMU community and external partners on TAMU mission and vision.

• Inclusive campus development of Academic Master Plan as TAMU’s roadmap for excellence in education, research, and engagement. Development of multidisciplinary priority areas.

• Oversight of TAMU engineering educational and research programs in Education City, Qatar. TAMU regarded by the Qatar Foundation as its model partner. Most successful program in the Gulf region.

• Planning for an advanced institute to host and recruit eminent world-class faculty.

• Linked academic priorities with space allocations in the newly constructed and planned buildings.

• Metrics-based budget model to incentivize and recognize growth and excellence.

• Oversight of eight major leadership searches, resulting in six diverse hires: the first Hispanic dean of architecture, the first Hispanic dean of faculties, the first African American vice president of global initiatives, the first African American female vice president for diversity, the first female dean of veterinary medicine, and the first female dean of geosciences.

• Worked with student advisory group on setting tuition and supported policies helping needy students.
At Purdue University
2002–2008 Frederick L. Hovde Dean of the College of Science and Professor of Computer Science.

Major administrative accomplishments at Purdue:

• Restructured dean’s office to focus upon functional responsibilities. Formed dynamic leadership team.
• Primary responsibility for fundraising for the College of Science. Surpassed initial college campaign goal of $91.5 million and realized $100 million. During my tenure as dean, over $82 million raised.
• Completed campaigns for $22 million Lawson Computer Science Building and $33 million Hockmeyer Hall of Structural Biology, roughly half from philanthropy, plus numerous professorships.
• New outcomes-based undergraduate curriculum — first major change in college in 40 years. Successful launch led to university interest (and eventual development) of first-ever university curriculum.
• School-wide development of seven COALESCE multidisciplinary research areas. Developed and realized college plan to grow faculty size by 61 via multidisciplinary hires. Joint hires made with virtually every other college at Purdue. Significant growth in research funding.
• Partnered in Discovery Park, Purdue’s innovative set of multidisciplinary research centers. Co-led efforts to synergize computing interests across campus to create the Cyber Center in Discovery Park.
• Served as chair and/or committee member for university leadership searches, enterprise resource planning, research centers, and external partnerships.
• Reformulated Dean’s Leadership Council (DLC) with influential business, government, and academic leaders to provide me with valuable advice and take on crucial projects.
• With DLC chair, developed precursor of KU’s Hiring for Excellence program for stellar faculty hires. Proportion hired who were women or minorities was double that of the overall faculty makeup.
• Science Business Partners Program, designed with extensive input of DLC and a dozen CEOs.
• Science Journalism Laureates program to recognize science excellence in media, designed with DLC.
• With DLC member (Blue Cross and Blue Shield CEO), co-planned a healthcare summit for 24 CEO-stature business and medical thought leaders. Led to innovative healthcare projects and programs.
• Proposed and helped design the Purdue University Research Expertise database (PURE), which grew into the Indiana Database for University Research Expertise (INDURE), www.indure.org.
• Initiated L.E.A.D. diversity peer mentoring program to promote diversity awareness among first-year students. Success in College of Science led to university-wide adoption.

At Duke University
1993–2002 Gilbert, Louis, and Edward Lehrman Professor (distinguished professorship).
1995–2002 Founding member and co-director of Center for Geometric and Biological Computing (originally Center for Geometric Computing).
1993–2001 Chair, Department of Computer Science.
1993 Professor, Department of Computer Science.

Major administrative accomplishments at Duke:

• Led major culture change to one of inclusiveness, vision, and collaboration among all faculty and staff in department, especially empowering junior faculty to play leadership roles.
• Helped foster a dynamic and inclusive strategic plan that guided faculty hires and investment decisions, transformed department into cutting edge areas, ultimately leading to top-20 rankings.
• In the roughly 15 faculty hires overseen, each hire was the #1 pick in his or her search.
• Comprehensive curricular redesign. Major growth in both undergraduate and graduate enrollments.
• Reorganized departmental administration to be proactive and entrepreneurial.
• Design and launch of a successful corporate partners program.
• Achieved $2.5 \times$ external research funding for department.
• Served in several leadership roles and committees on campus.

At Brown University
1988–1992 Professor, Department of Computer Science.
1985–1988 Associate professor (with tenure), Department of Computer Science.
1980–1985 Assistant professor, Department of Computer Science.

Major administrative accomplishments at Brown:
• Chaired and reorganized graduate admissions committee to fully engage faculty with applicants.
• Chaired faculty search committee, undergraduate committee, and colloquium committee.
• Served on numerous committees, including those dealing with industrial partners, planning and growth, graduate affairs, curriculum, teaching effectiveness, and promotion and tenure.
• Incorporated modern teaching methodology for large new programming course.

Other Appointments
2008–2016 Adjunct professor, Purdue University.
1990–2006 Visiting professor (short-term) and/or adjunct professor, Tulane University.
1989–2000 Associate member, Center of Excellence in Space Data and Information Sciences (CESDIS).
1998 Visiting professor (short-term), University of Aarhus, Århus, Denmark.
1987 Lecturer, 2nd Asian School on Computer Science, Bangkok, Thailand.
1986 Member, Mathematical Sciences Research Institute, Berkeley, CA.
1979 Teaching fellow, Stanford University.

6. Honors and Awards
1977–present Phi Beta Kappa.
1983–present Sigma Xi.
1986–present Listed in several national and international Who’s Who publications.
1986–present Fellow of the John Simon Guggenheim Memorial Foundation.
1993–present Fellow of the Institute of Electrical and Electronics Engineers (IEEE), for contributions to the theory of sorting and searching and to the design and analysis of computer algorithms.

1996–present Fellow of the Association for Computing Machinery (ACM), for contributions to the theory of information storage and retrieval and to the design and mathematical analysis of computer algorithms.

2009–present Fellow of the American Association for the Advancement of Science (AAAS), for distinguished contributions to the design and analysis of efficient computer algorithms and data structures, particularly those involving massive amounts of data.

2017–present Phi Kappa Phi.

2018–present Fellow of the National Academy of Inventors (NAI).

2017 CEO Award of Mississippi, awarded by the Mississippi Business Journal to recognize leaders around the state who demonstrate excellence among the top executives in their field.

2009 SIGMOD Test of Time Award, awarded by the Association for Computing Machinery (ACM) Special Interest Group for Management of Data (SIGMOD) to the authors of the most impactful SIGMOD paper from 10 years earlier, “Approximate Computation of Multidimensional Aggregates of Sparse Data Using Wavelets,” by J. S. Vitter and M. Wang.

2002 Graduated as Fuqua Scholar, Fuqua School of Business, Duke University.

2001 Recognition of Service Award, Association for Computing Machinery (ACM).

1999 Medal of the University of Helsinki, Helsinki, Finland.


1997 Recognition of Service Award, Association for Computing Machinery (ACM).

1991–1992 Senior Member of Institute of Electrical and Electronics Engineers (IEEE).

1985–1991 National Science Foundation Presidential Young Investigator Award.

1984–1988 IBM Faculty Development Award.


1977–1980 National Science Foundation Graduate Fellow, Stanford University.


1977 General Electric Mathematics Major Award.

1977 Graduated with highest honors, University of Notre Dame.

7. Professional Societies

1977–present Phi Beta Kappa.

1979–present Association for Computing Machinery (ACM) (currently Fellow) and its Special Interest Group on Algorithms and Computation Theory (ACM SIGACT).

1980–present Institute of Electrical and Electronics Engineers (IEEE) (currently Fellow) and IEEE Computer Society.

1983–present Sigma Xi.

1984–present European Association for Theoretical Computer Science (EATCS), with occasional lapses.

1986–present John Simon Guggenheim Memorial Foundation (Fellow).

2003–present American Association for the Advancement of Science (AAAS) (currently Fellow).

2017–present Phi Kappa Phi.

2018–present National Academy of Inventors (NAI) (currently Fellow)

8. Consultancies

Alston & Bird, Washington, DC.

AT&T Labs–Research, Florham Park, NJ.
Burman, Critton, Luttier & Coleman, West Palm Beach, FL.
Center for Computing Sciences (formerly Supercomputing Research Center), Bowie, MD.
Fish & Richardson, Atlanta, GA and San Diego, CA.
Google, Mountain View, CA.
IBM Academic Information Systems, Stamford, CT.
IBM Palo Alto Scientific Center, Palo Alto, CA.
Institute for Defense Analyses, Alexandria, VA.
Knowledge Engineering, Inc., Cambridge, MA.
Lucent Technologies, Bell Labs, Murray Hill, NJ.
Microsoft, Redmond, WA.
Milbank, Tweed, Hadley & McCloy, New York, NY.
Universities Space Research Association, Columbia, MD.
Xerox PARC, Palo Alto, CA.

9. Service to the Profession and Community

1979–present Referee for over 80 distinct professional journals and conference series, several multiple times.
1981–present Reviewer of research proposals and/or panel member for various agencies, including the National Science Foundation, Air Force Office of Scientific Research, Army Research Office, NASA, Natural Sciences and Engineering Research Council of Canada, and other international agencies.
2009–present Board of Advisors, Center for Massive Data Algorithmics (MADALGO), Danish National Research Foundation, University of Aarhus, Arhus, Denmark.
2013–present Oversight Board, Personalized Learning Consortium (PLC), Association of Public and Land-grant Universities (APLU).
2015–present Commission on Information, Measurement, and Analysis (CIMA), Association of Public and Land-grant Universities (APLU).
2016–present Board of Directors, University of Mississippi Foundation.
2016–present Board of Directors, University of Mississippi Research Foundation.
2016–present Ole Miss Athletics Foundation.
2016–present Council of Presidents, Association of Public and Land-grant Universities (APLU).
2016–present Board of Directors, Innovate Mississippi.
2016–present Council of Presidents, Southeastern Universities Research Association (SURA).
2016–present Rotary Club of Oxford, MS.
2018–present International Advisory Board, Institute of Fundamental Research on Data, University of Chile, Santiago, Chile.


2012–2016 Advisory Committee, National Science Foundation Directorate for Computer & Information Science & Engineering.


2010–2015 Chair of Board of Directors, KU Innovation and Collaboration (KUIC).

2010–2015 Vice chair of Board of Directors, KU Center for Research (KUCR).


2010–2015 Rotary Club of Lawrence, Lawrence, KS.

2010–2015 Lawrence Chamber of Commerce, Lawrence, KS.

2013–2015 Scholarship Committee, Hall Family Foundation, Kansas City, MO.


2015 Governing Board of Directors, Bert Nash Community Mental Health Center, Lawrence, KS.

2009–2010 Rotary Club of Aggieland, College Station, TX.

2010 External review committee, Department of Computer Science, Yale University.


2009 Board of Directors, Research Valley Partnership, College Station, TX.

2003–2008 Proposer of concept and participant in design of what has become the Purdue University Research Expertise database (PURE) and the Indiana Database for University Research Expertise (INDURE), www.indure.org.

2006–2008 Town and Gown Club, Lafayette and West Lafayette, IN.

2007–2008 Rotary Club of West Lafayette, West Lafayette, IN.

2007 External programme review committee, Science Foundation Ireland, Dublin, Ireland.


1999–2001 SIG Governing Board, Association for Computing Machinery.


1997–1999 Graduate Record Examination Computer Science Committee, Educational Testing Service, Princeton, NJ.


1996 External review committee, Department of Computer Science, Georgetown University.

1995 Board of Visitors and review committee, Mathematical and Computer Science Division, Army Research Office.
10. Editorial Responsibilities

In addition to the editorial roles itemized below, Dr. Vitter has been involved in the organization of over 80 professional conferences in national and international settings, in a variety roles as chair, program committee member, and panel or session chair.

2012–present  Steering committee, IEEE/ACM Transactions on Computational Biology and Bioinformatics.
1994  Guest editor, special double issue of Algorithmica on the subject of Large-Scale Memories, 12(2–3), 1994.
1988  Guest editor, special issues of Algorithmica on the subject of parallel and distributed computing, Part I, 3(1), and Part II, 3(3), 1988.

11. Publications

Dr. Vitter has well over 300 book, journal, conference, and patent publications. Several of them are available electronically from his online publication library, which is reachable via a link from his web page chancellor.OleMiss.edu under the tab About/Jeff’s Research Activities.

Patents


Books and Edited Special Issues of Journals


Book Chapters


**Journal and Conference Articles**

This section jointly lists Dr. Vitter’s journal and conference papers. In several cases, the journal paper is an expanded and more detailed version of a conference paper, so for purposes of succinctness, their listings are combined into a single entry. Conference papers in computer science are important in their own right; they are generally peer-reviewed, often with very low acceptance ratios.


53. Interview by M. Winslett and V. Braganholo, “Jeff Vitter Speaks Out on being a Southerner, Duties of a Dean, and More,” ACM SIGMOD series on Distinguished Profiles in Databases, transcript in *SIGMOD Record*, 42(2), June 2013, 35–45.


Technical Reports (information not available in previous citations)

In addition to Dr. Vitter’s book, journal, conference, and patent publications listed above, Dr. Vitter has also published a number of technical reports. The reports listed below are those that provide additional information not available in his publications.


12. Invited Talks since 2000

Dr. Vitter has given well over 250 invited talks in national and international venues. His principal talks since the year 2000 are listed below:

2018 “Defining Moments: Public Universities and Race in America,” panel member, Association of Public and Land-grant Universities 131st Annual Meeting (APLU ’18), New Orleans, LA.

“Examining Universities’ Association with Historical Slavery, Response Efforts, and Repair Options,” presidential panel member, Fall Symposium of the Universities Studying Slavery Consortium, Tougaloo College, Jackson, MS.
“BancorpSouth Rebel Road Trip,” Ole Miss Athletics, multiple presentations, at Charlotte, NC; Pensacola, FL; Gulfport, MS; New Orleans, LA; Vicksburg, MS; Indianola, MS; Tupelo, MS; Birmingham, AL; Corinth, MS; Oxford, MS; New York, NY.

“Flagship Forward,” Columbus Rotary Club, Columbus, MS.


“Flagship Forward,” Ole Miss Alumni Association, multiple locations, at Jackson, MS; Memphis, TN; Laurel, MS.

“Higher Education Leadership,” Webber Energy Group, University of Texas, Austin, TX.

2017

“The University of Mississippi,” Kelly Gene Cook Charitable Foundation, Houston, TX.

“Higher Education Leadership,” Mississippi Gulf Coast Student Leadership Conference, Biloxi, MS.

“Flagship Directions,” Ole Miss Alumni Association, multiple locations, at Memphis, TN; Tupelo, MS; Jackson, MS; Gulfport, MS; Washington, DC.

“The University of Mississippi,” Financial Executives International, Memphis, TN.

“The University of Mississippi,” Holmes County Chamber of Commerce, Goodman, MS.

“BancorpSouth Rebel Road Trip,” Ole Miss Athletics, multiple presentations, at Nashville, TN; Greenville, MS; Olive Branch, MS; Corinth, MS; Dallas, TX; Pascagoula, MS; Laurel, MS; Tupelo, MS; Oxford, MS.

“The University of Mississippi,” Hinds Community College Honors Forum, Raymond, MS.

“The University of Mississippi,” Columbus Rotary Club, Columbus, MS.

2016

“Innovation and Creativity,” Keynote address at FNC Forge, Oxford, MS.

“The University of Mississippi,” Birmingham Kiwanis Club, Birmingham, AL.

“The University of Mississippi: Growing Momentum,” The Jackson Club, Jackson, MS.

“The University of Mississippi: Growing Momentum,” Tupelo Civitan Club, Tupelo, MS.


“The University of Mississippi: Growing Momentum,” Tupelo Kiwanis Club, Tupelo, MS.

“The University of Mississippi: Growing Momentum,” West Point Rotary Club, West Point, MS.

“The University of Mississippi: Growing Momentum,” Meridian Rotary Club, Meridian, MS.


“The Flagship Forum,” Ole Miss Alumni Association, multiple presentations, at University, MS; Jackson, MS; New Orleans, LA; Washington, DC; Cleveland, MS; Tunica, MS; Purvis, MS; Hattiesburg, MS; Greenwood, MS; Vicksburg, MS; Memphis, TN; Oxford, MS; Clarksdale, MS.

“BancorpSouth Rebel Road Trip,” Ole Miss Athletics, multiple presentations, at Atlanta, GA; Mobile, AL; Gulfport, MS; Meridian, MS; West Point, MS; Cleveland, MS; Oxford, MS.

“New Directions at the University of Mississippi,” Young Presidents Organization, Longleaf Plantation, Purvis, MS.

2015

“Creating a Climate of Healthy Relationships,” panel organizer and moderator, Association of Public and Land-grant Universities 128th Annual Meeting (APLU ’15), Indianapolis, IN.

“Data Analytics and their Institutional Uses,” panel member, Association of Public and Land-grant Universities 128th Annual Meeting (APLU ’15), Indianapolis, IN.

“Building a Data-Informed University: Using Analytics to Guide the Academic Enterprise,” Analytics Leadership Summit, University of Utah, Salt Lake City, UT.

“Engage KU: An Open Portal to Faculty Expertise,” Academic Analytics workshop, Laguna Beach, CA.

“Data and Analytics in Support of Campus Decision-making,” panel member, joint session of the Association of Public and Land-grant Universities Council on Academic Affairs and Commission on Information, Measurement & Analysis Summer Meetings (APLU CAA ’15 and APLU CIMA ’15), Niagara Falls, Canada.
“Copyright and Education,” panel member and co-chair, Association of Public and Land-grant Universities Council on Academic Affairs Summer Meeting (APLU CAA ’15), Niagara Falls, Canada.

“Scholarly Publishing and the University Research Enterprise,” panel member, Society for Scholarly Publishing 37th Annual Meeting (SSP ’15), Arlington, VA.


“Public Access and University Policies,” panel member, Association of Public and Land-grant Universities 127th Annual Meeting (APLU ’14), Orlando, FL.

“Perspectives on Data and Genomic Biodiversity Research,” panel member and co-chair, Large Data Management Genomic Biodiversity Summit, the University of Kansas, Lawrence, KS.

“Data Analytics for Student Success, Advising, and Alerts,” panel co-moderator, Association of Public and Land-grant Universities Council on Academic Affairs Summer Meeting (APLU CAA ’14), Santa Fe, NM.

“Enhancing University Research through Engagement and Collaboration: The Office of Corporate Partnerships as a Tool in Promoting Commercialization and External Partnerships with Businesses,” 2014 Retreat of the Merrill Advanced Studies Center, Nebraska City, NE.

2013 “Budgeting, Accounting, and Evidence-Based Decision-Making,” panel co-organizer and member, Association of Public and Land-grant Universities 126th Annual Meeting (APLU ’13), Washington, D.C.

“Open Access and Scholarly Communication,” panel member, Association of Public and Land-grant Universities Council on Academic Affairs Summer Meeting (APLU CAA ’13), Stevenson, WA.

“An Institutional Consortium for Personalized Learning,” panel member, Association of Public and Land-grant Universities Council of Presidents Summer Meeting (APLU CP ’13), Washington, DC.

“Finding your Way in a Compressed World (compressed title: &W*$!h)” inaugural distinguished professor lecture, the University of Kansas, Lawrence, KS.


“Compressed Data Structures,” School of Information Technology Distinguished Lecture, Xi’an University, Xi’an, China.

“Compressed Data Structures,” IIIS Distinguished Lecture, Institute for Interdisciplinary Information Sciences, Tsinghua University, Beijing.

“Faculty Productivity,” panel co-organizer and member, Association of Public and Land-grant Universities 125th Annual Meeting (APLU ’12), Denver, CO.

“Efficiency and Effectiveness,” panel member, Association of Public and Land-grant Universities 125th Annual Meeting (APLU ’12), Denver, CO.

“Compressed Data Structures with Relevance,” keynote address at the 2012 ACM Conference on Information and Knowledge Management (CIKM ’12), Maui, Hawaii.

“Partnering with Your Dean,” workshop panel member, Computing Research Association Conference 2012 (Snowbird ’12), Snowbird, UT.

“Information as a Paradigm,” 2012 Retreat of the Merrill Advanced Studies Center, Nebraska City, NE.

“Diversifying Revenue Streams in Support of Scholarly Engagement,” workshop panel member, Association of Public and Land-grant Universities Council on Academic Affairs Summer Meeting (APLU CAA ’12), Washington, DC.

2011 “KU Bold Aspirations,” Rotary Club of Lawrence, Lawrence, KS.

“Open Access to Scholarly Communication at KU,” panel member, Berlin 9 Open Access Preconference, Washington, DC.

“Behavioral and Social Sciences as Key Components in National Research Initiatives,” panel moderator, 2011 Retreat of the Merrill Advanced Studies Center, Nebraska City, NE.

33
“Graduate Program Disclosure Metrics,” workshop panel member, Association of Public and Land-grant Universities Council on Academic Affairs Summer Meeting (APLU CAA ’11), Asheville, NC.

2010
“Ensuring that Public Research Universities Maintain Their Strength,” workshop panel member, Association of Public and Land-grant Universities Council on Academic Affairs Summer Meeting (APLU CAA ’10), Portland, OR.

“Building Synergies,” 2010 Retreat of the Merrill Advanced Studies Center, the University of Kansas, Lawrence, KS.

“Managing Up: Partnering with Your Dean,” workshop panel member, Computing Research Association Conference 2010 (Snowbird ’10), Snowbird, UT.

“Understanding and Using Graduate Program Rankings in Computer Science,” workshop panel member, Computing Research Association Conference 2010 (Snowbird ’10), Snowbird, UT.

“CRA Guidelines for Enhancing Faculty Recruitment,” workshop chair and panel member, Computing Research Association Conference 2010 (Snowbird ’10), Snowbird, UT.

“Compression, Indexing, and Retrieval for Massive String Data,” keynote address at 21st Annual Conference on Combinatorial Pattern Matching (CPM ’10), New York, NY.

“GBWT: Compressed Text Indexing in External Memory,” 5th Stringology Research Workshop, Bar-Ilan University, Ramat Gan, Israel.

“Compressed Data Structures and Searching Document Collections for the Most Relevant Documents,” Duke University, Durham, NC.

2009
“Compressed Data Structures,” Leaders and Innovators Lecture Series, Texas A&M University, College Station, TX.

“Compressed Data Structures and Searching Document Collections for the Most Relevant Documents,” inaugural talk for the University of Texas Computer Science Distinguished Lecture Series, University of Texas, Austin, TX.

“Compressed Data Structures and Top-k Document Retrieval Problems,” University of Notre Dame, Notre Dame, IN.

“Searching String Collections for the Most Relevant Documents,” Los Alamos Computer Science Symposium 2009 (LACSS), Santa Fe, NM.

“Searching String Collections for the Most Relevant Documents,” Texas A&M University, College Station, TX.

“Applying Wavelets in Database Systems,” ACM SIGMOD Test of Time Award lecture for the most impactful paper from SIGMOD ’99, 2009 ACM SIGMOD International Conference on Management of Data (SIGMOD ’09), Providence, RI.

“Searching String Collections for the Most Relevant Documents,” University of Pisa, Pisa, Italy.

“The Value of Connections,” keynote address at Phi Beta Kappa induction ceremony, Alpha of Texas Chapter, College Station, TX.

2008

Interview as part of Purdue University Oral History Program Collection, interviewed by K. Markee, West Lafayette, IN.


Interview as part of ACM SIGMOD series on Distinguished Profiles in Databases, interviewed by Marianne Winslett, West Lafayette, IN.

“On Searching Compressed String Collections Cache Obliviously,” Information Theory and Applications Workshop, California Institute for Telecommunications and Information Technology, University of California–San Diego, La Jolla, CA.

2007
“I/O-Efficient Algorithms and Data Structures,” keynote address for inauguration of Center for Massive Data Algorithmics, Danish National Research Foundation, University of Aarhus, Aarhus, Denmark.

“Hestia and Climate Change,” moderator, Roundtable Forum on Climate Change, Barnes & Thornburg LLP, Indianapolis, IN.
“The Entrepreneurial Spirit of Purdue,” Purdue Entrepreneurship Roundtable, Palo Alto, CA.

“From Molecules to Ecosystems: Research Foci in Purdue Life Sciences,” Indiana Health Industry Forum, Barnes & Thornburg LLP and Indiana Economic Development Corporation, Indianapolis, IN.

“The Impact of Information Science and Technology on our Lives,” Town and Gown Club, West Lafayette, IN.

“Lower Bounds on Encoding Length with Burrows-Wheeler Compression,” Information Theory and Applications Workshop, California Institute for Telecommunications and Information Technology, University of California–San Diego, La Jolla, CA.

“The Impact of Computer Science and Information Technology on our Lives,” Rotary Club of West Lafayette, West Lafayette, IN.

2006 “Bringing Engagement to Life in Arts and Sciences Departments and Colleges,” panel member, Outreach Scholarship 2006 Conference, Columbus, OH.


“Issues and Challenges with Commercialization of Research,” panel member, 2006 Annual Meeting of the American Association of Universities Arts & Sciences Deans, Minneapolis, MN.

“Compressed Data Structures: Dictionaries and the Data-Aware Measures,” Information Theory and Applications Workshop, California Institute for Telecommunications and Information Technology, University of California–San Diego, La Jolla, CA.


2004 “Best of Both Worlds: Data Compression with Fast Indexing,” IBM Data Management Workshop, IBM Toronto Laboratory, Toronto, Canada.

“CS Education Après le Crash,” plenary panel member, Computing Research Association Conference 2004 (Snowbird ’04), Snowbird, UT.

“Data, Data Everywhere! Compressed Indexing and Indexed Compression,” Distinguished Lecturer Series, University of Rochester, Rochester, NY.


“Data, Data Everywhere!” Scientech Club, Indianapolis, IN.

2004 “Managing and Strengthening Interdisciplinary Programs,” panel member, 2003 Annual Meeting of the American Association of Universities Arts & Sciences Deans, College Park, MD.

“How to Store and Search Massive Data Archives,” XVI Louisiana Distinguished Lecture Series, University of Louisiana–Lafayette, Lafayette, LA.

2002 Minicourse on “External Memory Algorithms and Parallel Disk Access,” EEF Summer School on Massive Data Sets, University of Aarhus, Århus, Denmark.

“The Data Explosion,” Purdue University, West Lafayette, IN.

“The Data Explosion,” the University of Kansas, Lawrence, KS.

“Prediction via Data Compression,” Workshop on Compression Issues in Next-Generation Network Applications, DIMACS, Rutgers University, New Brunswick, NJ.

“Compressed Indexes for Fast Search in Sequences,” keynote address at the 6th Joint Conference on Information Sciences (JCIS ’02), Durham, NC.


“The Power of Duality and Randomness in Scheduling and Sorting with Multiple Disks,” KNUTHfest 2002 Symposium, Stanford University, Stanford, CA.

2001 “Computing on MASSIVE Data,” University of Notre Dame, Notre Dame, IN.

“Computing on MASSIVE Data,” 16th Clemson Mini-Conference on Discrete Mathematics, Clemson University, Clemson, SC.
“Information Technology Partnerships in Education,” TechVision 2020 Mayor’s Information Technology Summit, New Orleans, LA.

“External Memory Algorithms: Dealing with MASSIVE Data,” Distinguished Lecture Series, Louisiana State University, Baton Rouge, LA.

2000 “Online Data Structures in External Memory,” Georgia Institute of Technology, Atlanta, GA.


“Efficient Search through Massive Data,” IBM T. J. Watson Research Center, Hawthorne, NY.

13. Research Funding

Dr. Vitter is the sole principal investigator of the grants below, except for those in which multiple co-principal investigators are listed.

2010–2014 National Science Foundation, “Pattern Matching for Massive Data Sets,” the University of Kansas (subcontracted from Louisiana State University, as part of a $500,000 collaborative research grant), $235,773.


2004–2007 National Science Foundation, “Entropy-Compressed Data Structures,” Purdue University, $255,000.


1984–1988 IBM Faculty Development Award, Brown University, $60,000.

14. Theses

2010 External reviewer of Ph.D. thesis of Rossano Venturini, On Searching and Extracting Strings from Compressed Textual Data, University of Pisa.
2004 Committee member for Ph.D. thesis of I. Ilyas, Rank-aware Query Optimization, Purdue University.
1999 Supervision of Master’s thesis of S. Luoma, A Robust Algorithm for Constructing a BSP of Polygons in $\mathbb{R}^3$, Duke University.


1986 Committee member for Ph.D. thesis of P. Celis *Robin Hood Hashing*, University of Waterloo.


Dr. Vitter’s 15 graduated Ph.D. advisees are employed at Akamai (retired), Apple, Avaya Labs, Butler University, Google (3), Microsoft, National Taiwan University, Navini, RichRelevance, University of Hawaii, Veveo, Virginia Tech, and Zenverge.

15. **Postdoctoral Assistants**