

Ritambhar Burman

CONTACT INFORMATION	St. Jude Children's Research Hospital, 262 Danny Thomas Place, Memphis, TN 38105.	(+1)786-636-9862 ritambharkcdburman@gmail.com
EXECUTIVE SUMMARY	Experienced MRI researcher with expertise in Chemical Exchange Saturation Transfer (CEST) and multi-nuclear spectroscopy-based imaging techniques. Proficient in blood and cerebrospinal fluid flow quantification using phase-contrast MRI. Extensive experience spanning preclinical and clinical imaging studies. Developed and implemented automated post-processing software to enable high-throughput, reproducible analysis. Research portfolio includes applications to catastrophic diseases such as neuromuscular disorders, pediatric brain cancer, and neuroinflammation. Proven track record as a collaborative team player in interdisciplinary research environments. Skilled in scientific leadership, with experience managing groups of scientists, postdoctoral fellows, and interns to deliver impactful results.	
WORK EXPERIENCE	Lab Operations Manager. Sep 2023 - Present Bagga Lab, Department of Radiology, St. Jude Children's Research Hospital, USA. Responsibilities: <ul style="list-style-type: none">* Lead Chemical Exchange Saturation Transfer and multi-nuclear spectroscopy-based Magnetic Resonance Imaging (MRI) studies in humans and mice* Conduct high throughput Nuclear Magnetic Resonance (NMR) Experiments* Provide specialized software support, innovating data processing and visualization techniques* Manage shared resources and data, contribute to grant writing, and manage day-to-day lab operations Software Developer June 2015 - July 2016 Applied Research Works, India. <ul style="list-style-type: none">* Database Design and Development of Key Features* Quality Measure Logic Implementation and certification* Calculation of metric scores of patients, providers and support	
EDUCATION	University of Miami, Coral Gables, FL, USA. 2016-2023 PhD in BioEngineering and Biomedical Engineering Project : Modelling of Cranio-Spinal CSF and blood flow using 3T MRI Advisor : Dr. Noam Alperin Jadavpur University, Kolkata, WB, India. 2011- 2015 Bachelor of Engineering in Department of Electronics and Telecommunication	
INVENTION DISCLOSURES	<input type="checkbox"/> Systems and methods for increased temporal resolution in chemical exchange saturation transfer. STJ-034318 US PRI <input type="checkbox"/> High-Throughput LCModel for 1H-MRS data processing in Windows SJ-25-0029: HT-LC Model. WN # 23827.3	
PUBLICATIONS	<input type="checkbox"/> Ritambhar Burman , Richard Finkel, Kirsten Ness, Asim Bag, Yuxi Pang, Puneet Bagga. "Enhanced Temporal-Resolution CEST Imaging for reliable mapping of muscle OXPHOS". <i>Journal of Magnetic Resonance in Medicine</i> , Oct 2025. <input type="checkbox"/> Kasturee Chakraborty, Ritambhar Burman , Saharsh Satheesh, Matthew Kieffer, Chandni Karuhatty, Zuo-Fei Yuan, Haiyan Tan, Ankhbayar Lkhagva, Anthony A High, Xusheng Wang, Alaa Refaat, Weixing Zhang, Yaxu Wang, Yiping Fan, Madan M Babu, Anang Shelat, Elizabeth Stewart, Michael A Dyer, Puneet Bagga. "SLFN11 Loss-Induced Chemoresistance is Associated with Overexpression of Glyc-	

erophospholipid Biosynthesis in Ewing Sarcoma". *Nature Metabolism*, Nov 2025 (accepted)

- ❑ Kasturee Chakraborty, **Ritambhar Burman**, Sabah Nisar, Saorla Miller, Zachary Loschinsky, Shengjie Wu, Yimei Li, Asim Bag, Ayaz Khan, Chelsea Goodenough, Neil Wilson, Mohammad Haris, Ravinder Reddy, Kirsten Ness, Richard Finkel, Puneet Bagga, "Test-retest repeatability of in vivo creatine-weighted chemical exchange saturation transfer (CrCEST) MRI in calf skeletal muscle of healthy volunteers at 3T", *Journal of Magnetic Resonance Imaging*, Aug 2024.
- ❑ **Ritambhar Burman**, Noam Alperin, "CSF-to-blood toxins clearance is modulated by breathing through cranio-spinal CSF oscillation", *Journal of Sleep Research*, Sep 2023.
- ❑ Noam Alperin, **Ritambhar Burman**, Sang Lee, "Role of the spinal canal compliance in regulating posture-related cerebrospinal fluid hydrodynamics in humans", *Journal of Magnetic Resonance Imaging*, July 2021.
- ❑ **Ritambhar Burman**, Ashish Shah, Ronald Benveniste, George Jimsheleishvili, Sang Lee, David Loewenstein, Noam Alperin, "Comparing invasive with MRI-derived intracranial pressure measurements in healthy elderly and brain trauma cases: A pilot study", *Journal of Magnetic Resonance Imaging*, Feb 2019.
- ❑ **Ritambhar Burman**, Noam Alperin, Sang Lee, Brigit Ertl-Wagner, "Patient-specific cranio-spinal compliance distribution using lumped-parameter model: its relation with ICP over a wide age range", *Fluids and Barriers of the CNS*, 15(1), Nov 2018.
- ❑ **Ritambhar Burman**, Soumyadeep Chakrabarti and Swagatam Das, "Democracy Inspired Particle Swarm Optimizer with concept of Peer Group", *Soft Computing*, Volume 21, Issue 12, pp 3267-3286, Jun 2017.
- ❑ Chandrahas Thatiparthi, Abbas Ommani, **Ritambhar Burman**, Damber Thapa, Natalie Hutchings and Vasudevan Lakshminarayanan, "Comparison of performance of some common Hartmann-Shack centroid estimation methods", *Ophthalmic Technologies XXVI, SPIE BiOS*, Vol. 9693 969321-2, Mar 2016.
- ❑ Ahmed Ammar, **Ritambhar Burman**, Hassen Ghalila, Zohra BenLakhdhar, L. Srinivasa Varadharajan, Souad Lahmar and Vasudevan Lakshminarayanan, "Optics simulations with Python: Diffraction", *ETOP*, Pages 97930K-97930K-6, Sep 8, 2015.
- ❑ Ahmed Almazroa, Sami Alodhayb, **Ritambhar Burman**, Weiwei Sun, Kaamran Raahemifar and Vasudevan Lakshminarayanan, "Optic Cup Segmentation Based on Extracting Blood Vessel Kinks and Cup Thresholding Using type-II Fuzzy Approach", *International Conference on Optoelectronics and Applied Optics*, 2015.
- ❑ Ahmed Almazroa, **Ritambhar Burman**, Kaamran Raahemifar and Vasudevan Lakshminarayanan, "Optic Disc and Optic Cup segmentation methodologies for Glaucoma Image Detection - A survey", *Journal of Ophthalmology*, 2015.
- ❑ Anuradha Saha, **Ritambhar Burman**, Soumyadeep Chakrabarti and Amit Konar, "A Novel Solution to the EEG Source Localization Problem", *Computational Tools and Techniques for Biomedical Signal Processing*, December 2015.
- ❑ **Ritambhar Burman**, Ahmed Abdulmohsen Almazroa, Kaamran Raahemifar and Vasudevan Lakshminarayanan, "Automated Detection of Optic Disc in Fundus images", *International Conference on Optoelectronics and Applied Optics 2014*, Pages 327-334, 3 June 2015.
- ❑ **Ritambhar Burman**, Abbas Ommani, Damber Thapa, Kaamran Raahemifar, Natalie Hutchings and Vasudevan Lakshminarayanan, "A method for estimating the wavefront aberrations with missing spot data in a Hartmann-Shack aberrometer", *International Conference on Optoelectronics and Applied Optics 2014*, Pages 319-325, 3 June 2015.
- ❑ Soham Sarkar, Sujoy Paul, **Ritambhar Burman**, Swagatam Das and Shelli Sinha Chaudhuri, "A Fuzzy Entropy based Multi-level Image Thresholding using Differential Evolution", *SEMCCO 2014*, Pages 386-395, 18 December 2014.
- ❑ Anuradha Saha, Amit Konar, **Ritambhar Burman** and Atulya Nagar, "EEG Analysis for Cognitive Failure Detection in Driving Using Neuro-Evolutionary Synergism", *IEEE International Joint Conference on Neural Networks 2014*, Pages 2108 - 2115, 6-11 July 2014.

	<ul style="list-style-type: none"> ❑ Ritambhar Burman, Zeeshanul Haque, Swagatam Das, Athanasios Vasilakos and Soumyadeep Chakrabarti, “Monarchy Driven Optimization Algorithm”, <i>IEEE Congress on Evolutionary Computation 2014</i>, Pages 3008-3015, 6-11 July 2014. ❑ Ritambhar Burman, Sujoy Paul, Swagatam Das, “A Differential evolution Approach to Multi-level Image Thresholding using type-2 Fuzzy Sets”, <i>SEMCCO 2013</i>, Volume 8297, Pages 274-28, 2013. ❑ Soham Sarkar, Sujoy Paul, Ritambhar Burman, Saptarshi Polley, Swagatam Das, Shelli Sinha Chowdhury, “Multi-level Image Segmentation based on Fuzzy-Tsallis Entropy and Differential Evolution”, <i>IEEE Conference on Fuzzy Systems 2013</i>, Pages 1-8, 7-10 July 2013.
CONFERENCE PROCEEDINGS	<ul style="list-style-type: none"> ❑ Ritambhar Burman, Jennifer Valley, Yuxi Pang, Puneet Bagga. “Plus-minus CrCEST provides higher temporal resolution mapping of skeletal muscular creatine”. International Society for Magnetic Resonance in Medicine; 2025; USA. ❑ Ritambhar Burman, Payton Goyke, Silu Zhang, Yu Wang, Esther Pavao, Soniya Pinto, Yiping Fan, Matthew Scoggins, Wilburn E Reddick, Arzu Onar-Thomas, Jason Chiang, Christopher Tinkle, Puneet Bagga. “Pre-treatment tumoral levels of total choline, glycine, and Glx predict overall survival in diffuse intrinsic pontine glioma”. <i>International Society for Magnetic Resonance in Medicine</i>; 2025; Hawaii, USA. ❑ Ritambhar Burman, Stephanie Guthrie, Yuxi Pang, Asim Bag, Kevin Krull, Wilburn E Reddick, Puneet Bagga. “Building a standalone automated High Throughput LCModel prototype application for 1H-MRS data processing: HT-LCModel”. <i>International Society for Magnetic Resonance in Medicine</i>; 2025; USA. (oral power pitch). ❑ Jennifer Valley, Ritambhar Burman, Kirsten Ness, Yuxi Pang, Pamela Adede, Puneet Bagga. “Testing inter-scanner reproducibility of CrCEST at 3T”. <i>International Society for Magnetic Resonance in Medicine</i>; 2025; USA. ❑ Ritambhar Burman, Weixing Zhang, Laura Sanchez Hernandez, Kiran Krishnamurthy, Esther Pavao, Sabah Nisar, Puneet Bagga. “An in-vitro deuterium NMR study to measure the efficacy of combinatorial therapy for diffuse intrinsic pontine glioma”. <i>International Society for Magnetic Resonance in Medicine</i>; 2024; Singapore.
OTHER WORKS	<ul style="list-style-type: none"> ❑ Ritambhar Burman and Vasudevan Lakshminarayanan, “Basic optics simulations using Python”, part of <i>Active Learning of Optics and Photonics program</i>, organized by <i>UNESCO</i> (field tested around the world).
AWARDS	<ul style="list-style-type: none"> * ISMRM 2025 Educational Stipend. * ISMRM 2024 Educational Stipend.
RELEVANT SKILLS	<p>Languages: Python, Matlab</p> <p>Software: Topspin, LCModel</p> <p>Hardware: Bruker and Siemens MRI.</p>