Amina Ann Qutub

Associate Professor,
Department of Biomedical Engineering,
University of Texas, San Antonio
Science and Engineering Building, SEB 4.106
e-mail: amina.qutub@utsa.edu

phone: (210) 458-7092 | (510) 541-3497 || *web:* QutubLab.org

Summary: Pioneering methods at the **interface of computer science, neurovascular biology and engineering** to improve human health from cells to systems.

Educational Background

EDUCATION

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

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

Professional Employment History

RESEARCH EXPERIENCE

University of Texas, San Antonio — **San Antonio, TX**
Assistant Director of Strategic Partnerships, MATRIX AI Consortium — August ’23 – present
Director, UTSA - UT Health Graduate Group in Biomedical Engineering — January ’23 – present
Burzik Professor of Engineering Design — October ’22 – present
Research Thrust Co-Lead, MATRIX Artificial Intelligence Consortium — January ’21 – present
Associate Professor, Department of Biomedical Engineering — August ’18 – present
Member, Brain Health Consortium

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

PaloBio **Palo Alto, CA**
Co-Founder November '24-current
PaloBio is an AI x Bio start-up focused on developing novel technology and therapies that enhance neuroresilience, and provide rapid, informative insights from neurologically-relevant data to the public.

Rarebase (now Transcripta Bio) **Palo Alto, CA**
Vice President of Computational Biology January '22-October '22
In 2022, I took a leave from my academic roles to lead development of an artificial intelligence and experimental modeling platform to rapidly screen and prioritize therapies for children with rare disorders. A catalyst for this translational work was a young relative with a pediatric neurodevelopmental disorder.

DiBS (Data is Beautiful Solutions) **Houston, TX**
Co-Founder March '14-December '21
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

SCIENTIFIC LEADERSHIP ROLES

2021-current National Academies of Sciences, Engineering & Medicine

2023-2025 Transformative Science & Technology for the Department of Defense Committee Member

Through the NASEM Transformative Science and Technology for the Department of Defense, I contribute to identifying early-stage science and technologies across sectors (e.g., biology, AI, space, sensing) in collaboration with industry, academic, foundation and government representatives. In 2024, this included contributing as an editor for the NASEM Consensus Study Report "**Foundational Research Gaps and Future Directions for Digital Twins**," and co-chairing the 2024 workshop, **Transformative S&T for Assessing and Strengthening Individual-to-Population Resilience under Societal and Environmental Stress**.

2021-2024 Biotechnology Capabilities & National Security Standing Committee Member

As a member of the NASEM Biotechnology Capabilities & National Security Committee, I contribute to identifying early-stage research opportunities that are at the forefront of new biotechnologies and biomedical research. This includes engaging diverse biotechnology stake-holders in discussions relevant to promoting national security-relevant biotechnologies for the United States. In 2024, it also included co-chairing the 2024 NASEM **Artificial Intelligence and Automated Laboratories for Biotechnology Workshop**, with >400 registered participants and a keynote talk by Nobel Laureate Francis Arnold, and contributing to a follow-up NASEM **AI for Scientific Discovery Event**.

2021-2022, 2023-current Director, UTSA-UT Health Graduate Program in Biomedical Engineering

Eight-two faculty across UTSA & UT Health Sciences School of Medicine in San Antonio are members of the graduate program, with external annual funding >$18M. As the director, I work closely with our co-director Dr. Jean Jiang at UT Health San Antonio School of Medicine, oversee program level grant applications, foster student success, catalyze research collaborations and help oversee logistics for the graduate program. I also lead development of private fundraising initiatives and industrial partnerships for the joint program, with an emphasis in AI in biomedicine. In 2025, partnering with biotech sponsors, we are launching a fully-supported summer biotech training program for Masters students in cell design and cell manufacturing for translational medicine. Under my leadership, since 2023, the program has grown by 15 faculty members and increased its graduate student enrollment by 20%. In 2023-2024, the program was one of the three cornerstone departments that supported UTSA obtaining National Research University Fund standing and funding ($5M).

2021-current MATRIX Artificial Intelligence Consortium

2023-current Assistant Director of Strategic Partnerships

As the lead for strategic partnerships, I lead research collaborations with local and global institutes, support grant applications focused on developing AI for healthcare applications, and develop the MATRIX AI strategies for engaging industry, clinical and foundation partners. Example of my impact in this role include receiving three grants (including two center level grants as lead PI) that support work in the MATRIX (TRC4 iRemedyACT, San Antonio Medical Foundation, NIH AIM AHEAD), along with new collaborative research in AI with Southwest Research Institute, UT Health San Antonio, UT Southwestern, Dallas, and the City of San Antonio.

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

As a research thrust lead for the MATRIX AI Consortium Goals of the Augmenting Human Capabilities research thrust (https://ai.utsa.edu/research/augmenting-human-capabilities/) with my co-lead neurologist Mark Goldberg, our goals are to support researchers and technology 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. Papers related to my work as a thrust lead include collaborative pieces with NASA Ames, Sanders et al., Nature Machine Intelligence, 2023 and Scott et al., Nature Machine Intelligence, 2023.

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. I oversee science & technology and collaborations for the project.
  Partners: UT-Health San Antonio Glenn Biggs Institute, MD Anderson Cancer Center Proteomics Core, UTSA Stem Cell Core, UTSA Genomics Core, Any Lab Test Now, TALi Health.
- ***Highlights:*** Listed as an NIH ResearchMatch study, as of June 2021. Engages hundreds of volunteers across TX, CA, Canada and the U.K.

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

- This project focused on developing methods to study neurovascular recovery after COVID-19
- Artificial intelligence methods were 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 oncologist advisors and leukemia experts Drs. Steven M. Kornblau (MD Anderson Cancer Center), Elihu (Eli) Estey (Fred Hutchinson Cancer Research Center) and Jerry Radich (Fred Hutchinson Cancer Center), Sage Bionetworks and DREAM founder Dr. Gustavo Stolovitzky. Coordinating a 17-person team of clinicians and computational scientists. Pilot model testing and benchmarking. 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

Awards & Honors

HONORS

2024	**Inaugural AI-Bioscience (AIBC) Summit, Invited Participant, Washington, DC**
2023	**WelchX Retreat, Invited Participant, Houston, TX**
2022	**Speaker / Honoree, Health Cell State of the Industry, San Antonio, TX**
2021	**World Laureates Symposium, U.S. National Academy of Sciences Nominee**
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	**TAMEST (The Academy of Medicine, Engineering & Science of Texas) Conference Protégé Invitee**
2014	**Scientific Lead, DREAM 9 Challenge**
2013	**The DREAM 8 (https://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**

CONTRIBUTIONS TO SCIENCE: PUBLICATIONS

h-index: 29 / i10-index: 44 underline = Qutub Lab students and fellows
58 peer-reviewed publications, 6 invited book chapters, >140 invited presentations, 13 keynotes
Google Scholar: https://scholar.google.com/citations?user=Tqx8w_gAAAAJ&hl=en

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. 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 Regulate 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 methods (e.g., MetaGalaxy, Shrinkage clustering, cytoNet) to classify human cells and discover key protein signatures from patients' cellular biopsies (Hu et al., Nature Biomedical Engineering, 2019; 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*). We are applying analogous computational analyses to uncover proteomic changes in neural stem cells during differentiation into functional neurons (Mahadevan et al., PLOS Computational Biology, 2022). I am also helping lead initiatives on how artificial intelligence can be leveraged to solve engineering problems and catalyze discovery for the biosciences (e.g., Sanders et al., Nature Machine Intelligence, 2023; Scott et al., Nature Machine Intelligence, 2023).

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. **Highlights Biowheel tool developed by the Qutub Lab**

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. "Biological research and self-driving labs in deep space supported by artificial intelligence." L.M. Sanders, R.T. Scott, J.H. Yang, **A.A. Qutub** *et al.* 2023, Nature Machine Intelligence **5**: 208–219.
5. "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***

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, and on Faculty 1000**
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***; **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. "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, 2022, **18**: e1009846. **Highlighted by the BRAIN Initiative:** www.braininitiative.org/toolmakers/resources/cytonet/

Full Bibliography, p. 16-43

Intellectual Property

"Method to Identify Patterns in Brain Activity", US Patent App. 18/570,151, 2024, **A.A. Qutub**, J. Balaji, J. Brethen, G. Britton, N. Grandel, C. Hu, Z. Maloney, S. Tritley, B. Long, A. Mahadevan, E. Pollet

Granting Activities

GRANTS

AWARDED SUMMARY

34 awards, 2009-2025

NSF: CAREER (PI), NCS-FO (PI), REU (co-PI), IOS (co-I), NAIAD, IGERT (Senior Personnel), NAIRR Pilot Award (PI)
NIH: R01 (PI), AIM-AHEAD (PI, co-PI), R15 (co-I)
Gifts: Sage BioNetworks (PI), Texas Medical Center (PI), Michel Award (Dept), Burzik Award (PI)
Foundations & Institutes: John Dunn Foundation (PI); Trauma Research Combat Casualty Care Collaborative (TRC4) (PI, co-I); Hamill Foundation (PI); CPRIT (PI, co-PI); Kleberg Foundation (co-PI); Gulf Coast Consortia (PI), Brain Health Consortium (PI); Institute for Regenerative Medicine (PI); National Research University / Texas University Fund (co-Applicant); San Antonio Medical Foundation (PI); Simons Foundation (PI); National Academies Keck Future Initiatives (PI)

AWARDED, ACTIVE (2025-)						
Years	**Grant / Award Name**	**Agency**	**PIs**	**Amount**	**Credit**	**Role**
2025-2026	**RECOVER**: Autonomic PASC Syndromes arising from Dysfunctional Autoimmunity	National Institutes of Health	Goldberg	$800,000 ($97,500)	~12%	co-I
2024-2025	**MATCH**: MATRIX AI/ML Concierge for Healthcare (AIM AHEAD Phase II of III)	National Institutes of Health	Qutub, Goldberg, Kudithipudi, Mathur	$500,000	50%	Lead PI
2024-2025	**HaBiT:** Human Behavior & Translational Artificial Intelligence Labs for the Community	National Artificial Intelligence Research Resource Pilot; National Science Foundation	Qutub	~$28,000, in-kind compute	100%	Lead PI
2024-2025	**iRemedyACT**: **I**dentification and **Reme**diation of **D**elay**s** to Definitive Care of Critically Injured Patients in the Texas Trauma System (Remedy) with Advances in **A**I to Improve **C**are for **T**rauma (ACT) *Directed Research Award, Yr 1*	Trauma Research Combat Casualty Care Collaborative	Qutub, Eastridge, Cook, Kudithipudi, Goldberg, Rathbone, Houpt	$1,000,000	~40%	Lead PI
2024-2025	Novel '**S**hort **W**ave **A**ssessment **T**ool in **T**exas' (**SWATT**) to Enhance Burn Viability Assessment *Directed Research Award, Yr 1*	Trauma Research Combat Casualty Care Collaborative	Levi, Carlson	$1,500,000 ($16,500)	~1%	co-I

2024-2025	**Commissioned Article**: "Computationally-Augmented Research and Discovery of Treatments for Lyme IACI"	National Academies of Science, Engineering and Medicine	Qutub	$10,000	100%	PI
2023-2027	**PARTNER:** Neuro-Inspired AI for the Edge at UTSA (**NAIAD**)	National Science Foundation	Kudithipudi	$2,800,000	10%	Senior Personnel
2022-2025	Precision Medicine for Brain Health	Catherine and Francis Burzik Endowment	Qutub	~$95,000	100%	PI
2019-2025	**REU: B**iomedical engineering **R**esearch for **A**ctive military and **Ve**terans (**BRAVe)**	National Science Foundation	Brey, Qutub	$352,414	50%	co-PI
AWARDED, PRIOR YEARS						
2023-2024	Automated Tracking of Brain Cell Health: A Precision Medicine AI-Approach	San Antonio Medical Foundation Award	Qutub, Rouse	$200,000 ($70,000)	~40%	PI
2023-2024	**M-POWER: M**ATRIX-**P**rovided AI/ML **O**pen-Source Resource Center for Behavioral Health Empo**WER**ment (AIM AHEAD Phase I of III)	National Institute of Health	Kudithipudi, Qutub, Mathur, Goldberg	$500,000	25%	co-PI
2021-2022	Circadian Synchrony Precision Brain Models	Institute of Regenerative Medicine	Qutub	$15,000	100%	PI
2018-2021	Profiling Cognitive Changes: Cells to Systems	UT STARS Award	Qutub	~$1,000,000	100%	PI
2018-2019	Correlating Behavioral Changes & Activity to Cellular Changes in Alzheimer's Patients: A Quantu Project	Brain Health Consortium Seed Grant	Qutub	$15,000	100%	PI / Mentor
2015-2018	**NCS-FO:** Identifying Design Principles of Neural Cells	National Science Foundation	Qutub, Robinson, Wagner	$920,000	100%	Lead PI
2016-2018	Tuning Chemosensitivity of Acute Myeloid Leukemia Cells via Targeted Depletion of Protein Signature Biomarkers	Kleberg Foundation	Segatori, Qutub	$279,587	50%	co-PI
2016-2019	Modeling of pathological significance of non-coding DNA variants in cis-overlapping motifs of p53 and cMyc	National Institutes of Health	Fakhouri	$319,522	10%	co-I

2013-2018	Spatially-Delineated System-Level Analyses and Control of Cytoskeletal Regulation	National Institutes of Health	Balazsi Diehl, Qutub	$1,222,455	~30% (multi-PI)	PI
2017-2018	Functional Hallmarks of Acute Myeloid Leukemia from Cellular Images	CPRIT Postdoctoral Fellowship	Qutub	$75,681	100%	PI / Mentor
2013-2018	IGERT: Neuroengineering from Cells to Systems	National Science Foundation	Raphael	$2,796,140	10%	Senior Personnel
2014-2017	Mechanisms and Evolution of Thermogenic Capacity in High-Altitude Deer Mice	National Science Foundation (IOS)	Cheviron, Storz	$460,648	~20%	co-I
2012-2017	**CAREER:** Virtual, High-Throughput Model of Brain Microvasculature Regeneration	National Science Foundation CAREER	Qutub	$434,901	100%	PI
2015-2016	Characterizing & Controlling the Neurovasculature through Hypoxic Response	Hamill Innovation Award	Qutub, Wagner	$10,000	60%	PI
2014-2015	Establishing Proteomic-Level Super-Resolution Imaging Analyses of Cancer Stem Cell Phenotypes and Behaviors	CPRIT HR/HI Award	Diehl	$200,000	~20%	co-I
2013-2015	Characterizing Patterns of Endothelial Cell Behavior	CPRIT Postdoctoral Fellowship	Qutub	$111,664	100%	PI / Mentor
2014-2015	Crowd-Sourced Predictions of Leukemia Outcome	Sage BioNetworks Award	Qutub	$12,000	100%	PI
2014	DREAM: Crowd-Sourced Predictions of Leukemia Outcome	Texas Medical Center Award	Qutub	$10,000	100%	PI
2013-2014	Mathematical Analysis of Neurovascular Cell Biology	Simons Foundation Collaborative Grant	Qutub	$7,000	100%	PI
2013-2014	Cells: A Meeting of Science and Art	Rice Arts Initiative	Qutub	$15,798	100%	PI
2012-2017	Gift to Grow Systems Biology within the Department of Bioengineering	Jeffrey Michel Gift to the Department	Qutub	$60,000	100%	Administrator
2011-2013	Building Multiscale Models of Capillary Regeneration from Image-based RNA Transcriptome Analyses	National Academies Keck Future Initiatives	Diehl, Qutub, Tkaczyk	$75,000	~50%	PI

2011-2013	Collaborative Workshops for Investigators in Biosciences, Bioengineering and Computational Sciences	Gulf Coast Consortia Bioinformatics Seed Grant	Qutub	$8,480	100%	PI
2012	Multicellular Self-Organization Meeting	John Dunn Foundation Seed Grant	Qutub	$4,611	100%	PI
2011-2012	Integrated Analyses of Coupling between Angiogenic Signaling and Cyto-mechanical Responses	Hamill Innovation Award	Qutub, Diehl	$10,000	50%	PI
2006-2009	Modeling Intracellular Mechanisms of Hypoxic Response	National Institutes of Health NRSA F32	Qutub	$145,200	100%	PI

PENDING

Years	Grant Name	Agency	PIs	Amount	Credit	Role
2026-2031	Dynamics of Cell Communication Networks during Stress, Recovery and Regeneration	National Institutes of Health RM1	Qutub, St-Pierre, Gaber, Kim, Francis	$12,412,282	~60%	Lead PI
2025-2028	**TRAILBLAZER**: Modeling human neuroimmune response to socioenvironmental stresses from passive monitoring	National Science Foundation	Qutub	$2,999,997	100%	Lead PI
2025-2027	**LuMiNaTe**: Lymphatic imaging uncovering Metabolites' INvolvement and Guiding Therapeutics	ARPA-H GLIDE	Qutub, Sharma, Feldman, Ye, Goldberg, Lechleiter	$58,355,000	~20%	Lead PI
2025-2028	Modeling the Effects of Environmental Stress and Countermeasures on the Suprachiasmatic Nuclei	McKnight Foundation	Qutub, Rouse	$300,000	~80%	PI
2025-2026	**INSPIRES:** Modeling the Effects of Hypoxia and Countermeasures on the Suprachiasmatic Nuclei	NASA	Rouse, Qutub	$250,000	50%	co-PI
2025-2029	Enhanced hyperspectral wavelength assessment tool (SWAT) imaging to enhance burn wound depth assessment	Department of Defense	Levi, Qutub, Berenfeld	$2,200,000 ($520,504)	~30%	co-PI

2025-2028	**RoC:** Measuring Resilience of Communities	Department of Defense, Minerva Research Initiative	Qutub	$2,700,000	~60%	Lead PI
2025-2028	CASIS: Models of Adipose Beiging in Space	National Science Foundation	Brey, Qutub, Cohen	~$400,000	~33%	PI

Teaching Activities

MENTORING

2010-2025 Graduated 7 Ph.D. students, served on 25 Ph.D. and 4 M.S. Committees

2011-2025 **73 Student & Fellow Awards** including 5 National Science Foundation graduate research fellowships, 4 HHMI Med-Into-Grad fellowships, 3 CPRIT and 2 AI Xilinx fellowships, a Goldwater research fellowship, an AirForce Research Laboratory fellowship, and a Brain Health Consortium graduate award.

PhD Students

2025 – Mariam Dayeh, UTSA Chemical Engineering PhD student, current
2023 – David Hernandez-Guzman, UTSA-UT Health San Antonio PhD student, current
2021 - Sean Tritley, UTSA-UT Health San Antonio PhD student & AFRL fellow, current
2020 - George Britton, Ph.D., Medical Science Associate, Fresenius Medical Care
2018 - Arun Mahadevan, Ph.D., Research Scientist, Rarebase
2018 - Tien Tang, Ph.D., Assistant Professor, MD Anderson Cancer Center
2018 - Chenyue (Wendy) Hu, Ph.D., Senior Data Scientist, Uber; DiBS Co-Founder
2017 - André Schultz, Ph.D., Senior Bioinformatics Scientist, Foresight Diagnostics; Stanford Cancer Institute, Stanford University
2016 - Ka Wai Lin, PhD, Data Scientist, Meta
2015 - Holley Love, M.S., Ph.D., Staff Engineer, JBL Technologies, Instr. Asst. Prof., Univ. of Houston

COURSE TEACHING

2009-2025 Developed 10 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 (2018)
- Students presented a research talk at BMES based on a new algorithm they designed in class
- Courses have ranged from core, introductions to programming to in-depth, elective graduate research topics in neural systems biology

University of Texas, San Antonio	*Rice University*	*Shanghai Jiao Tong University (2014)*	*Johns Hopkins University*
• Biomedical Data Science, BME4803 • Introduction to Python for Applications to Biomedical Industries, BME6303 • Fundamental Computational Bioengineering, BME4803 • Computational Bioengineering and Biomedicine, BME6313 • Introduction to Programming for Engineers, CME2403	• 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

Service Activities

PROPOSAL REVIEWER

2013, 2015-2024	NSF Engineering Directorate Panels (17), Center Site Reviewer (2018-2024)
2022	CIRM: California Institute for Regenerative Medicine
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

UNIVERSITY & DEPARTMENT SERVICE

2021, 2023-present	Graduate Advisor of Record, Department of Biomedical Engineering
2019-present	Committee Service, Department of Biomedical Engineering (3 Committees) *Graduate Affairs, Graduate Admissions, DFRAC*
2018-present	Faculty Search Committees (Member: AI Cluster Hire (2024-2025); Smart Cities Architecture; Human Performance (2), Neuroscience (2), Chemical Engineering (2)**;** Chair (Human Performance, 2021-2022; Chemical Engineering, 2019-2020)
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)

LEADERSHIP ROLES IN CONFERENCES & WORKSHOPS

2024-2025	**National Academies of Science, Engineering and Medicine (NASEM)** Navigating the Benefits and Risks of Publishing Studies of In Silico Modeling and Computational Approaches of Biological Agents and Organisms, Planning Committee
2024	**National Academies of Science, Engineering and Medicine (NASEM) Transformative S&T for Assessing and Strengthening Individual-to-Population Resilience under Societal and Environmental Stress Workshop,** Co-Chair
2024	**National Academies of Science, Engineering and Medicine (NASEM) Artificial Intelligence and Automated Laboratories for Biotechnology Workshop,** Co-Chair
2019	**Inaugural UT Artificial Intelligence Summit,** Co-Organizer
2018	**Data Sensing, Science & Systems for Space,** Conference Chair
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

EDITORIAL ROLES

National Academies of Science, Engineering and Medicine, "Foundational Research Gaps and Future Directions for Digital Twins"	Editor, 2024
PLOS Computational Biology	Guest Editor
Network Neuroscience (MIT Press)	Associate Editor, 2018-2020
Frontiers in Computational Physiology and Medicine	Review Editor, 2011-2014
PLOS One	Editorial Board, 2012-2016
Scientific Reports	Editorial Board, 2016-2019

ARTS, SCIENTIFIC & SOCIETAL OUTREACH

2020-2023	Designer and Databases, COVID-19 Recovery Site
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)
2013-2020	"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)*
2012-2018	Rice Civic Scientist, Baker Institute, Rice University
2018	Tomodachi STEM Japanese Research Program Scientific Host
2017	Creator, Hurricane Harvey Resource Site & Crisis Response Online Matching Tools
2010-2017	Volunteer & Keynote Speaker (2015, 2016), The Health Museum, Houston, TX
2012, 2016	Speaker, Girls Bioscience Initiative | POWER Girls, Institute of Biosciences & Bioengineering

MEDIA MENTIONS & INTERVIEWS

2024	Texas Public Radio, "*Using artificial intelligence to solve medical mysteries*" Texas Public Radio, "*UTSA developing AI tool to expedite patient care in trauma emergencies*" KSAT, San Antonio Express News, "*UTSA group eyes AI, help on trauma*"
2023	BioTechniques, *"Cellular Models for Neuroregenerative Therapies: Discovering Biomarkers in a Dish"* Women Talk Design
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	Discover Magazine, Physics World, 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, PricewaterhouseCooper Rice University Alumni Magazine

BIBLIOGRAPHY

h-index: 29 / i10-index: 44
Google Scholar: https://scholar.google.com/citations?user=Tqx8w_gAAAAJ&hl=en

58 peer-reviewed publications, 6 invited book chapters

>150 invited presentations, 14 keynotes

Underlined names indicate postdoctoral fellows or students from the Qutub Lab
Undergraduate researchers from the Qutub Lab indicated by a star (*)

FIVE REPRESENTATIVE PUBLICATIONS

1. "Computationally-Augmented Research and Discovery of Treatments for Lyme-infection associated chronic illness (Lyme IACI)" **A.A. Qutub**, 2025, Commissioned article, National Academies of Sciences, Engineering and Medicine.

2. "cytoNet: Spatiotemporal Network Analysis of Cell Communities." A. Mahadevan, B.L. Long, C.W. Hu, D.T. Ryan, 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,** 2022, PLOS Computational Biology, 18: w1009846. PMCID: PMC9191702"

   Highlights: **The BRAIN Initiative:** www.braininitiative.org/toolmakers/resources/cytonet/
   Society of Neuroscience, Meet the Toolmakers
   Keystone Symposia Highlight
   Date: 2022
   PLOS Computational Biology Impact Factor: 4.3 (a leading journal in the computational biology field)
   Citations: 13 (4 from preprint)
   DOI: https://doi.org/10.1371/journal.pcbi.1009846
   URL: https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1009846

3. "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)**
   Date: 2019
   Nature Biomedical Engineering Impact Factor: 27.7
   Citations: 34 | Altmetric Score: 89 (97%)
   Website: https://www.LeukemiaAtlas.org
   DOI: https://doi.org/10.1038/s41551-019-0387-2
   URL: https://www.nature.com/articles/s41551-019-0387-2

4. "Biological research and self-driving labs in deep space supported by artificial intelligence," L.M. Sanders, J.H. Yang, R.T. Scott, **A.A. Qutub**, H.G. Martin, D.C. Berrios, J.JA Hastings, J. Rask, G. Mackintosh, A.L. Hoarfrost, S.Chalk, J. Kalantari, K. Khezeli, E.L. Antonsen, Joel Babdor, R. Barker, S.E. Baranzini, A. Beheshti, G.M. Delgado-Aparicio, B.S. Glicksberg, C.S. Greene, M. Haendel, A.A. Hamid, P. Heller, D. Jamieson, K.J. Jarvis, S.V. Komarova, M. Komorowski, P. Kothiyal, A. Mahabal, U. Manor, C.E. Mason, M. Matar, G.I. Mias, J. Miller, J.G. Myers Jr, C. Nelson, J. Oribello, S.-m. Park, P. Parsons-Wingerter, R.K. Prabhu, R.J. Reynolds, A.Saravia-Butler, S. Saria, A. Sawyer, N.K. Singh, F. Soboczenski, M. Snyder, K. Soman, C.A. Theriot, D.V. Valen, K. Venkateswaran, L. Warren, L. Worthey, M. Zitnik, S.V. Costes, 2023, Nature Machine Intelligence **5**: 208-219.

   Highlighted by**: Nature Machine Learning *Space Missions out of this World* (March 2023)**

Date: 2023
Nature Machine Learning Impact Factor: 18.8
Citations: 23 | Altmetric Score: 48 (96%)
DOI: https://doi.org/10.1038/s42256-023-00618-4
URL: https://www.nature.com/articles/s42256-023-00618-4

5. "Reconstruction of Tissue-Specific Metabolic Networks Using CORDA." A. Schultz, **A.A. Qutub**, 2016, PLOS Computational Biology **12**: e1004808.

   Highlights: **Top 50 most downloaded articles in 2016, across PLOS journals**
   PLOS Computational Biology Top 10% Curated Collection, 2020:
   https://collections.plos.org/collection/compbiol-top-cited/
   Date: 2016
   PLOS Computational Biology Impact Factor: 4.3 (a leading journal in the computational biology field)
   Citations: 136 | Article Views: 14,368
   DOI: https://doi.org/10.1371/journal.pcbi.1004808
   URL: https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1004808

ADDITIONAL REPRESENTATIVE PUBLICATIONS

6. "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

   Highlights: **Progeny Clustering was used to help design pediatric clinical trial Trial AALL1231, Coordinator: Dr. Terzah Horton, Texas Children's Hospital**
   Date: 2015
   Citations: 52 | Altmetric Score: 59 (96%)
   DOI: https://doi.org/10.1038/srep12894
   URL: https://www.nature.com/articles/srep12894

7. "Living Neural Networks: Dynamic Network Analysis of Developing Neural Progenitor Cells." A. Mahadevan, B.L. Long, A. Ligeralde*, M. Sakuma*, N. Grandel*, J.T. Robinson, K. Francis, **A.A. Qutub**. Preprint (unrevised version): bioRxiv 055533. In resubmission

   Highlights: **Integrates long-time lapse experiments and modeling to identify how human neural networks form from single cells, through coordinated electrical and biochemical communication – and how this process changes in the neurodevelopmental disorder, Smith Lemli Opitz Syndrome. Invited as a submission to Nature Neuroscience.**
   Altmetric Score (pre-print): 30 (92%)
   DOI: https://doi.org/10.1101/055533
   URL: https://www.biorxiv.org/content/10.1101/055533v3

8. "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.

   Highlights: **Development's *(Micro)patterning the Human Ectoderm* (Oct 2019) and cited by Shahbazi et al., Science, June 2019. Patterned differentiation assays to recapitulate the early development of the human nervous system and characterize cells of the neural lineage.**
   Citations: 79
   DOI: https://doi.org/10.1242/dev.179093
   URL: https://journals.biologists.com/dev/article/146/20/dev179093/224366/A-novel-self-organizing-embryonic-stem-cell-system

9. "Inferring Causal Molecular Networks: Empirical Assessment 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.

   Highlights: **Highlighted the use of the interactive tool Biowheel, developed by the Qutub Lab, to rapidly share high-dimensional biological data and study molecular signaling trends in the cellular response to biochemical therapies**
   Citations: 258 | Altmetric Score: 58 (95%)
   DOI: https://doi.org/10.1038/nmeth.3773
   URL: https://www.nature.com/articles/nmeth.3773

10. "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
    Date: 2008
    Citations: 237
    DOI: https://doi.org/10.1038/s41551-019-0387-2
    URL: https://www.nature.com/articles/s41551-019-0387-2

11. "A Crowd Sourcing Approach to Developing and Assessing Prediction Algorithms for AML Prognosis." D.P. Noren, B. Long, R. Norel, K. Rhissorrakrai, K. Hess, C.W. Hu, A.J. Bisberg*, A. Schultz, E. Engquist, L. Liu, E. Lin, G. Chen, H. Xie, G. Hunter, AML DREAM Consortium, T. Norman, S. Friend, G. Stolovitzky, S.M. Kornblau, **A.A. Qutub**, 2016, PLOS Computational Biology, **12**: e1004890.

    Highlights: **Integrated wisdoms-of-the-crowd approaches to identify top molecular and clinical predictors of therapeutic outcomes for acute myeloid leukemia patients. 270 computational modelers worldwide competed in the challenge**
    Citations: 38
    DOI: https://doi.org/10.1371/journal.pcbi.1004890
    URL: https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1004890

ALL ARTICLES

Submitted / Pre-Submission Archived

1. "Computationally-Augmented Research and Discovery of Treatments for Lyme-infection associated chronic illness (Lyme IACI)" **A.A. Qutub**, 2025, Commissioned article, National Academies of Science, Engineering and Medicine, *submitted*.

2. "Comparison between deep learning architectures for classification of human burn wounds based on visual light and multispectral SWIR imaging." M.F. Dumanjog, S. Korlakunta, A. Hazime, R. Huebinger, S. Mironov, O. Berenfeld, B. Levi, **A.A. Qutub**, SPIE Medical Imaging, *accepted for publication*.

3. "Health Signatures During COVID-19: A Precision Fitness Case Study." E.P. Pollet, A. Sathish*, Z. Maloney, B.L. Long, J. Brethen, **A.A. Qutub**, medRxiv 10.1101/2020.12.07

   Summary: Machine learning methods applied to three years of wearable device data identified demographics and subpopulations whose daily fitness (e.g., sleep, heartrate) was most affected by the COVID-19 pandemic and related stay-at-home orders (Altmetric Score: 17, 89%)

DOI: https://doi.org/10.1101/2020.12.07.20245001
URL: https://www.medrxiv.org/content/10.1101/2020.12.07.20245001v1

4. "Biowheel: Interactive Visualization and Exploration of Biomedical Data." C.W. Hu, A.J. Bisberg*, **A.A. Qutub.** bioRxiv 099739 (Altmetric score: 22, 93%).
Winner: Inaugural Bioinformatics Peer Prize
URL: https://www.biorxiv.org/content/10.1101/099739v1

5. "Living Neural Networks: Dynamic Network Analysis of Developing Neural Progenitor Cells." A. Mahadevan, B.L. Long, A. Ligeralde*, M. Sakuma*, N. Grandel*, J.T. Robinson, K. Francis, **A.A. Qutub**. Preprint (unrevised version): bioRxiv 055533 (Altmetric score: 95%).
DOI: https://doi.org/10.1101/055533

Peer-Reviewed Publications:

6. "Tutorial: Lessons Learned for Behavior Analysts from Data Scientists," L. Neely, S. Oyama, · Q. Chen, **A.A. Qutub**, C. Chen, Perspectives on Behavior Science. Special Issue: Big Data and Behavior Science, 2024, Perspectives in Behavior Science **47**: 203-223.
DOI: https://doi.org/10.1007/s40614-023-00376-z

7. "Biological research and self-driving labs in deep space supported by artificial intelligence," L.M. Sanders, J.H. Yang, R.T. Scott, **A.A. Qutub**, H.G. Martin, D.C. Berrios, J.JA Hastings, J. Rask, G. Mackintosh, A.L. Hoarfrost, S.Chalk, J. Kalantari, K. Khezeli, E.L. Antonsen, Joel Babdor, R. Barker, S.E. Baranzini, A. Beheshti, G.M. Delgado-Aparicio, B.S. Glicksberg, C.S. Greene, M. Haendel, A.A. Hamid, P. Heller, D. Jamieson, K.J. Jarvis, S.V. Komarova, M. Komorowski, P. Kothiyal, A. Mahabal, U. Manor, C.E. Mason, M. Matar, G.I. Mias, J. Miller, J.G. Myers Jr, C. Nelson, J. Oribello, S.-m. Park, P. Parsons-Wingerter, R.K. Prabhu, R.J. Reynolds, A.Saravia-Butler, S. Saria, A. Sawyer, N.K. Singh, F. Soboczenski, M. Snyder, K. Soman, C.A. Theriot, D.V. Valen, K. Venkateswaran, L. Warren, L. Worthey, M. Zitnik, S.V. Costes, 2023, Nature Machine Intelligence **5**: 208-219. **Citations: 10**
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DOI: https://doi.org/10.1038/s42256-023-00618-4

8. "Biomonitoring, Artificial Intelligence, and Precision Space Health," Ryan T Scott, Erik L Antonsen, Lauren M Sanders, Jaden JA Hastings, Seung-min Park, Graham Mackintosh, Robert J Reynolds, Adrienne L Hoarfrost, Aenor Sawyer, Casey S Greene, Benjamin S Glicksberg, Corey A Theriot, Daniel C Berrios, Jack Miller, Joel Babdor, Richard Barker, Sergio E Baranzini, Afshin Beheshti, Stuart Chalk, Guillermo M Delgado-Aparicio, Melissa Haendel, Arif A Hamid, Philip Heller, Daniel Jamieson, Katelyn J Jarvis, John Kalantari, Kia Khezeli, Svetlana V Komarova, Matthieu Komorowski, Prachi Kothiyal, Ashish Mahabal, Uri Manor, Hector Garcia Martin, Christopher E Mason, Mona Matar, George I Mias, Jerry G Myers Jr, Charlotte Nelson, Jonathan Oribello, Patricia Parsons-Wingerter, RK Prabhu, Amina Ann Qutub, Jon Rask, Amanda Saravia-Butler, Suchi Saria, Nitin Kumar Singh, Frank Soboczenski, Michael Snyder, Karthik Soman, David Van Valen, Kasthuri Venkateswaran, Liz Warren, Liz Worthey, Jason H Yang, Marinka Zitnik, Sylvain V Costes. Nature Machine Learning, 2023, 5:196–207. **Citations: 15**
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DOI: https://doi.org/10.1038/s42256-023-00617-5

9. "cytoNet: Spatiotemporal Network Analysis of Cell Communities." A. Mahadevan, B.L. Long, C.W. Hu, D.T. Ryan, 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,** 2022, PLOS Computational Biology, 18: w1009846. **Citations: 9** (5 from preprint).
Highlighted by The BRAIN Initiative: www.braininitiative.org/toolmakers/resources/cytonet/
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10. "Clinical Relevance of Proteomic Profiling in De Novo Pediatric Acute Myeloid Leukemia: A Children's Oncology Group study, F.W. Hoff, A.D. van Dijk, Y.H. Qiu, C.W. Hu, R.E. Ries, A.C. Ligeralde, G.N. Jenkins, R.B. Gerbing, A.S. Gamis, R. Aplenc, E.A. Kolb, T.A. Alonz, S. Meshinchi, A.A. Qutub, E.S.J.M. de Bont, T.M. Horton, S.M. Kornblau, Haematologica, 2022, 107: 2329-2343. **Citations: 10.**
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16. "Image-based Classification of Tumor Type and Growth Rate using Machine Learning: a preclinical study." T.T. Tang, J. Zawaski, K. Francis, **A.A. Qutub**, M.W. Gaber, 2019, Scientific Reports **9**: 12529. **Citations: 53.**
URL: https://www.nature.com/articles/s41598-019-48738-5

17. "LGALS3 is connected to CD74 in a previously unknown protein network that is associated with poor survival in patients with AML," P.P. Ruvolo, C.W. Hu, Y.H. Qu, K.R. Coombes, M. Andreeff, **A.A. Qutub**, S.M. Kornblau, 2019, EBioMedicine **44**: 126-137. **Citations: 16.**
URL: https://www.sciencedirect.com/science/article/pii/S2352396419303263

18. "Proteomic Profiling of Acute Promyelocytic Leukemia Identifies Two Protein Signatures Associated with Relapse." F.W. Hoff, C.W. Hu, **A.A. Qutub**, Y. Qiu, M.J. Hornbaker, C. Bueso-

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20. "Mycoplasma contamination of leukemic cell lines alters protein expression determined by reverse phase protein arrays." F.W. Hoff, C.W. Hu, **A.A. Qutub**, Y. Qiu, E. Graver, G. Hoang, M. Chauhan, E.S.J.M. de Bont, S.M. Kornblau, 2018, Cytotechnology **70**: 1529-1535. **Citations: 8.**
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21. "Advances in Glioblastoma Multiforme Treatment: New Models for Nanoparticle Therapy." E.O. Kaynak, **A.A. Qutub**, O.Y. Celiktas, 2018, Frontiers in Physiology **9**: 170. **Citations: 162.**
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22. "Recognition of Recurrent Protein Expression Patterns in Pediatric Acute Myeloid Leukemia Suggests New Therapeutic Targets." F.W. Hoff, C.W. Hu, Y.H. Qiu, S.Y. Yoo, H. Mahmud, E. S. J. M. de Bont, **A.A. Qutub**, T.M. Horton, S.M. Kornblau, 2018, Molecular Cancer Research **16**: 1275-1286. **Citations: 21.**
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INVITED REVIEWS, CHAPTERS & PROCEEDINGS

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60. "Computational Models of Angiogenic Processes in Cancer." M.O. Stefaninni, **A.A. Qutub,** F. Mac Gabhann, and A.S. Popel, 2012, Mathematical Medicine & Biology, special issue, pp. 1-10.
URL:https://academic.oup.com/imammb/article-abstract/29/1/85/753898?redirectedFrom=fulltext

61. "Patient-Specific Modeling of Hypoxic Response and Microvasculature Dynamics." J.C. Nathan*, **A.A. Qutub**, 2010, Book Chapter in: "Patient-Specific Modeling of the Cardiovascular System." Roy Kerckhoffs (ed.). Springer, pp. 183-201.
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63. "Modeling Angiogenesis In Silico: From Nanoscale to Organ System." **A.A. Qutub**, F. Mac Gabhann, E.D. Karagiannis, and A.S. Popel, 2009, Book Chapter in: "Multiscale Modeling of Particle Interactions: Applications in Biology and Nanotechnology," M.R. King and D. J. Gee, eds., Wiley, pp. 287-320.
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PRESENTATIONS

INVITED PRESENTATIONS, PANELS & SEMINARS

Talk titles and/or roles are in *italics*. Online / virtual broadcast, where no location is noted.

2025

1. **National Academies of Sciences, Engineering and Medicine**
   Invited Speaker
   Precision Medicine: Promoting Knowledge Exchange and Collaboration between Kuwait and the United States Workshop
   AI and the Future of Precision Medicine
   Kuwait City, Kuwait
   February 2, 2025

2024

2. **Center for Organogenesis, Regeneration and Trauma**
   AI Methods to Improve Real-Time Biomedical Decisions: from Cell Classification to Acute Trauma Care
   CORT Seminar Series,
   School of Medicine, UT Southwestern
   Dallas, TX
   December 13, 2024

3. **Department of Medicine Research Day**
   UT Health San Antonio
   Panelist, Emerging Gene Therapies
   San Antonio, TX
   December 10, 2024

4. **AI Innovations for a Changing Climate**
   Invited Speaker
   American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society of America
   Multidisciplinary Symposium
   San Antonio, TX
   November 11, 2024

5. **Center for Precision Medicine**
   Emerging Role for AI in Omics and Precision Medicine
   UT Health San Antonio
   San Antonio, TX
   October 8, 2024

6. **National Academies of Sciences, Engineering and Medicine**
   Invited Speaker
   Innovations and Implications of Advances in Computational Analyses in Neuroscience Research: Unraveling Insights into Brain Function and Plasticity
   Sensing & Reengineering Brain Circuit Dynamics
   NASEM Board of Life Sciences

May 30, 2024

7. **National Academies of Sciences, Engineering and Medicine**
   Invited Panelist, AI Activities
   AI for Scientific Discovery Event – Proceedings Release Event
   Washington, D.C.
   May 13, 2024

8. **Inaugural UT System Trauma Research Symposium**
   Opportunities for Artificial Intelligence to Improve Trauma Care
   Trauma Research and Combat Casualty Care Collaborative (TRC4)
   Austin, TX
   February 20, 2024

2023

9. **Department of Medicine Research Day: AI in HealthCare Workshop**
   Invited Panelist
   UT Health San Antonio
   San Antonio, TX
   December 5, 2023

10. **San Antonio Medical Foundation**
    Automated Tracking of Brain Cell Health: A Precision Medicine AI-Approach
    SAMF Medical Research Award Interview
    September 11, 2023

11. **Women Talk Design Speaker Series**
    Podcast Speaker
    February 21, 2023

2022

12. **Biomedical Engineering Society (BMES) Meeting**
    Emerging Role for Omics in Health Decisions
    Systems Biology Track Invited Keynote
    San Antonio, TX
    October 15, 2022

13. **NASA Science Working Group**
    Sensing & Reengineering Brain Circuit Dynamics
    June 15, 2022

14. **The Health Cell State of the Industry**
    Keynote Address
    San Antonio, TX
    May 19, 2022

15. **National Academies of Sciences, Engineering and Medicine**
    Sensing & Reengineering Brain Circuit Dynamics
    Committee on Biotechnology Capabilities and National Security Needs
    March 21, 2022

16. **RARE Drug Development Symposium**
    Invited Panelist, AI-Driven Screening Platforms & New Approaches to Therapeutics
    Philadelphia, PA
    June 3, 2022

2021

17. **NASA Workshop on Artificial Intelligence & Modeling for Space Biology**
    Artificial Intelligence, Systems Biology, Brain, and Health
    June 24, 2021

18. **BRAIN Investigator's Meeting**
    Single Cell Communication during the Formation of Neural Networks
    June 15, 2021

2020

19. **National Academy of Engineering**
    Covid-19 Call for Engineering Action: Concept Pitch Event
    Early COVID-19 Detection and Neurovascular Recovery in Pre-Symptomatic and Asymptomatic Individuals
    August 6, 2020

20. **MATRIX AI Consortium Seminar Series**
    Living Neural Networks: How Brain Cells Form & Communicate
    San Antonio, TX
    March 6, 2020

21. **IEEE EMBS Chapter**
    Living Neural Networks: Artificial and Natural Intelligence
    San Antonio, TX
    February 25, 2020

22. **Southeast Center for Mathematics and Biology**
    Public Keynote Address
    Designer Neural Networks: how Daily Behaviors Change our Brain's Health
    Georgia Tech
    Atlanta, GA
    February 17, 2020

2019

23. **Laboratory for Computational Neurodiagnostics**
    Digitizing Brain Health: Linking Daily Behaviors to Cellular Function
    SUNY Stonybrook
    New York, NY
    December 11, 2019

24. **U.S. Brain Alliance Tools & Tech Social**
    cytoNet: Network Analysis of Cell Communities
    Chicago, IL
    October 20, 2019

1 of 31 leading toolmakers (www.braininitiative.org/events/sfn-social/) selected to present for the Brain Alliance (www.braininitiative.org/alliance/) on emerging technologies for neuroscience.

25. **Sigma Camp**
    Living Neural Networks: Exploring the Brain Cells behind Human Behavior
    Sharon, CT
    August 16, 2019

26. **Methodist Summer Science Symposium**
    Keynote Address
    Digitizing Brain Health: Linking Daily Behaviors to Cellular Function
    Houston Methodist Research Institute
    Houston, TX
    August 8, 2019

27. **NIH Esteemed Program**
    Day in the Life of a Biomedical Engineer
    University of Texas, San Antonio
    San Antonio, TX
    July 24, 2019

28. **UT-Health Sciences Center, San Antonio**
    Modeling Cell Communication during Tissue Formation
    Department of Cell Systems and Anatomy
    San Antonio, TX
    May 21, 2019

29. **Max Planck – HHMI Connectomics Meeting**
    Modeling the Formation of Neural Networks
    Max Planck Institute
    Berlin, Germany
    April 14, 2019

30. **National Science Foundation Neural & Cognitive Systems Workshop**
    Neuroengineering & Brain-Inspired Concepts and Designs
    Washington, D.C.
    April 10, 2019

31. **UTSA 50th Anniversary Seminar Series**
    How Daily Behaviors Inform Brain Health
    San Antonio, TX
    March 26, 2019

    1 of 12 UTSA faculty selected to present for the UTSA 50th Anniversary Seminar Series

32. **French American Innovation Symposium**
    Modeling Brain Health: from Cells to Systems
    Houston, TX
    March 7, 2019

33. **RegenMed San Antonio**
    Modeling Cell Communication during Tissue Growth & Regeneration
    San Antonio, TX
    February 8, 2019

34. **UT Health Sciences Center**
Digitizing Cell Health: Using Models of Cell Signaling to Impact Clinical Outcomes
Biomedical Engineering Seminar Series
San Antonio, TX
February 8, 2019

35. **Keystone Symposia on Digital Health**
Digitizing Brain Health: From Neurogenesis to Daily Behaviors
Keystone, CO
January 23, 2019

36. **Brain Health Consortium Investigator's Workshop**
Digitizing Brain Health: from Cells to Systems
University of Texas
San Antonio, TX
January 8, 2019

2018

37. **Texas Children's Hospital**
Leukemia Atlases: Identifying Proteomic Signatures in Pediatric and Adult Leukemias
Pediatric Hematology Oncology Research Seminar Series
Houston, TX
December 20, 2018

38. **Methodist Hospital**
Systems Biology in Medicine: Linking Cell-to-Cell Communication to Clinical Outcomes
MITIE Seminar Series
Houston, TX
November 27, 2018

39. **AlChE 2018**
Modeling how Brain Cells Form Networks in Health and Disease
Quantitative Approaches to Disease Mechanisms and Therapies
Pittsburgh, PA
November 1, 2018

40. **Cell & Molecular Biology Seminar Series**
Modeling Cell Communication in Developing Tissue
Department of Biology
University of Texas, San Antonio
San Antonio, TX
October 22, 2018

41. **BMES 2018**
Cellular Systems Biology Modeling Labs
Special Session for Biomedical Engineering Education
Chairs: Melissa Kemp, Eberhard Voit
Atlanta, GA
October 19, 2018

42. **College of Sciences Symposia**
Modeling Neural Network Formation in Health and Disease

University of Texas, San Antonio
San Antonio, TX
October 5, 2018

43. **MD Anderson Cancer Center / UT Health Sciences**
Keynote Address
Quantitative Sciences Retreat
Graduate School of Biomedical Sciences
NASA Space Center
Houston, TX
September 29, 2018

44. **Oklahoma State University**
Keynote Address
2018 Interdisciplinary Graduate Symposium
Stillwater, OK
September 21, 2018

45. **UTSA / UTHSCSA Biomedical Engineering**
Living Neural Networks: from Cells to Systems
Biomedical Engineering Joint Program Seminar Series
San Antonio, TX
September 14, 2018

46. **IUGA 2018**
Keynote Address
"State of the Art Lecture"
Big Data in Biomedicine: Cell Signaling to Clinical Outcomes
Vienna, Austria
June 28, 2018

47. **NetSci NetMed 2018**
Network Medicine Symposia
Leukemia Protein Atlases: Discovering How Molecular Networks of Acute Leukemias Map to Clinical Outcomes
Paris, France
June 11, 2018

48. **NetSci NetNeuro 2018**
Network Neuroscience Symposia
Living Neural Networks: from Cells to Systems
Paris, France
June 11, 2018

49. **University of New South Wales**
Engineering Design Principles of Neural Cells
EMBL Australia
Sydney, Australia
May 30, 2018

50. **Janelia Farms, Howard Hughes Medical Institute**
Analysis and Interpretation of Connectomes Conference
Living Neural Networks
Ashburn, VA

May 20, 2018

51. **MD Anderson Cancer Center**
    Keynote Address
    Visualizing & Modeling Cell Communication Networks
    Department of Cancer Systems Imaging Annual Retreat
    Galveston, TX
    May 3, 2018

52. **Sanford Research Institute**
    Modeling Cell Communication in Growing & Developing Tissue
    Center for Pediatric Research,
    Sanford School of Medicine
    Sioux Falls, South Dakota
    March 21, 2018

53. **Scientific Computing and Imaging Institute**
    Visualizing Human Cell Communication
    Salt Lake City, UT
    March 11, 2018

54. **University of Delaware**
    Modeling the Development of Neural Networks
    Department of Bioengineering
    Newark, DE
    March 1, 2018

55. **Research Institute for Neurodegenerative Diseases**
    Characterizing Cell Communication in Developing Neural Networks
    DZNE Seminar
    Deutsches Zentrum für Neurodegenerative Erkankungen
    Tübingen, Germany
    February 20, 2018

56. **University of Texas, San Antonio**
    Neural Cell Communication during Growth & Regeneration
    Department of Biomedical Engineering
    San Antonio, TX
    January 12, 2018

2017

57. **Society for Neuroscience (SfN) 2017 Meeting**
    National Science Foundation Workshop
    Washington, D.C.
    November 12, 2017

58. **Rice Institutes: Inaugural Science Breakfast Series Seminar**
    Living Neural Networks: Decoding how Brain Cells Form
    Rice Institutes (Smalley-Curl Institute, Institute for Biosciences & Bioengineering and K2I)
    Houston, TX
    November 9, 2017

59. **University of Pennsylvania**

Neural Cell Communication during Growth & Regeneration
Department of Bioengineering
Philadelphia, PA
October 19, 2017

60. Inaugural BioScience & Philanthropy Summit
Personalized Medicine: Computational Modeling of Tissues & Organs to Diagnose & Treat Disease
Paul G. Allen Frontiers Group
Allen Institute
Seattle, WA
September 13, 2017

61. NASA Ames Research Center
Tools to Identify Hallmarks of Cellular Health and Disease
Moffitt Field, CA
June 26, 2017

62. Keystone Symposia on Single Cell Omics
Communication between Developing Neural Cells
Stockholm, Sweden
May 30, 2017

Selected as one of the first Video Recorded / Broadcast Keystone Seminars

63. KWiSE Conference
Characterizing the Communication of Developing Neurons
Houston, TX
May 20, 2017

64. Taste of Science
Understanding People from the Inside Out: Neural Communication
Houston, TX
April 27, 2017

65. University of California, Santa Barbara
Communication between Developing Neural Cells
Santa Barbara, CA
April 11, 2017

66. Mayo Clinic
NIH/NSF Brain Symposium
Identifying Design Principles of Neural Cells
Rochester, MN
April 1, 2017

67. Keystone Symposia on Connectomics & on Synapses and Circuits
Identifying Design Principles of Differentiating Neural Cells
Santa Fe, NM
March 6, 2017

68. Illinois Institute of Technology
Modeling Cellular Communication during Growth & Regeneration
Chicago, IL
February 24, 2017

2016

69. **NIH / NSF BRAIN Investigators Meeting**
The Social Networks of Neural Progenitor Cells
Bethesda, MD
December 13, 2016

Selected as a Research Highlight Talk

70. **MD Anderson Cancer Center**
Defining Quantitative Hallmarks of Leukemia
Department of Biostatistics & Computational Biology
November 30, 2016

71. **Keck Symposium**
Decoding Cellular Communication during Growth & Regeneration
Texas Medical Center
Houston, TX
November 13, 2016

72. **New Horizons in Science**
How Neurons Build Networks
Council of American Science Writers
San Antonio, TX
October 30, 2016

New Horizons conference highlights innovative science research "before it makes headlines"

73. **French Embassy Office of Science & Technology**
French-American Chamber of Commerce Innovation Conference on Data Science
Learning from the Visualization of Biological Data
Houston, TX
September 28, 2016

74. **Neural & Cognitive Systems Workshop**
Computational Analysis of Cells of the Blood-Brain Barrier
Rice University
Houston, TX
September 15, 2016

75. **Southeast Symposium on Contemporary Engineering Topics**
Biomedical Data Science: How is Data Transforming Medicine & Bioengineering?
Jackson, MI
August 26, 2016

76. **Wyss-Coray Laboratory Seminar**
Quantitative Technologies for Identifying Cell Phenotypes
Stanford University
Stanford, CA
August 15, 2016

77. **The Health Museum**
Designing Human Cells

Houston, TX
July 14, 2016

78. **The Health Museum**
Keynote Address
Code-Breaking: Deciphering IntraHuman Communication
Houston, TX
July 11, 2016

79. **Society of Biomolecular Imaging & Informatics**
Application of Automated Microscopy and Image Informatics to Cancer Research
GCC Consortium for Chemical Genomics
Image-Based Modeling of Communication in Healthy & Malignant Brain Cells
Houston, TX
June 13, 2016

80. **Pint of Science**
Exploring Biomedical Data
Houston, TX
May 23, 2016

81. **NASA Johnson Space Center**
Biowheel: Interactive Visualization and Exploration of Biomedical Data
Human Frontiers, Science Fridays
Houston, TX
April 15, 2016

82. **Texas A&M University**
Health Science Center College of Medicine
Interpreting Design Principles of Neural & Vascular Cells
Department of Molecular and Cellular Medicine
College Station, TX
March 24, 2016

2015

83. **National Academies of Sciences, Engineering & Medicine**
Arab-American Frontiers of Engineering Symposium
Biomedical Sensing across Scales: From Cells to Systems
KAUST University
Thuwal, Saudi Arabia
December 7, 2015

1 of ~50 invited U.S. Participants from "outstanding, emerging engineering leaders (ages 30-45)"
1 of 12 U.S. Attendees Nominated to Present

84. **University of Florida**
Interpreting Design Principles of Human Cells from Big Data
Department of Bioengineering
Gainsville, FL
November 12, 2015

85. **AlChE Annual Meeting**
Session: Understanding the Brain: A Chemical Engineering Perspective

Characterizing the Formation of Brain Microvascular and Neural Networks
Salt Lake City, Utah
November 10, 2015

1 of 4 PIs studying the brain invited to give a talk and participate in the AICHE panel

86. 52nd Annual Meeting of the Society for Engineering Science
Modeling Regenerative States of Neurovascular Cells
College Station, TX
October 27, 2015

87. Texas A & M University
Mechanobiology Fest
Spatially-Localized Signaling Defines Endothelial and Neural Cell Phenotypes
College Station, TX
October 25, 2015

88. TEDxHouston
Embracing Human Complexity: Five Things I've Learned about You
Houston, TX
October 18, 2015

89. IBM Women in Technology Conference Keynote
Keynote Address
Big Data in Biomedicine
Houston, TX
October 13, 2015

90. Baylor College of Medicine
Uncovering Cell Signaling States during Regenerative Stimuli
Department of Molecular Physiology and Biophysics
Houston, TX
September 18, 2015

91. Simons Institute, University of California, Berkeley
Dynamic Biological Modeling: Abstractions, Algorithms and Logic Workshop
Mapping Cell Signaling Network States to Clinical Outcomes
Berkeley, CA
August 11, 2015

92. The Health Museum
Keynote Address
Designing Human Cells
Houston, TX
July 10, 2015

93. The Health Museum
Characterizing how Human Neurons form Networks
Houston, TX
July 9, 2015

94. Perofest
Modeling of Hypoxic Response: from Signaling to Metabolism
Niagara-on-the-Lake, Ontario, Canada

June 27, 2015

95. **Stanford University**
School of Medicine
Department of Radiation Oncology
Precision Medicine of the Proteome: Uncovering the Wiring of Cells
Stanford, CA
May 29, 2015

96. **MD Anderson Cancer Center**
Department of Leukemia
Harnessing the Clinical Crowd to Predict AML Outcome
Houston, TX
April 6, 2015

97. **MD Anderson Cancer Center**
Department of Systems Biology
Mapping Proteomic States to Clinical Outcome in Leukemia
Houston, TX
April 3, 2015

98. **University of Houston**
Networks Seminar
Uncovering the Multiscale Networks Driving Cell Phenotypes
Houston, TX
February 20, 2015

2014

99. **Government Efforts on the Path to Patients for Regenerative Medicine Therapies: A MATES Symposium**
Tissue Engineering and Regenerative Medicine International Society (TERMIS)
Designing the Regeneration of Human Cells
Washington, D.C.
December 13, 2014

100. **Center for Theoretical Biological Physics Seminar**
Identifying Design Principles of Human Cells
Houston, TX
December 2, 2014

101. **RECOMB (Research in Computational Biology) / ISCB (International Society for Computational Biology)**
Uncovering Signatures of Acute Myeloid Leukemia Prognosis
San Diego, CA
November 10, 2014

102. **Biomedical Engineering Society-National Science Foundation (NSF) Special Session**
Annual Biomedical Engineering Society (BMES) Meeting
Computational Cell Engineering
San Antonio, TX
October 23, 2014

103. **Nortex Nano**

Cell Engineering: Programming Cells, Renewing Life
Houston, TX
October 13, 2014

104. International Conference of Biomedical Ontology (ICBO)
DREAM 9: An Acute Myeloid Leukemia Prediction Big Data Challenge
Houston, TX
October 8, 2014

105. Jones Business School
Rice University
Seminar Series on Health Care Information Technology
Challenges in Data Visualization & Therefore Utilization: The DiBS Experience
Houston, TX
October 2, 2014

106. Med-X Institute, Shanghai Jiao Tong University
Systems Biology of Hypoxic Response: Applying Theory to the Clinic
Shanghai, China
July 22, 2014

107. American Institute of Mathematical Sciences (AIMS) Conference
Molecular Programming of Cell and Vessel Phenotypes in Cancer
Madrid, Spain
July 7, 2014

108. Mathematical Biosciences Institute
Molecular to Systems Physiology Workshop
Molecular Signatures of Cells during Hypoxic-Stimulated Tissue Growth
Columbus, Ohio
May 6, 2014

109. Experimental Biology
Systems and Synthetic Engineering of Cell Signaling Session
Methods to Identify Molecular Events in Multicellular Pattern Formation
San Diego, CA
April 30, 2014

110. Baylor College of Medicine
Molecular Physiology and Biophysics Faculty Seminar Series
Systems Analysis of Angiogenic Cell Phenotypes
Houston, TX
February 25, 2014

111. University of Arizona
Quantitative Biology Colloquium
Classifying and Predicting the Extraordinary Behaviors of Ordinary Cells
Tucson, AZ
February 18, 2014

2013

112. Computational and Theoretical Biology Symposium
Phenotyping and Patterning Mammalian Cells

Houston, TX
December 6, 2013

113. Baylor College of Medicine
Computational & Integrative Biomedical Research Center
Identifying and Decoding Neurovascular Cell Phenotypes
Houston, TX
November 13, 2013

114. International Society for Computational Biology (ISCB) / RECOMB
DREAM Subchallenge Award Winner Talk
BioWheel: Visualization of High-Dimensional Time-Course Data
Toronto, Canada
November 8, 2013

115. Rice University, Department of Biochemistry and Cell Biology
Vanzant Seminar Series
Systems Biology of Hypoxic Response
Houston, TX
October 7, 2013

116. International Union of Physiological Sciences (IUPS) 37th World Congress
Molecular Programming of Cell and Vessel Phenotypes during Neurovascular Formation
Birmingham, U.K.
July 24, 2013

117. The Health Museum
Uncovering the Patterns Formed by Human Cells
Houston, TX
July 10, 2013

118. Society for Mathematical Biology
Multiscale Models of Angiogenesis
Tempe, AZ
June 11, 2013

119. Ken Kennedy Institute Seminar
Decoding the Patterns Formed by Human Cells
Houston, TX
May 3, 2013

120. UT-Houston Health Science Center
Systems Biology of Hypoxic Response
Houston, TX
April 15, 2013

121. Georgia State University
Multicellular Patterning of Capillary Development
Atlanta, GA
February 26, 2013

122. H. Lee Moffitt Cancer Center
Endothelial Cells as State Machines: Predicting and Controlling Capillary Growth
Tampa, FL

January 31, 2013

2012

123. **Computational and Theoretical Biology Symposium**
Reverse Engineering Vascular Cell Behavior Patterns
Houston, TX
November 30, 2012

124. **International Conference on Stochastic Processes in Systems Biology, Genetics & Evolution**
Multicellular Organization of Capillary Development
Houston, TX
August 24, 2012

125. **SIAM Conference on Life Sciences**
Cell Behavior Patterns during Neurovascular Formation: A Rule-Oriented Modeling Study
San Diego, CA
August 10, 2012

126. **Johns Hopkins University**
School of Medicine
ICMIC Seminar Series
Radiology and Radiological Science
Systems Biology of Hypoxic Response: Integrating Modeling with Imaging
Baltimore, MD
July 18, 2012

127. **The Health Museum**
Using Computers to Visualize the Interaction of Brain Cells
Houston, TX
July 12, 2012

128. **Mathways into Cancer**
Keynote Address
Systems Biology of Hypoxic Response in Cancer: Bringing Multiscale Models to the Clinic
Ciudad Real, Spain
June 4, 2012

129. **Texas Children's Hospital**
Integrating Molecular Modeling with Noninvasive Imaging of Gliomas
Houston, TX
April 3, 2012

130. **Monterrey Institute of Technology**
Applying Systems Biology to Understand the Brain's Blood Vessels
Monterrey, Mexico
March 1, 2012

131. **MD Anderson Cancer Center**
Systems & Synthetic Biology Seminar Series
Systems Biology of Hypoxic Response: Intracellular Signaling to Tissue Remodeling
Houston, TX
January 26, 2012

2011

132. Computational and Theoretical Biology Symposium
Modeling Cell Behavior Signatures during Capillary Sprouting
Houston, TX
December 9, 2011

133. University of Virginia
Patterns of Cell Behaviors during Hypoxia: Capillary Networks to Cancer
Charlottesville, VA
November 11, 2011

134. The Health Museum
Using Computers to Study How Brain Cells and Blood Vessels Regenerate
Houston, TX
July 7, 2011

135. European Conference on Mathematical and Theoretical Biology, and Annual Meeting of the Society for Mathematical Biology
Characterizing Endothelial Cell Behavior and Adaptation During Brain Capillary Regeneration by Rule Oriented Modeling
Kraków, Poland
June 29, 2011

136. NHLBI-VCU-WM World Conference on Mathematical Modeling and Computational Simulation of Cardiovascular and Cardiopulmonary Dynamics
Modeling Endothelial Cell Interactions as a Function of Hypoxic Response Signaling
Williamsburg, VA
June 3, 2011

137. Illinois Institute of Technology
Computational Strategies to Characterize Endothelial Cell Behavior & Capillary Formation
Chicago, IL
January 28, 2011

2010

138. Computational and Theoretical Biology Symposium
Oxygen Response Networks: Intracellular to Cell-Cell Communication
Houston, TX
December 4, 2010

139. The Health Museum
Systems Biology: Unlocking Human Health through Computer Games
Houston, TX
July 10, 2010

140. American Association for the Advancement of Science (AAAS) Southwestern and Rocky Mountain Division Regional Meeting
Networks of Hypoxic Response
Houston, TX
April 8, 2010

141. University of Texas, School of Health Information Sciences at Houston

Blood Vessel Dynamics in Response to Hypoxia: Moving Systems Biology Models Towards Patient-Specific Simulations
Houston, TX
March 3, 2010

2009

142. Computational and Theoretical Biology Symposium
Oxygen Homeostasis as the Basis of Health: A Systems Biology Analysis
Houston, TX
December 6, 2009

143. Annual Biomedical Engineering Society (BMES) Conference
Physiological and Pathophysiological Skeletal Muscle Angiogenesis: A Multiscale In Silico Study
A.A. Qutub, G. Liu, P. Vempati, and A.S. Popel
Pittsburgh, PA
October 8th, 2009

144. Rice University, Department of Computational and Applied Mathematics Colloquium
Systems Biology of Hypoxia: Intracellular Signaling to Capillary Sprouting
Houston, TX
September 28th, 2009

145. International Conference on Systems Biology
Systems Biology of Hypoxic Response and Microvaculature Dynamics
Stanford, CA
September 4th, 2009

146. International Union of Physiological Sciences (IUPS) 36th World Congress
Systems Biology of Angiogenesis: From Molecules to Therapeutics
A.S. Popel, A.A. Qutub, F. Mac Gabhann, and M.O. Stefanini
Kyoto, Japan
July 28th, 2009

147. Experimental Biology
Microcirculatory Society's Young Investigator Symposium
Modeling Skeletal Muscle Angiogenesis from the Molecular to the Tissue Level
A.A. Qutub, G. Liu, P. Vempati, and A.S. Popel
New Orleans, LA
April 20th, 2009

148. University College, Dublin
School of Medicine and Medical Sciences
Systems Biology Modeling of Hypoxic Response
Dublin, Ireland
January 31st, 2009

2004-2008

149. Annual Biomedical Engineering Society Conference
Cracking the Oxygen Sensing Codes: Inside Cells, Among Cells & Between Cells
A.A. Qutub, A.S. Popel
St. Louis, MO
October 3rd, 2008

150. AIMS International Conference on Dynamical Systems, Differential Equations and Applications
Mathematical Problems in Cancer Research
HIF1-Targeted Engineering of Tumor Hypoxic Response and Angiogenesis
Arlington, TX
May 19th, 2008

151. Johns Hopkins University
Inaugural School of Medicine Postdoctoral Fellow Seminar Series
Systems Biology of a Cell's Response to Low Oxygen
A.A. Qutub
Baltimore, MD
April 6th, 2007

152. UCSF/UCB Joint Graduate Group in Bioengineering Research Conference
Modeling the Cerebrovasculature
Lake Tahoe, CA
October 23rd, 2004

153. Barriers of the Central Nervous System (CNS) Gordon Conference
A Computer Model of Blood-Brain Barrier Properties
Tilden, NH
July 2nd, 2004

154. Annual Neuro-Oncology and Blood-Brain Barrier Disruption Consortium Meeting
Computer Simulation of Transport across the Blood-Brain Barrier
Bend, OR
March 19th, 2004