

# Hakm Y. Murad

108 Cottonwood Dr. • Gretna, LA 70056 • 504-289-9811 • hmurad@tulane.edu

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**EDUCATION** **Doctorate of Philosophy in Biomedical Engineering** **GPA: 4.00** Exp. May 2018  
**Masters of Science, Biomedical Engineering** **GPA: 3.94** May 2016  
**Bachelor of Science in Engineering, Biomedical Engineering** **GPA: 3.63** May 2015  
Tulane University, New Orleans, LA  
Minor: Mathematics

## Scholarships and Awards:

- Led the winning team design project, writing a provisional patent on technology
  - W. C. V. Buskirk Graduate Student Fellowship: Faculty award for research
  - Nissim Nathan Cohen Award: Selected by classmates for student who contributed most to his class, his school, and his profession
  - Distinguished Scholars Award; Georges Lurcy Grant winner; Putnam Grant winner; Dean Grant winner: Personal research proposals funded, totaling \$15,000
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**WORK** **Research Assistant** August 2012-Present

**EXPERIENCE** Tulane University Biomechanics Laboratory, New Orleans, LA

- Hypothesized and demonstrated the synergistic effect of ultrasound activation on liposome encapsulated chemotherapy for increased cancer cytotoxicity.
- High Intensity Focused Ultrasound ablation of in vitro and animal cancer models, performing anesthesia, euthanasia, and tumor xenografting.
- Collaborated with surgeons in the Tulane Urology Center for sample collection and feedback on my Cryo-SEM results.
- Published in Ultrasound in Medicine and Biology, February 2014 Edition.

**Undergraduate & Graduate Teaching Assistant** September 2014-Present  
Tulane University, New Orleans, LA

- Biomedical Acoustics (Fall 2015): Grading, office hours, review sessions, and organized lab demos with Focused Ultrasound and Acoustic Levitation.
- Biomedical Electronics (Spring 2015-16): Basic electronics to EKG lab for 50 students
- Cadaver Dissection Lab (Fall 2014): Interacting with groups of 5, overseeing proper cadaver dissection totaling 75 students per week.

**Supplemental Instructor** January 2014-Present  
Tulane University, New Orleans, LA

- Organized instructional sessions to improve the academic and personal success of Tulane peers in four engineering courses. 94% of students obtained an A or B.
- 2-3 sessions per week with voluntary attendance ranging from 15-120 students.
- Created sample problems ranging in difficulty to ascertain student understanding of material.
- "I am very grateful for the help Hakm eagerly offered during each of his SI sessions. He was consistent with his sessions, friendly to all students, and very knowledgeable of the subject matter."

**Research Intern** Summer 2014  
Tulane University Material Science laboratory, New Orleans, LA

- Synthesized Aligned Single-Walled Carbon Nanotubes for use as electrodes in supercapacitors in collaboration with Chemical Engineers.

- Increased carbon nanotube yield by 4x using CAD (SolidWorks) to design substrate holder within CVD to optimize position.

### Lab Technician

September 2011-August 2014

Louisiana State University Ophthalmology, New Orleans, LA

- Evaluated lipid accumulation on different polymer based contact lenses using tritium markers with a scintillation detector, performed in rabbit models.
  - Performed static and non-static hydration studies using artificial tear fluid.
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## RESEARCH SKILLS

**SolidWorks-** Models developed were sent out for glass and metal fabrication.

**Chemical Vapor Deposition-** Optimized processes as lab intern.

**Cell Culturing-** 2D and 3D cell culture for adherent and suspended cells.

**MATLAB-** Used Fast Fourier Transforms to analyze ultrasound signal.

**Sputter Deposition & Electron Beam Evaporation-** Performed acceptance testing and wrote sample protocol for users.

**Microscopy-** Trained and operated optical, SEM, and TEM as a research assistant.

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## PUBLICATIONS

1. Hoang, Murad, Ratnayaka, Chen, Khismatullin. "Synergistic Ablation of Liver Tissue and Liver Cancer Cells with High-Intensity Focused Ultrasound and Ethanol." *Ultrasound in Medicine & Biology* 40.8 (2014): 1869-881.
  2. Arora, Murad, Ashe, Halliburton, John, Khismatullin. "HIFU in Synergy with Sorafenib-Loaded Thermosensitive Liposomes for Treatment of Prostate Cancer" *Journal of Molecular Pharmaceuticals* (2016).
  3. Murad, Yu, Luo, Khismatullin. "Focused Ultrasound and Ethanol Reduces the Proliferation and Metastatic Potential of Prostate Cancer Cells." *Cancer Cell* (In preparation).
  4. Abshire, Murad, Mandava, John, Khismatullin, Lee. "Synergistic Cytotoxicity of Sorafenib loaded Temperature Sensitive Liposomes with Focused Ultrasound on Renal Cell Carcinoma." *Journal of Urology*. (in review).
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## PODIUM PRESENTATIONS

1. "Focused Ultrasound Reprograms Ethanol-Treated Prostate Cancer Cells Back to Normal", Murad et al. 2016 BMES Annual Meeting, Minneapolis MN.
  2. "Synergistic Ablation of Tumors *in vivo* by High-Intensity Focused Ultrasound and Ethanol", Murad et al. 2016 BMES Annual Meeting, Minneapolis MN.  
"FUS-triggered release of Sorafenib from temperature sensitive liposomes for treating renal cell carcinoma", Murad et al. 2015 International Union for Physical and Engineering Sciences in Medicine Presidential Selection Toronto, Canada.
  2. "HIFU in Combination with TSL Nanoparticles on Renal Cell Carcinoma", Murad et al. 2014 BMES Annual Meeting San Antonio, Texas.
  3. "Ablation of Aggressive Thyroid Cancer Cells with HIFU and Ethanol", Murad et al. 2013 Acoustical Society of America Annual Meeting San Francisco, California.
  4. "Fabrication of Hand Held HIFU Transducer for HIFU Ablation of Prostate Cancer Tumor Model", 2014 Tulane Research Day New Orleans, Louisiana.
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## POSTER

## **PRESENTATIONS**

1. "FUS-Triggered Sorafenib-Loaded TSLs for Targeted Drug Therapy in Renal Cell Carcinoma", Murad et al. 2015 BMES Annual Meeting Tampa Bay, Florida.
2. "HIFU in Synergy with Sorafenib-Loaded Thermosensitive Liposomes for Treatment of Prostate Cancer", Murad et al. 2015 BMES Annual Meeting Tampa Bay, Florida.
3. "Focused Ultrasound-Triggered Sorafenib-Loaded Liposome Nanoparticles for Targeted Drug Therapy in Renal Cell Carcinoma", Murad et al. 2015 Louisiana Cancer Research Consortium New Orleans, Louisiana.
4. "Synergy Between High-Intensity Focused Ultrasound and Ethanol Injection in Thyroid cancer Ablation In vitro and In vivo", Murad et al. 2014 BMES Annual Meeting San Antonio, Texas.
5. "Synergy Between HIFU and Ethanol in Thyroid Cancer in vivo", Murad et al. 2014 Louisiana Cancer Research Consortium New Orleans, Louisiana.
6. "Hand Held High Intensity Focused Ultrasound (HIFU) Transducer for HIFU Ablation On In Vitro Prostate Cancer Tumor Model", 2014 Tulane Research Day New Orleans, Louisiana.

## **CAMPUS INVOLVEMENT**

**Vice President of Biomedical Engineering Society (BMES) 15' 16'**  
**Institute of Electrical and Electronics Engineering (IEEE)**  
**Science and Engineering Honor Society (SEHS)**  
**Graduate and Professional Student Association (GAPSA)**

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## **COMMUNITY EXPERIENCE**

**New Orleans Outreach**                      **Mentoring of young athletes in NOLA**  
**Volunteer Tutor at Clark High School**    **Sound Engineer Masjid al-Tawbeh**