Amina Ann Qutub

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Interests: Pioneering methods at the interface of computer science, neurovascular biology and engineering in order to understand how human cells communicate during processes of growth and repair, and use this fundamental knowledge to help eradicate hematological and neurological diseases.

EDUCATION

University of California, Berkeley and San Francisco — **Ph.D., Bioengineering**
Major: Mathematical Modeling — December 2004
Minors: Chemical Engineering and Neurology

Rice University, Houston, TX — **B.S., Chemical Engineering**
Foreign language: French — May 1999, cum laude

RESEARCH EXPERIENCE

University of Texas, San Antonio — **San Antonio, TX**
Associate Professor, Department of Biomedical Engineering — August '18 – present
Member, Brain Health Consortium
Research Thrust Co-Lead, UTSA AI Consortium — January '21-present
Director, UTSA - UT Health Graduate Group in Biomedical Engineering — January '21-present

Baylor College of Medicine — **Houston, TX**
Adjunct Assistant Professor, — August '10 – August '19
Department of Molecular Physiology and Biophysics

Rice University — **Houston, TX**
Assistant Professor, Department of Bioengineering — August '09 – July '18
Member, Center for Neuroengineering
Member, Institute of Biosciences and Bioengineering
Member, Systems, Synthetic and Physical Biology Graduate Program
Member, K2I, Ken Kennedy Institute for Information Technology
Member, Gulf Coast Consortia for Quantitative Biomedical Sciences

Johns Hopkins University, School of Medicine — **Baltimore, MD**
Postdoctoral Fellow, Department of Biomedical Engineering — September '04 – August '09
Advisor: Dr. Aleksander S. Popel
Modeling Intracellular Hypoxic Response & Hypoxia-Induced Angiogenesis

UCSF Department of Biopharmaceutical Sciences — **San Francisco, CA**
Graduate Researcher, Advisor: Dr. C. Anthony Hunt, BioSystems Group — May '00 – August '04
Modeling the Blood-Brain Barrier

Gladstone Institute for Neurodegenerative Diseases — **San Francisco, CA**
Rotation Student, Advisor: Dr. Lennart Mucke, Director — November '99 – April '00
Protein Transport in the Brain as a Function of APOE4

MD Anderson Cancer Center, Plastic Surgery Department — **Houston, TX**
Student Trainee, Advisor: Dr. Charles Patrick — Spring '98, Fall '98 –Spring '99
Design of NGF-Encapsulated Microparticles for Neuroregeneration

BUSINESS EXPERIENCE

DiBS (dibsvis.com) — **Houston, TX**
Co-Founder — March ’14-present
Texas Medical Center TMCx Inaugural Class, Best Start-Up of the Year 2015, VCIC

New Enterprise Associates — **Chevy Chase, MD**
Intern, Healthcare Investing Team — July ’08-August ’08

Leadership and Management in the Life Sciences Certificate Program — **Baltimore, MD**
Business Student, Johns Hopkins University, Carey Business School — September ’07-June ’08

Foundation for International Medical Relief of Children (FIMRC) — **Washington, D.C.**
Vice-President for Administration, Director of Corporate Partnerships — May ’05-May ’06

B^{3}io, Inc — **Berkeley, CA**
Founder and CEO — January ’02- June ’03

HONORS

2021	**Fellow, American Institute for Medical and Biological Engineering**
2014-2019	**Invited Participant, U.S. National Academies Frontiers of Engineering Symposia**
	2019 Arab-America Frontiers in Engineering Symposium, Cairo, Egypt
	2017 **Conference Chair,** Arab-America Frontiers in Science, Engineering & Medicine (AAFOE) Symposium, Morocco
	2016 **Session Co-Organizer,** *Exploring the Brain*, AAFOE, Abu Dhabi, UAE
	2015 Invited Speaker, AAFOE, Thuwal, Saudi Arabia
	2015 China-America Frontiers in Engineering Symposium, Irvine, CA
	2014 Indo-American Frontiers in Engineering Symposium, Mysore, India
2019	**Invited Participant, Royal Academy of Engineering Global Grand Challenges Summit**
2017	**Inaugural Bioinformatics Peer Prize Award**
2012-2017	**National Science Foundation CAREER Award**
2015, 2011	**Hamill Innovation Award, Institute of Biosciences and Bioengineering, Rice**
2014	**The Academy of Medicine, Engineering & Science of Texas Conference Protégé Invitee**
2014	**Scientific Lead, DREAM 9 Challenge**
2013	**The DREAM 8 (http://dreamchallenges.org/) SubChallenge Winner**
2013	**Simons Foundation Collaboration Grant for Mathematicians**
2011–2013	**National Academies Keck Future Initiatives Grant Award**
2006–2009	**Ruth L. Kirschstein National Service Research Award**
2007–2008	**Johns Hopkins University Leadership & Management in the Life Sciences Scholarship**
1999–2004	**Whitaker Bioengineering Graduate Research Fellowship**
2003	**Berkeley-Stanford Innovator’s Challenge Competition Finalist**
2002	**University of California, Berkeley, Haas Business Plan Competition Finalist**
1999	**Rice University Chemical Engineering Thomas Moore Scholarship**

SCIENTIFIC LEADERSHIP ROLES

2021-current Director, UTSA – UT Health Joint Graduate Group in Biomedical Engineering

- Forty-five core and sixty-three affiliated faculty across UTSA & UT Health School of Medicine in San Antonio are members of the graduate program, with external annual funding >$17,500,000. As the new director, I oversee program level grant applications, foster student success through online outreach, catalyze research collaborations and help oversee logistics for the graduate program.

2021-current Research Thrust Co-Lead, Augmenting Human Capabilities, AI MATRIX

Goals of this research thrust (https://ai.utsa.edu/research/augmenting-human-capabilities/) are to (1) develop new artificial intelligence systems that can mimic or outperform the agility, dexterity, and regenerative capacity intrinsic to the human body and (2) use AI to enhance human health. As a thrust lead, I lead and contribute to related research collaborations and grant applications.

2019-current Director, Quantu Project

- The Quantu Project (www.QuantuProject.org | IRB 19-077R) is a population-based study to digitalize and optimize brain health across biological scales and across a lifespan, engaging hundreds of volunteers across TX, CA, Canada and the U.K. I oversee all science & technology, collaborations and volunteer engagement for the project.
- ***Partners:*** UT-Health Glenn Biggs Institute, MD Anderson Cancer Center Proteomics Core, UTSA Stem Cell Core, UTSA Genomics Core, Academy Diagnostics, Any Lab Test Now, TaliHealth.

2020-2021 Lead, National Academy of Engineering COVID-19 Call-for-Engineering Action, COVID-19 Neurovascular Project

- This project focuses on developing methods to study neurovascular recovery after COVID-19
- Artificial intelligence methods are being integrated with non-invasive retina imaging, biosensors and smell tests to identify common biomarkers of COVID-19 recovery and long-COVID

2018-2020 NASA GeneLab Steering Committee Member

GeneLab develops the framework and tools to access and interpret all biological data obtained in space (https://genelab.nasa.gov/). The GeneLab Steering Committee provides input on GeneLab's approach to data interpretation, visualization, and dissemination for research

2017-2020 Organizer, Texas Medical Center and San Antonio Biomedical Data Workshops

Data workshops train faculty, staff, students and fellows on methods to handle and interpret diverse biomedical data in the Texas Medical Center and San Antonio region

2014-2015 Scientific Lead, DREAM 9 Acute Myeloid Leukemia Outcome Prediction Challenge

DREAM 9, a crowd-sourced international algorithm challenge, aimed to predict leukemia patient outcomes from clinical attributes and proteomics of cell biopsies. My role included: Designing the Challenge with advisors S.M. Kornblau, E. Estey and J. Radich. Coordinating a 17-person team of clinicians and computational scientists. Overseeing data curation, data visualization, events, publications, and the model testing infrastructure. Obtaining sponsorship (financial and in-kind).

2010-2013 Organizer, Complex Systems Initiative, Gulf Coast Consortia

2010-2013 John Dunn Foundation & Gulf Coast Consortia grant recipient and workshop organizer
2011 Helped obtain philanthropic funding for Rice's Bioengineering Systems Biology

2003 UCSF-Affiliated Fetal Research Treatment Center, San Francisco, CA

Helped organize development of a nonprofit integrated research center as part of a team that included UCSF neonatal surgeons, engineers and molecular biologists

CONTRIBUTIONS TO SCIENCE: PUBLICATIONS

h-index: 22 / i10-index: 32 underline = Qutub Lab students and fellows
52 peer-reviewed publications, 6 invited book chapters, >130 invited presentations, 11 keynotes

Computational Analysis of HIF Signaling My research has helped uncover the signaling dynamics involved in how cells respond to low oxygen, a molecular process critical to human physiology. I developed some of the first mathematical models to predict hypoxia-inducible factor 1α (HIF1α) hydroxylation and signaling, which enabled the quantitative study of therapeutically modulating this pathway. Recently, my lab has been developing experimental-computational frameworks to test how hypoxic response signaling interacts with other pathways involved in metabolism, oncogenesis and neural differentiation.

1. "A Computational Model of Intracellular Oxygen Sensing by Hypoxia-Inducible Factor HIF1α." **A.A. Qutub**, A.S. Popel, 2006, Journal of Cell Science **119**: 3467-3480. PMCID: PMC2129128
2. "Reactive Oxygen Species Stabilize HIF1α Differentially in Cancer and Ischemia." **A. Qutub**, A.S. Popel, 2008, Molecular and Cellular Biology **28**: 5106-5119. PMCID: PMC2519710
3. "Simulation Predicts IGFBP2-HIF1α Signaling Drives Glioblastoma Growth." K.W. Lin, A. Liao, **A.A. Qutub**, 2015, PLOS Computational Biology **11**: e1004169. (*profile: JAMA News, June 2015*)
4. "Progeny Clustering: A Method to Identify Biological Phenotypes." C.W. Hu, S.M. Kornblau, J.H. Slater, **A.A. Qutub**, 2015, Scientific Reports **5**: 12894. PMID: 26267476
5. "Reconstruction of Tissue-Specific Metabolic Networks Using CORDA." A. Schultz, **A.A. Qutub**, 2016, PLOS Computational Biology **12**: e1004808.
   - **Top 50 most downloaded articles in 2016, across PLOS journals**

Novel Methods to Predict Clinical & Cellular Outcomes from Omics and Image Data My lab develops computational tools for reverse engineering signaling networks from molecular expression data, algorithms to predict clinical outcomes from these networks, and new computer vision algorithms to quickly interpret patterns from biological images. Among these are innovative machine learning methods (e.g., Shrinkage and Progeny Clustering, cytoNet) to classify human cells and discover key protein signatures from patients' cellular biopsies (Hu et al., Nature Biomedical Engineering, 2019; Protein Atlas: LeukemiaAtlas.org). Through hosting, and competing in, crowd-sourced biomedical data challenges, our methods have been vetted and used broadly. One of my lab's algorithms, Progeny Clustering, has also been employed to help design a 1150-patient pediatric leukemia clinical trial (Hu et al., Scientific Reports, 2015; *Trial AALL1231, Coordinator: Dr. Terzah Horton, Texas Children's Hospital*). We are currently applying analogous computational analyses to uncover proteomic changes in human neural stem cells during varying stages of differentiation into functional neurons (Mahadevan et al., 2021, PLOS Computational Biology, in revision).

1. "A Crowdsourcing Approach to Developing and Assessing Prediction Algorithms for AML Prognosis." D.P. Noren, B. Long, R. Norel, K. Rhrissorrakrai, K. Hess, C.W. Hu, A.J. Bisberg, A. Schultz, E. Engquist, L. Liu, E. Lin, G. Chen, H. Xie, G. Hunter, P.C. Boutros, O. Stephanov, AML DREAM Consortium, T. Norman, S. Friend, G. Stolovitzky, S.M. Kornblau, **A.A. Qutub**, 2016, PLOS Computational Biology **12**: e1004890.
2. "Empirical Assessment of Causal Network Learning through A Community-Based Effort." S.M. Hill, L. Heiser, T. Cokelear, M. Unger, D. Carlin, Y. Zhang, A. Sokolov, E. Paul, C.K. Wong, K. Graim, A. Bivol, H. Wang, F. Zhu, B. Afsari, L.V. Danilova, A.V. Favorov, W.S. Lee, D. Taylor, C.W. Hu, A.J. Bisberg, D.P. Noren, B.L. Long, HPN-DREAM Consortium, G.B. Mills, J.W. Gray, M. Kellen, T. Norman, S. Friend, **A.A. Qutub**, E.J. Fertig, Y. Guan, M. Song, J. Stuart, H. Koeppl, P.T. Spellman, G. Stolovitzky, J.S.-Rodriguez, S. Mukherjee, 2016, Nature Methods **13**: 310-318.
   - **Biowheel tool developed by the Qutub Lab highlighted (**http://dream8.dibsbiotech.com/)
3. "Shrinkage Clustering: A Fast and Size-Constrained Algorithm for Biomedical Applications." C.W. Hu, H. Li, **A.A. Qutub**, 2018, BMC Bioinformatics **19**: 19.
4. "A Quantitative Analysis of Heterogeneities and Hallmarks in Acute Myelogenous Leukaemia." C.W. Hu, Y.H. Qiu, A. Ligeralde, A.Y. Raybon, S.Y. Yoo, K.R. Coombes, **A.A. Qutub**$^{+}$, S.M. Kornblau^{+} ($^{+}$co-senior authors), 2019, Nature Biomedical Engineering **3**: 889-901.

- **Highlighted by Nature BME "News & Views" *Prognostic Hallmarks in AML* (Nov 2019)**

5. "cytoNet: Spatiotemporal Network Analysis of Cell Communities." A. Mahadevan, B.L. Long, C.W. Hu, D.T. Ryan, Z. Maloney, G.L. Britton, A. Ligeralde, M.A.G. Porras, K. Stojkova, H. Son, J. Shannonhouse, A. Warmflash, J.T. Robinson, E.M. Brey, Y.S. Kim, **A.A. Qutub**, PLOS Computational Biology, 2021, in revision (bioRxiv 180273)
   - **Highlighted by the BRAIN Initiative:** www.braininitiative.org/toolmakers/resources/cytonet/

Systems Modeling & Analysis of Microvascular & Neural Tissue Regeneration Integrating a background in computer science and neurovascular cell biology, I introduced to the systems biology field a suite of new analysis methods and models to predict how intracellular signaling by endothelial, stem and neural cells leads to distinct multicellular architectures and tissue function. These methods have been used to identify mechanisms of angiogenesis as a function of neurotrophic factors and guide stem cell patterning assays to study neurogenesis. Recently, I built on this work to develop computational and biosensing methods that identify how patterns in daily behaviors, like sleep, affect human neurogenesis.

1. "Cells as State Machines: Cell Behavior Patterns Arise during Capillary Formation as a Function of BDNF and VEGF," B. Long, R. Rekhi, J. Jung, A. Abrego, **A.A. Qutub**, 2013, Journal of Theoretical Biology **326**: 43-57. PMID: 2326671
2. "VEGF-Mediated Ca2+ Signaling Steers Endothelial Cell Phenotypes by a Combination of Stochastic and Deterministic Decoding." D.P. Noren, W.H. Chou, S.H. Lee, A.S Popel, **A.A. Qutub**, A. Warmflash, D.S. Wagner, A. Levchenko, 2016, Science Signaling **9**: r20.
   - **Featured on Science Signaling Cover & Editor's Choice, February 23, 2016**
   - **Faculty 1000, March 2016**
3. "A Novel Self-Organizing Embryonic Stem Cell System Reveals Signaling Logic Underlying the Patterning of Human Ectoderm." G. Britton, I. Heemskerk, R. Hodge, **A.A. Qutub**, A. Warmflash, 2019, Development **146**: dev179093.
   - **Highlighted by Development's *(Micro)patterning the Human Ectoderm* (Oct 2019)**
   - **Cited *by Shahbazi et al., Science, June 2019***
4. "Living Neural Networks: Dynamic Network Analysis of Developing Neural Progenitor Cells." A. Mahadevan, N. Grandel, J.T. Robinson, K. Francis, **A.A. Qutub** (bioRxiv 055533)
5. "Health Signatures During COVID-19: A Precision Fitness Case Study." Pollet, E.S., Sathish, A.; Maloney, Z; Long, BL; Brethen, J; **A.A. Qutub** (medRxiv 2020.12.07.20245001)

Google Scholar: https://scholar.google.com/citations?user=Tqx8w_gAAAAJ&hl=en
MyBibliography: https://www.ncbi.nlm.nih.gov/myncbi/1NIbh7OU6-J5A/bibliography/public/
An updated list of my published work can be found at qutublab.org/publications-list

GRANTS & AWARDS

AWARDED, SUMMARY

2010-2021 Number of Grants/Awards Received: 22
2010-2021 Sources:

NSF: CAREER (PI), NCS-FO (PI), REU (co-PI), IOS (co-I), IGERT (Senior Personnel)
NIH: R01 (PI), R15 (co-I)
Gifts: Sage BioNetworks (PI), Texas Medical Center (PI), Michel Award (Dept)
Foundations & Institutes: John Dunn Foundation (PI); Hamill Foundation (PI); CPRIT (PI, co-PI); Kleberg Foundation (co-PI); Gulf Coast Consortia (PI), Brain Health Consortium (PI); Simons Foundation (PI); National Academies Keck Future Initiatives (PI)

AWARDED

2019-2021 National Science Foundation REU 1852560 Role: co-PI
Biomedical engineering Research for Active military and Veterans (BRAVe)
2018-2021 UT STARS Award Role: PI

	Profiling Cognitive Changes: Cells to Systems	
2018-2019	Brain Health Consortium Seed Grant	Role: PI / Mentor
	Correlating Behavioral Changes & Activity to Cellular Changes in Alzheimer's Patients: A Quantu Project	
2015-2018	National Science Foundation 1533708	Role: PI
	NCS-FO: Identifying Design Principles of Neural Cells	
2016-2018	Kleberg Foundation	Role: co-PI
	Tuning Chemosensitivity of Acute Myeloid Leukemia Cells via Targeted Depletion of Protein Signature Biomarkers	
2016-2019	National Institutes of Health R15 GM122030	Role: co-I
	Modeling of pathological significance of non-coding DNA variants in cis-overlapping motifs of p53 and cMyc	
2013-2018	National Institutes of Health R01 GM106027	Role: PI
	Spatially-Delineated System-Level Analyses and Control of Cytoskeletal Regulation	
2017-2018	CPRIT Postdoctoral Fellowship	Role: PI / Mentor
	Functional Hallmarks of Acute Myeloid Leukemia from Cellular Images	
2013-2018	National Science Foundation IGERT 1250104	Role: Senior Personnel
	Neuroengineering from Cells to Systems	
2014-2017	National Science Foundation 1354390	Role: co-I
	Mechanisms and Evolution of Thermogenic Capacity in High-Altitude Deer Mice	
2012-2017	National Science Foundation CAREER 1150645	Role: PI
	CAREER: Virtual, High-Throughput Model of Brain Microvasculature Regeneration	
2015-2016	Hamill Innovation Award	Role: PI
	Characterizing & Controlling the Neurovasculature through Hypoxic Response	
2014-2015	CPRIT HR/HI Award	Role: co-I
	Establishing Proteomic-Level Super-Resolution Imaging Analyses of Cancer Stem Cell Phenotypes and Behaviors	
2013-2015	CPRIT Postdoctoral Fellowship	Role: PI / Mentor
	Characterizing Patterns of Endothelial Cell Behavior	
2014-2015	Sage BioNetworks Award	Role: PI
	Crowd-Sourced Predictions of Leukemia Outcome	
2014	Texas Medical Center Award	Role: PI
	DREAM: Crowd-Sourced Predictions of Leukemia Outcome	
2013-2014	Simons Foundation Collaborative Grant	Role: PI
	Mathematical Analysis of Neurovascular Cell Biology	
2013-2014	Rice Arts Initiative	Role: PI
	Cells: A Meeting of Science and Art	
2012-2017	Jeffrey Michel Gift to the Department	Role: Administrator
	Gift to Grow Systems Biology within the Department of Bioengineering	
2011-2013	National Academies Keck Future Initiatives	Role: PI
	Building Multiscale Models of Capillary Regeneration from Image-based RNA Transcriptome Analyses	
2011-2013	Gulf Coast Consortia Bioinformatics Seed Grant	Role: PI
	Collaborative Workshops for Investigators in Biosciences, Bioengineering and Computational Sciences	
2012	John Dunn Foundation Seed Grant	Role: PI
	Multicellular Self-Organization Meeting	
2011-2012	Hamill Innovation Award	Role: PI
	Integrated Analyses of Coupling between Angiogenic Signaling and Cyto-mechanical Responses	
2006-2009	NIH NRSA F32 HL085016	Role: PI
	Modeling Intracellular Mechanisms of Hypoxic Response	

TEACHING

2009-2021 Developed 9 new courses in computational systems biology. ***Highlights and Outcomes:***

- Classes consistently attract students across disciplines and medical center institutes
- Course material requested and distributed for course use at MIT and NYU
- Courses were highlighted at the Annual Biomedical Engineering Society Meeting in 2018
- Students presented a talk at BMES 2016 based on a new algorithm they designed in class

University of Texas, San Antonio	*Rice University*	*Shanghai Jiao Tong University*	*Johns Hopkins University*
• Introduction to Python for Applications to Biomedical Industries, BME6303 • Fundamental Computational Bioengineering, BME4803 • Computational Bioengineering and Biomedicine, BME6313	• Computational Modeling Lab, BIOE446 • Systems Biology of Blood Vessels, BIOE507/307 • Introduction to Computational Biology, BIOE518 • Neuroengineering Systems Biology, BIOE553 • Principles of Bioengineering II, BIOE562 • Sensory Neuroengineering, BIOE592	Cell Engineering	Biological Transport, BME 580, Guest Lecturer

MENTORING

2010-2021 Graduated 7 Ph.D. students, served on 24 Ph.D. and 3 M.S. Committees

2011-2021 **67 Student & Fellow Awards** including 4 National Science Foundation graduate research fellowships, 4 HHMI Med-Into-Grad fellowships, 3 CPRIT and 2 AI Xilinx fellowships, a Goldwater research fellowship and a Brain Health Consortium graduate award.

PhD Students

2021 – Zacharie Maloney, UTSA-UT Health PhD student, current
2021 - Sean Tritley, UTSA-UT Health PhD student, current
2020 - George Britton, Ph.D., Bioscientist, Nordson Medical
2018 - Arun Mahadevan, Ph.D., Postdoctoral fellow, Biomedical Engineering, University of Pennsylvania
2018 - Tien Tang, Ph.D., Postdoctoral fellow, Pediatric Oncology, Texas Children's Hospital
2018 - Chenyue (Wendy) Hu, Ph.D., Data Scientist, Uber; DiBS Co-Founder
2017 - André Schultz, Ph.D., Bioinformatics Analyst, Stanford Cancer Institute, Stanford University
2016 - Ka Wai Lin, PhD, Data Scientist, Allstate
2015 - Holley Love, M.S., Ph.D., Staff Engineer, JBL Technologies, Instr. Asst. Prof., Univ. of Houston

LEADERSHIP ROLES IN CONFERENCES & WORKSHOPS

2018, 2021 **Data Sensing, Science & Systems for Space,** Conference Chair
2019 **Inaugural UT Artificial Intelligence Summit,** Co-Organizer
2010-2019 **Biomedical Engineering Society Annual Meeting,** 5 Sessions and 2016 Track Chair
2013-2017 **Jeffrey Michel Innovations in Systems Biology Award & Seminar Organizer**
2016 **French-American Data Science Conference,** Co-Host / Co-Organizer
2014 **Experimental Biology**, "Systems & Synthetic Engineering of Cell Signaling," Co-Chair
2009-2013 **Computational & Theoretical Biology Symposium**, Organizing Committee Member
2010-2013 **Gulf Coast Consortia,** Collaborative Workshops Series Organizer

PROPOSAL REVIEWER

2013, 2015-2021 NSF Engineering Directorate Panels (15), Center Site Reviewer (2018-2021)
2021 NIH-NSF-DOE Collaborative Research in Computational Neuroscience
2016 The Wellcome Trust / DBT India Alliance
2015-2016 Alzheimer's Association, Ad-Hoc Reviewer

2013	NIH Modeling and Analysis of Biological Systems, Ad-Hoc Reviewer
2011-2012	NIH Bioengineering, Technology, & Surgical Sciences Panel, Ad-Hoc Reviewer
2012	NCI-NSF Physical and Engineering Sciences in Oncology Panel
2010	NIGMS-NSF Division of Mathematical Sciences Panel
2010	Austrian Academy of Sciences
2010	Wellcome Trust Foundation

JOURNAL EDITORIAL ROLES

PLOS Computational Biology	Guest Editor
Frontiers in Computational Physiology and Medicine	Review Editor, 2011-2014
PLOS One	Editorial Board, 2012-2016
Scientific Reports	Editorial Board, 2016-2019
Network Neuroscience (MIT Press)	Associate Editor, 2018-current

ARTS, SCIENTIFIC & SOCIETAL OUTREACH

2020-present	Designer and Databases, COVID-19 Recovery Site (Covid19recoverytexas.org)
2020	Volunteer, Big Brothers Big Sisters of America *Mentored and taught computer programming remotely to children during the pandemic*
2019-present	Organizer, Quantu Project Public Workshops (QuantuProject.org/workshops) & Remote Exercise Classes (QuantuProject.org/onlineexercise)
2013-present	"Cells: A Meeting of Science and Art", art by N.C. Qutub developed from lab images *McNay Art Museum (2019), ISMB (2016), IBB (2015-), Houston Health Museum (2014)*
2019, 2020	Speaker, NIH Esteemed program for undergraduates
2018	Tomodachi STEM Japanese Research Program Scientific Host
2017	Creator, Hurricane Harvey Resource Site & Crisis Response Online Matching Tools
2012-2018	Rice Civic Scientist, Baker Institute, Rice University
2010-2017	Volunteer & Keynote Speaker (2015, 2016), The Health Museum, Houston, TX
2012, 2016	Speaker, Girls Bioscience Initiative | POWER Girls, Institute of Biosciences & Bioengineering
2009	Intel Science Competition, Judge, New York, NY

UNIVERSITY & DEPARTMENT SERVICE

2020-2021	Human Performance Faculty Search, Member, UTSA
2020-2021	Smart Cities Architecture and Urban Planning Faculty Search, Member, UTSA
2019-2020	Chemical Engineering Faculty Search, Chair, UTSA (2 Searches)
2019-present	Committee Service, Department of Biomedical Engineering (3 Committees)
2018-present	Committee for Research Excellence, Member, UTSA
2018-2019	Neuroscience Faculty Search Committee Member, UTSA (2 Searches)
2015-2018	Rice University Shared Research Cyberinfrastructure Working Group
2014-2017	Rice/IBM/MD Anderson Cancer Center PowerOmics Initiative
2010-2018	Committee Service, Department of Bioengineering (9 Committees, 1 Search)

MEDIA MENTIONS & INTERVIEWS

2021	Texas Public Radio
2020	The Chronicle of Higher Education, Texas Public Radio, National Academy of Engineering
2019	Nature Biomedical Engineering "News & Views", Texas Public Radio, San Antonio Express News, KSAT
2017	Physics World, Discover Magazine, National Science Foundation, Xconomy, U.S. National Academies and Keck Foundation Report
2016	NSF Science Nation, Council for the Advancement of Science Writing's New Horizons, KHOU
2015	BMC Systems Biology: Highlight of 2015, Health Data Management News, JAMA News Report, Voice of America, PricewaterhouseCoopers, Rice University Alumni Magazine
2013	Discovery News