

Himanshu Shekhar, Ph.D.

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AREAS OF INTEREST

Image-guided therapeutics, ultrasound-mediated drug-delivery and bioactive gas delivery, microbubble contrast agents, minimally invasive imaging, molecular imaging, biomedical devices

EDUCATION

Institution	Degree	Date	Field of study
University of Rochester	Ph.D.	May 2014	Electrical Engineering
University of Rochester	M.S.	October 2010	Electrical Engineering
Manipal Institute of Technology	B.E.	June 2008	Electronics and Communication Engineering

EMPLOYMENT

- *Assistant Professor*, Discipline of Electrical Engineering, Indian Institute of Technology Gandhinagar (April 2019 – present)
Responsibilities include leading a research program in biomedical ultrasonics and instrumentation along with teaching undergraduate and postgraduate students.
- *Postdoctoral Fellow*, Department of Internal Medicine, University of Cincinnati
Mentor: Prof. Christy Holland (2014 – present). Research focused on ultrasound-enhanced thrombolysis and bioactive gas delivery for vascular applications.
- *Graduate Research Assistant*, Department of Electrical and Computer Engineering, University of Rochester
Advisor: Prof. Marvin Doyley (2009 – 2014). Research focused on ultrasound contrast agents for subharmonic and ultraharmonic vascular imaging.
Ph.D. thesis title: “Acoustic Characterization and Nonlinear Imaging of Ultrasound Contrast Agents for the Intravascular Assessment of Atherosclerosis”.
Available online at: <http://hdl.handle.net/1802/28788>
- *Research Intern*, Corporate Research and Technology, Hilti AG, Liechtenstein, (Jan – June 2008).
Undergraduate internship completed in the European electronics industry – developed signal processing algorithms for automating a mechatronic system.
- *Visiting Undergraduate Researcher*, Indian Institute of Technology Bombay, India (2005 – 2007).
Characterized the nonlinear optical properties of a novel material (Dept. of Physics, summer 2005), and worked on high-resolution retinal imaging with adaptive optics (Dept. of Biosciences and Biomedical Engineering), summer 2006, winter 2006, and summer 2007).

GRANT WRITING EXPERIENCE:

- *Howard Hughes Medical Institute Med-into-Grad Fellowship* - 2013 (funded)
- *F.V Hunt Postdoctoral Fellowship* of the Acoustical Society of America - 2014 (funded)
- *American Heart Association Undergraduate Student Summer Fellowship* – 2014 (funded; role: mentor to applicant Ivy Awuor)
- *NIH Pathway to Independence Grant* (unfunded, received an impact score of 43, Spring 2017)
- *American Heart Association Founder's Affiliate Predoctoral Fellowship* grant proposal (2013), Priority score: 1.59, Percentile – within top 7.95%. Payline percentile – 6.60%. Status: not funded.

HONORS

Fellowships and scholarships

- *Excellence in Research Fellowship*, Indian Institute of Technology Gandhinagar (2019 – 2022)
Fellowship awarded to faculty members of IIT Gandhinagar based on potential for excelling in research.
- *F.V. Hunt Postdoctoral Research Fellowship in Acoustics** (2015 – 16)
Recipient of a postdoctoral fellowship instituted by the Acoustical Society of America for advancing research in acoustics. *This fellowship is typically awarded only to one postdoctoral researcher annually. It included a 1-year stipend and travel support for research on ultrasound-enhanced treatment of vascular disease.
- *Howard Hughes Medical Institute Med-into-Grad Fellowship* (2013 – 14)
This fellowship was focused towards training awardees for a career in cardiovascular research. It included a 1-year stipend and travel support along with courses in cardiovascular biology and a clinical observership.
- *SPIE Student Scholarship* (2012)
Scholarship awarded by SPIE based on potential for long-range contribution to optics, photonics or related fields.
- *Research Experience Award, Youth Scientist Encouragement Fellowship* (2005 – 07)
Recipient of research opportunity funded by Kishore Vaigyanik Protsahan Yojna of the Department of Science and Technology, Government of India, which is awarded to undergraduates based on their potential and commitment to research careers.

Presentation awards

- *Second place: Best Oral Presentation*, 6th Dutch Conference on Biomedical Engineering (2017, second author of paper, awarded to mentee: Kirby Lattwein).
- *Third place: Best Student Paper Award in Biomedical Acoustics*, 171st Meeting of the Acoustical Society of America, Salt Lake City (2016, second author of paper, awarded to mentee: Shenwen Huang).
- *Best Student Paper Award in Biomedical Acoustics*, 167th Meeting of the Acoustical Society of America, Providence (2014).
- *Best Poster Award*, University of Rochester Graduate Research Symposium (2013).

- *Second place: Outstanding Speaker Competition*, SPIE Student Summer Colloquium Series, University of Rochester (2013).
- *Second place: Best Student Paper Award in Biomedical Acoustics*, 161st Meeting of the Acoustical Society of America, Seattle (2011).
- *Best Student Paper Award: Advanced Electronics and Instrumentation*, Fourth National Control Instrumentation Systems Conference, Karnataka, India (2007).

Travel awards and conference/workshop attendance scholarships

- *Young Investigator Travel Award*, Committee of Women in Acoustics, Acoustical Society of America, 2017.
- *Early Career Travel Subsidy*, Acoustical Society of America, 2017.
- *Conference Travel Award*, Graduate Student Association, 2011, 2012, 2013, 2014.
- *Student Conference Travel Award*, Dean of Graduate Studies, 2013, 2014.
- *Student Conference Travel Subsidy*, Acoustical Society of America, 2012, 2013, 2014.
- *Student Travel Grant*, International Conference on Ultrasonic Biomedical Microscanning, 2012.

PUBLICATIONS

Peer reviewed journals

- J1. **H. Shekhar**, A. Palaniappan, T. Peng, M. R. Moody, K. J. Haworth, S. L. Huang, D. D. McPherson, and C. K. Holland, "Characterization and imaging of lipid-shelled microbubbles for ultrasound-triggered delivery of xenon" *Neurotherapeutics*, published online before print <https://doi.org/10.1007/s13311-019-00733-4> (2019).
- J2. K. R. Lattwein, **H. Shekhar**, W. van Wamel, T. Gonzalez, A. Herr, C. K. Holland, and K. Kooiman, "An in vitro proof-of-principle study of sonobactericide," *Sci. Rep. (Nature Publishing Group)*, 8:3411 (2018).
- J3. **H. Shekhar**, Nathaniel Smith, Jason L. Raymond, and C. K. Holland, "Effect of temperature on the size distribution, shell properties, and stability of Definity[®]," *Ultrasound Med. Biol.* 44, 434 – 436 (2018).
- J4. **H. Shekhar**, Jeffrey S. Rowan, and Marvin M. Doyley, "Combining subharmonic and ultraharmonic modes for intravascular ultrasound imaging: a preliminary evaluation," *Ultrasound Med. Biol.* 43, 2725 – 2732 (2017).
- J5. S. Huang, **H. Shekhar**, and C. K. Holland, "Comparative lytic efficacy of rt-PA and ultrasound in porcine versus human clots," *PLOS One*, e0177786 (2017).
- J6. **H. Shekhar**, K.B. Bader, S. Huang, T. Peng, S. L. Huang, D. D. McPherson, and C. K. Holland, "In vitro assessment of thrombolytic efficacy of echogenic liposomes that co-encapsulate rt-PA and octafluoropropane gas," *Phys. Med. Biol.* 62, 517 – 538 (2017).
- J7. K. B. Bader, K. J. Haworth, **H. Shekhar**, A. D. Maxwell, T. Peng, D. D. McPherson, and C. K. Holland, "A combination histotripsy and thrombolytic agent approach to ablate chronic thrombi in an *in vitro* model of deep vein thrombosis," *Phys Med. Biol.* 61, 5253 – 5274 (2016).

- J8. M. A. Kanadadai, P. Mukherjee, **H. Shekhar**, G. J. Shaw, I. Papautsky, and C. K. Holland, “Microfluidic manufacture of rt-PA-loaded echogenic liposomes,” *Biomed. Microdevices*. 18. 1 – 10 (2016).
- J9. K. J. Haworth, J. L. Raymond, K. Radhakrishnan, M. R. Moody, S.L. Huang, T. Peng, **H. Shekhar**, M. E. Klegerman, H. Kim, D. D. McPherson, and C. K. Holland, “Trans-stent ultrasound imaging and cavitation detection,” *Ultrasound Med. Biol.* 42, 518 – 527 (2016). Erratum to this article was published in *Ultrasound Med. Biol.* vol. 42 pp. 244.
- J10. S. J. Huntzicker, **H. Shekhar**, and M. M. Doyley, “Contrast-enhanced quantitative intravascular elastography: The impact of microvasculature on stress reconstruction,” *Ultrasound Med. Biol.* 42, 1167 – 1181 (2016).
- J11. **H. Shekhar**, S.J. Huntzicker, I. Awuor, and M. M. Doyley, “Chirp-coded ultraharmonic imaging with a modified clinical intravascular ultrasound system,” *Ultrason. Imaging*. 38, 403 – 419 (2016).
- J12. **H. Shekhar**, I. Awuor, K. Thomas, J. J. Rychak, and M. M. Doyley, “The delayed onset of nonlinear emissions from phospholipid-encapsulated microbubble contrast agents: implications for imaging and therapy,” *Ultrasound Med. Biol.* 40, 727 – 738, (2014).
- J13. **H. Shekhar**, J. J. Rychak, and M. M. Doyley, “Modifying the size distribution of microbubble contrast agents for high-frequency subharmonic imaging,” *Med. Phys.* 40, 082903-1 – 82903-10, (2013).
- J14. **H. Shekhar** and M. M. Doyley, “The response of phospholipid-encapsulated microbubbles to chirp-coded excitation: Implications for high-frequency nonlinear imaging,” *J. Acoust. Soc. Am.* 133, 3145 – 3158, (2013).
- J15. **H. Shekhar** and M. M. Doyley, “Improving the sensitivity of subharmonic imaging at high frequencies with coded excitation: A feasibility study,” *Med. Phys.* 39, 2049 – 2060 (2012).

Manuscripts in review/preparation

1. **H. Shekhar**, R. T. Kleven, T. Peng, A. Palaniappan, K. B. Karani, S. L. Huang, D. D. McPherson, and C. K. Holland, “Efficacy of 220-kHz sonothrombolysis with rt-PA and echocontrast agents *in vitro*,” in review, *Sci. Rep.*, under revision.
2. R. T. Kleven, K. Karani, N. Gonzalez-Salido, **H. Shekhar**, D. Mast, K. J. Haworth, and C. K. Holland, “Effect of 220-kHz insonation scheme on rt-PA thrombolytic efficacy *in vitro*,” revision submitted, *Physics Med. Biol.*
3. K. R. Lattwein, **H. Shekhar**, C. K. Holland, and K. Kooiman, “Ultrasound-mediated bactericide: A review,” in review, *Ultrasound Med. Biol.*
4. **H. Shekhar**, M. Lafond, W. Panmanee, A. Palaniappan, C. T. McDaniel, D. J. Hassett, and C. K. Holland. In vitro assessment of lipid-shelled microbubbles for nitric oxide delivery. To be submitted to *Frontiers in Pharmacology – Translational Pharmacology*, (special issue on *Bubbles, Droplets and Micelles for Acoustically-Mediated Drug/Gene Delivery*, submission deadline July 31st 2019).

Edited conference proceedings

- P1. **H. Shekhar**, J. Rowan, I. Awuor and M. M. Doyley, "Nonlinear intravascular ultrasound contrast imaging with a commercial catheter," Proc. Meetings on Acoustics, 21, 020003 (2014). Venue: Providence, RI, USA.
- P2. **H. Shekhar**, J. J. Rychak and M. M. Doyley, "Temporal evolution of subharmonic emissions from a lipid-encapsulated contrast agent," Proc. Meetings on Acoustics, 19, pp. 075019 (2013). Venue: Montreal, QC, Canada.
- P3. **H. Shekhar** and M. M. Doyley, "Nonlinear response of lipid-shelled microbubbles to coded excitation: implications for noninvasive atherosclerosis imaging," Proc. SPIE 8675, Medical Imaging 2013, 867510. Venue: Orlando, FL, USA.
- P4. **H. Shekhar** and M. M. Doyley, "High-frequency subharmonic emission with chirp-coded excitation: implications for imaging," Proc. SPIE 8320, 83200V (2012). Venue: San Diego, CA, USA.

Conference abstracts

- A1. C. K. Holland, **H. Shekhar**, M. Lafond, "Lipid shelled microbubbles for ultrasound-triggered release of bioactive gases to treat stroke and cardiovascular disease", 177th Meeting of the Acoustical Society of America, Louisville, KY, USA (2019, invited talk).
- A2. M. Lafond, **H. Shekhar**, N. Salido, K. J. Haworth, A. Hannah, Curtis Genstler, and C. K. Holland, "Cavitation nucleated with Definity® infused through an ekosonic catheter", International Symposium on Therapeutic Ultrasound, Barcelona, Spain (2019).
- A3. C. K. Holland, **H. Shekhar**, T. Peng, M R. Moody, K. J. Haworth, S. L. Huang, D. D. McPherson, "Lipid shelled microbubbles for ultrasound-triggered release of Xenon for neuroprotection", 24th European Symposium on Ultrasound Contrast Imaging, Rotterdam, The Netherlands (2019, invited talk).
- A4. **H. Shekhar**, P. Arunkumar, C. McDaniel, D. J. Hassett, and C. K. Holland, "Characterization of lipid-encapsulated microbubbles for delivery of nitric oxide," 176th Meeting of Acoustical Society of America, Victoria, B.C, Canada (2018).
- A5. **H. Shekhar**, P. Arunkumar, T. Peng, M. R. Moody, K. J. Haworth, S. L. Huang, D. D. McPherson, and C. K. Holland, "Lipid-shelled microbubbles for ultrasound-triggered release of Xenon," 176th Meeting of Acoustical Society of America, Victoria, B.C, Canada (2018).
- A6. **H. Shekhar**, R. Kleven, P. Arunkumar, T. Peng, K. B. Karani, S. L. Huang, D. D. McPherson, and C. K. Holland, "Lytic efficacy of 220-kHz sonothrombolysis with rt-PA and echo contrast agents," 18th International Symposium for Therapeutic Ultrasound, Nashville, TN, USA (2018).
- A7. R. Kleven, **H. Shekhar**, K. B. Karani, K. J. Haworth, and C. K. Holland, "Effect of duty cycle on the efficacy of 220 kHz ultrasound-enhanced rt-PA thrombolysis *in vitro*," 18th International Symposium for Therapeutic Ultrasound, Nashville, TN, USA (2018).
- A8. K. J. Haworth, A. S. Hannah, **H. Shekhar**, P. Arunkumar, S. L. Huang, T. Peng, M. Vranish, D.D. McPherson, C. Gentsler, and C. K. Holland, "Cavitation activity of pioglitazone echogenic liposomes

using an Ekosonic® catheter,” 18th International Symposium for Therapeutic Ultrasound, Nashville, TN, USA (2018).

- A9. C. K. Holland, P. Arunkumar, and **H. Shekhar**, “Lipid-shelled microbubbles for ultrasound-triggered release of Xenon for treating stroke,” 20th Meeting of the American Society for Experimental Neurotherapeutics, Rockville, MD, USA (invited talk, 2018).
- A10. **H. Shekhar**, J. S. Rowan, and M. M. Doyley, “Combined subharmonic and ultraharmonic intravascular ultrasound imaging,” 174th Meeting of Acoustical Society of America, New Orleans, LA, USA (2017).
- A11. **H. Shekhar**, and C. K. Holland, “Impact of the F. V. Hunt postdoctoral fellowship on a trainee’s research and career advancement,” (invited poster), Special session: ASA Hunt Postdoctoral Research Fellows: Through the Years, 174th Meeting of Acoustical Society of America, New Orleans, LA, USA (2017).
- A12. K. R. Lattwein, **H. Shekhar**, W. van Wamel, A. Herr, C. K. Holland, and K. Kooiman, “Sonobactericide as an Adjunct Therapy to Treat Infective Endocarditis: an *in vitro* demonstration of an Ultrasound Microbubble and Thrombolytic-Based Treatment,” (invited presentation), 32nd Annual advances in contrast ultrasound international bubble conference, Chicago, IL, USA (2017).
- A13. **H. Shekhar**, N. Smith, J. L. Raymond, and C. K. Holland, “Impact of temperature on the size distribution and shell properties of ultrasound contrast agents,” Acoustics 2017, Boston, MA, USA (2017).
- A14. K. R. Lattwein, **H. Shekhar**, W. van Wamel, A. Herr, C. K. Holland, and K. Kooiman, “Sonobactericide: an ultrasound-mediated adjunct treatment for bacterial infective endocarditis – *in vitro* proof-of-principle,” Acoustics 2017, Boston, MA, USA (2017).
- A15. S. Huang, **H. Shekhar**, and C. K. Holland, “Comparative lytic efficacy of rt-PA and intermittent ultrasound in porcine versus human clots,” Acoustics 2017, Boston, MA, USA (2017).
- A16. K. R. Lattwein, **H. Shekhar**, W. J. B. van Wamel, A. B. Herr, C. K. Holland, and K. Kooiman, “*In vitro* demonstration of sonobactericide: An ultrasound, ultrasound contrast agent, and thrombolytic-based adjunct treatment for infective endocarditis,” 6th Dutch Conference on Biomedical Engineering, Egmond aan Zee, The Netherlands (2017).
- A17. K. R. Lattwein, **H. Shekhar**, W. J. B. van Wamel, A. B. Herr, C. K. Holland, and K. Kooiman, “Sonobactericide as adjunct therapy to treat infective endocarditis: an *in vitro* demonstration of an ultrasound, microbubble, and thrombolytic-based treatment,” 22nd European Conference on Ultrasound Contrast Imaging, Rotterdam, The Netherlands (2017).
- A18. **H. Shekhar**, S. Huang, T Peng, M. E. Klegerman, S. L. Huang, D. D. Mcpherson, and C. K. Holland, “Thrombolytic efficacy of echogenic liposomes that co-encapsulate rt-PA and octafluoropropane gas,” 171st Meeting of Acoustical Society of America, Salt Lake City, UT, USA (2016).
- A19. S. Huang, **H. Shekhar**, and C. K. Holland, “Lytic efficacy of tissue plasminogen activator and ultrasound in porcine clots doped with barium sulfate *in vitro*,” 171st Meeting of Acoustical Society of America, Salt Lake City, UT, USA (2016).
- A20. C. K. Holland, **H. Shekhar**, and K. B. Bader, “Microbubble pumps: Ultrasound theragnostic agents,” (invited presentation), 170th Meeting of Acoustical Society of America, Jacksonville, FL, USA (2015).

- A21. **H. Shekhar**, I. Awuor, S. Huntzicker and M. M. Doyley, “Ultraharmonic intravascular ultrasound imaging with commercial 40 MHz catheter: a feasibility study,” 168th Meeting of Acoustical Society of America, Indianapolis, Indiana, USA (2014).
- A22. C. K. Holland, T. D. Mast, K. J. Haworth, K. B. Bader, and **H. Shekhar**, “Biomedical Research at the Image-Guided Ultrasound Therapeutics Laboratories,” 168th Meeting of Acoustical Society of America, Indianapolis, Indiana, USA (invited talk, 2014).
- A23. **H. Shekhar**, J. J. Rychak and M. M. Doyley, “The late onset of nonlinear emissions from an ultrasound contrast agent,” 166th Meeting of the Acoustical Society of America, San Francisco, CA, USA (2013).
- A24. **H. Shekhar** and M. M. Doyley, “Improving subharmonic emission at high-frequencies by modifying the size distribution of microbubble contrast agents,” 8th International Conference on Ultrasonic Biomedical Microscanning, St. Paulin, Canada (2012).
- A25. **H. Shekhar** and M. M. Doyley, “High-frequency harmonic imaging with coded excitation: Implications for the assessment of coronary atherosclerosis,” 164th Meeting of the Acoustical Society of America, Kansas City, MO, USA (2012).
- A26. **H. Shekhar** and M. M. Doyley, “A coded excitation technique for the functional imaging of coronary atherosclerosis using ultrasound contrast agents,” 161st Meeting of the Acoustical Society of America, Seattle, WA, USA (2011).
- A27. M.M. Doyley, **H. Shekhar**, J.S. Allen, J Rychak, "Visualizing the functional properties of life-threatening atherosclerotic plaques using targeted ultrasound contrast agent and intravascular ultrasound," 159th Meeting of the Acoustical Society of America, Baltimore, MD, USA (2010).
- A28. **H. Shekhar** and S. Kashyap, “Design of a modular ophthalmoscope using adaptive optics”, Fourth Control Instrumentation Systems Conference, Manipal, India (2007).

INTELLECTUAL PROPERTY

- C. K. Holland, **H. Shekhar**, and P. Arunkumar, Gas encapsulated acoustically responsive microbubbles and methods of treating cardiovascular disease. US Patent Application # 15/788,224, 2018.

INDUSTRY COLLABORATION AND CONSULTANCY

- Collaborated with Targeson Inc. (San Diego, CA, USA) on acoustic characterization of a commercial ultrasound contrast agent (2013 - 2014).
- Collaborated with EKOS® corporation (Bothell, WA, USA) on vascular drug delivery with echogenic liposomes and a catheter-based ultrasound device (2018).
- Consulted for Proctor & Gamble Corporation through the University of Cincinnati Research Institute (Time devoted: 34 hours, Nov. 2015 – Feb. 2016). Characterized the size distribution and acoustic properties of absorbent hydrogel microparticles.

TEACHING AND MENTORING EXPERIENCE

Guest lecturer

- *Biomedical Ultrasound* (BME 451, spring 2014, University of Rochester)
Topic: “Ultrasound contrast imaging”. Instructor: Prof. Diane Dalecki
- *Biomedical Ultrasound* (BME 6010, spring 2015, University of Cincinnati)
Topic: “Ultrasound wave propagation”. Instructors: Profs. Christy Holland, Doug Mast and Kevin Haworth.
- *Biomedical Engineering Survey*, (BME 7001, fall 2015), University of Cincinnati
Topic: “Enhancing ultrasound imaging with microbubbles”. Instructor: Prof. Daria Narmoneva
- *Graduate Tutor, Mechanics* (Spring 2009) and *Calculus* (Spring 2009), Center for Excellence in Teaching and Learning, University of Rochester. Tutored two students for 30 hours.

Teaching Assistantship

- *Digital Image Processing* (ECE 447 - fall 2008), University of Rochester
Instructor: Prof. Marvin Doyley
Conducted recitations, prepared handouts, graded assignments, and held office hours for students. Delivered a substitute lecture on “Review of signal processing”.
- *Circuits and Systems* (ECE 113 - spring 2009), University of Rochester
Instructor: Prof. Thomas Hsiang
Graded assignments and held office hours. Delivered three substitute lectures on a) Fourier analysis, b) Laplace Transforms, and c) Signals.
- *Communication Systems* (ECE 242 - spring 2011, and spring 2013), University of Rochester
Instructor: Prof. Marvin Doyley
Assisted in developing laboratory experiments, conducted laboratory sessions, recitations, graded assignments and held office hours. Delivered a substitute lecture on “Fundamentals of communication systems”.
- *Secondary research mentor, graduate students*: Jeffery Rowan (University of Rochester), Kirby Lattwein (Erasmus University), Shenwen Huang, Robert Kleven, Kunal Karani, Sehar Wani (University of Cincinnati), *undergraduate students*: Ivy Awuor (University of Rochester), Nathaniel Smith, Rosette Nkulu and Ahmed Lababidi (University of Cincinnati), *pre-collegiate students*: Joe Lou, Kyle Bannerman, Vaibhav Vagal (Country Day High School, Cincinnati).
- Participant, “Students meet Members for Lunch”. Participated as a mentor for program offered by the Acoustical Society of America in 2015 and 2016 (Organizer: Prof. David Blackstock).

ADDITIONAL TRAINING AND CAREER DEVELOPMENT

- “*Planning your scientific journey*”, an 18-hour online certificate course offered by iBiology.org and supported by National Institute for General Medical Sciences grant #5R25GM116704 (2017).
- “*Writing in the sciences*”, a 40-hour online certificate course taught on Coursera.org by Dr. Kristin Sainani, Associate Professor of Health Research and Policy, Stanford University (2017).
- *Acoustical Society of America Early-Career Acousticians Retreat*, Salt Lake City, UT (2016)

Selected as one of the three participants from the field of Biomedical Acoustics to participate in a two-day leadership and networking workshop for early career researchers in Acoustics.

- *Research in patient services*, Cincinnati Children's Hospital and Medical Center (2015)
Completed course focused on improving research grant-writing skills for faculty and research staff.
- *Young Investigator's Meeting*, Chicago IL (2016) and Cambridge, MA (2015)
Selected to attend networking and leadership training conferences for scientists of Indian origin.
- *Clinical observership in cardiology*, University of Rochester Medical Center (2014)
Observed clinical procedures in Echocardiography, Cardiovascular Magnetic Resonance Imaging, and Vascular Surgery as a part of the HHMI Med-into-Grad fellowship (2014).
- *Acoustical Society of America School*, Providence, RI (2014)
Received funds by the Acoustical Society of America for attending a 2-day school focused on research in diverse areas of acoustics.
- *Future Faculty Initiative at University of Rochester* (2011 – 13)
Completed five half-day training modules focused on preparing graduate students for academic research careers. The modules included: "The Faculty Role", "Learner Centered Teaching", "Designing Courses and Assessing Learning", "Teaching with Technology", and "Tapping Diversity to Enrich Learning".
- *Workshop on preparing a competitive NIH proposal*, SPIE Medical Imaging (2013)
Invited by Lee Rosen, Ph.D. National Institute of Health, to review sample R01/R21 grants for a workshop held at SPIE Medical Imaging Symposium, Orlando, FL (2013).
- *Leadership in Education program* at University of Rochester (2011 – 12)
Participated in weekly group discussions on teaching and pedagogical methods moderated by Prof. Andrew Berger that was held over two semesters.
- *Physical Acoustics Summer School*, Oxford, Mississippi, USA (2012)
Received funds from the National Center for Physical Acoustics to attend a week-long school focused on research in physical acoustics.
- *Statistical Modeling for Data Analysis Workshop*, Indian Institute of Technology Kharagpur, West Bengal, India (2011)
Participated in a week-long workshop on statistical modeling methods.

SERVICE AND LEADERSHIP ROLES

- *Guest editor* (along with Marvin Doyley, Amritaha Taebi, and Rohit Nayak), special issue on "Advanced biomedical ultrasound imaging techniques", Applied Sciences (to come out in summer 2019), Journal impact factor (IF) = 1.689.
- *Referee for peer-reviewed journals**:
 - Ultrasonics (2013 - present), IF = 2.337
 - Ultrasound in Medicine and Biology (2014 - present), IF = 2.645
 - Journal of Ultrasound in Medicine (2014 - present), IF = 1.530

- Ultrasonic Imaging (2014 - present), IF = 2.300
- Expert Opinion on Drug Delivery (2016 – present), if = 5.553
- Journal of Thrombosis and Thrombolysis (2017 – present), IF = 2.620
- Biotechnology and Bioengineering (2017 – present), IF = 3.952
- Journal of Medical Imaging (2017 – present), IF = 1.740
- IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control (2017 – present), IF = 2.704
- Journal of the Acoustical Society of America (2017 – present), IF = 1.605
- Translational Stroke Research (2018 – present), IF= 8.266.

* Verified record on publons.com: <https://publons.com/author/1304755/himanshu-shekhar#profile>

- *Judge*, Best Student Paper in Biomedical Acoustics Competitions, Acoustical Society of America Meeting, Salt Lake City, UT, USA (2016) and at Acoustics 2017, Boston, MA, USA (2017).
- *Invited Member*, Biomedical Acoustics Technical Committee, Acoustical Society of America (Term: November 2016 – 2019)
This committee is responsible for arranging technical sessions on Biomedical Acoustics, and for promoting new developments in research and education.
- *Member*, Ad hoc Committee ASA Foundation fundraising campaign, Acoustical Society of America (2016 – present)
Serving on a 6-member committee chaired by the ASA president tasked to establish an Early Career Awards Fund (targeted goal: \$3,00,000, \$50,000 already raised to date) to support grants and fellowships for students, postdoctoral fellows, and young scientists.
- *Member*, Ad hoc Committee for Live-Streaming, Acoustical Society of America (2016 – present)
The Acoustical Society of America has initiated live streaming of research talks delivered at its biannual international conferences online to a worldwide audience starting 2016. I serve as a member of the ad hoc committee chaired by the ASA vice president that spearheaded this initiative. Facilitated the compilation of videos on acoustics research for dissemination on the Youtube channel of Acoustical Society of America.
- *Moderator*, live-streaming of the following sessions at the Spring Meeting of the Acoustical Society of America meeting, at Salt Lake City, UT, (2016), Acoustics 2017 at Boston, MA, (2017), and Fall meeting at New Orleans, LA (2017):
 - Session # 3aBA. Controlled Drug Delivery and Release with Focused Ultrasound (Cochairs: C. Arvanitas and A. Kilbanov)
 - Session # 3pBA. Focused Ultrasound for Brain Treatments (Cochairs: Profs. N. McDannold and K. Hynynen)
 - Session # 3pBAa. Advances in shock wave lithotripsy II (Cochairs: Profs. A. Maxwell, J. Simon and R. Cleveland)
 - Session # 4aBA. Session in Honor of Edwin Carstensen I (Cochairs: Profs. D. Blackstock and G. ter Haar)
 - Session # 4aBAa. Session in Honor of Edwin Carstensen II (Cochairs: Profs. D. Blackstock and G. ter Haar)
 - Session # 4aBA. Ultrasound-Mediated Neuromodulation (Chair: Prof. P. Chitnis)

- *Chairman, IAESTE India MIT, Manipal, KA, India (2007-08)*
Chaired the co-operating body of the International Association for the Exchange of Students for Technical Experience (IAESTE), the world's largest student exchange organization. Managed a budget of over \$50,000 for the exchange of over 140 students from 44 countries, liaised with academia and industry to generate internship offers, and led the Indian delegation to the 60th IAESTE General Conference in Jordan (2008).
- *VISA Processing Head, IAESTE India MIT (2006)*
Liaised with embassies and consulates for facilitating VISAs for over 50 foreign exchange students.

PROFESSIONAL MEMBERSHIPS

- *Acoustical Society of America (Member, 2016 – present; Associate Member, 2015 – 2016; Student Member, 2011 – 2014)*
- *International Society of Therapeutic Ultrasound (Member, 2018 – present)*
- *IEEE (Member 2019 – present; Student Member, 2009 – 2014)*