

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	<p>Lab Operations Manager. Sep 2023 - Present Bagga Lab, Department of Radiology, St. Jude Children's Research Hospital, USA. Responsibilities:</p> <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	
	<p>Software Developer June 2015 - July 2016 Applied Research Works, India.</p> <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	<p>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</p>	
	<p>Jadavpur University, Kolkata, WB, India. 2011- 2015 Bachelor of Engineering in Department of Electronics and Telecommunication</p>	
INVENTION DISCLOSURES	<ul style="list-style-type: none">❑ Systems and methods for increased temporal resolution in chemical exchange saturation transfer. STJ-034318 US PRI❑ High-Throughput LCModel for 1H-MRS data processing in Windows SJ-25-0029: HT-LC Model. WN # 23827.3	
PUBLICATIONS	<ul style="list-style-type: none">❑ 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.❑ 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.
- ❑ Chandras Thatiparthi, Abbas Ommani, **Ritambhar Burman**, Dambar 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 BenLakhidhar, 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, Dambar 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.

CONFERENCE PROCEEDINGS

- **Ritambhar Burman**, Zeeshanul Haque, Swagatam Das, Athanasios Vasilakos and Soumyadeep Chakrabarti, “Monarchy Driven Optimization Algorithm”, *IEEE Congress on Evolutionary Computation 2014*, 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”, *SEMCCO 2013*, 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”, *IEEE Conference on Fuzzy Systems 2013*, Pages 1-8, 7-10 July 2013.

OTHER WORKS

- **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”. *International Society for Magnetic Resonance in Medicine*; 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”. *International Society for Magnetic Resonance in Medicine*; 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”. *International Society for Magnetic Resonance in Medicine*; 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”. *International Society for Magnetic Resonance in Medicine*; 2024; Singapore.

AWARDS

- * ISMRM 2025 Educational Stipend.
- * ISMRM 2024 Educational Stipend.

RELEVANT SKILLS

Languages:	Python, Matlab
Software:	Topspin, LCModel
Hardware:	Bruker and Siemens MRI.