Chirag Gokani

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Education

- **University of Texas at Austin (UT Austin)** *August 2021 – May 2026*
  Ph.D. candidate, Mechanical Engineering (Acoustics research area) *GPA: 4.0*
- **University of Texas at Dallas (UT Dallas)** *August 2017 – May 2021*
  B.S. Physics, Minor in Music, Collegium V Honors, Magna Cum Laude *GPA: 3.897*

Experience

- **Graduate Program in Acoustics at UT Austin and the Applied Research Laboratories**
  Graduate Research Assistant *August 2021 – May 2026*
  - Studying acoustic radiation force, bianisotropic media, and vortex beam diffraction
  - Co-advised by Profs. M. R. Haberman and M. F. Hamilton
  - Dissertation title: *Scattering and diffraction of acoustic waves in problems with broken symmetry*
  - Austin Student Chapter of the ASA, Chair, 2024-2025 academic year
  - Texas Acoustics Seminar administrator, fall 2022
- **Acoustical Society of America (ASA)**
  Biomedical Acoustics Technical Committee (BATC) Student Council Representative *Fall 2023 – Spring 2025*
  - Promoted the interests of students in the ASA and organized student-related activities within the Society
  - Served as a conduit for information for students within BATC
  - Attended Technical Committee meetings to report on student activities
  - Served as acting Chair at 186th meeting in Ottawa, Canada
- **Department of Physics at UT Dallas**
  Teaching Assistant for Electromagnetism and Waves lab *Spring 2020*
- **Advanced Research in Thermo Fluid Systems (ARTS) Lab, UT Dallas**
  Undergraduate Research Assistant *Summer 2019*
  - Assisted with rheology experiments of milk for Diana Alatalo's dissertation (She is now an assistant professor at WPI)
- **UTD Cosmology, Relativity and Astrophysics Group**
  Undergraduate Research Assistant *2017-2018*
  - Studied the perturbative effects of tertiary black holes on the gravitational waves radiated by inspiraling binary black holes under the guidance of Prof. Michael Kesden
  - Cataloged data from the Gaia space observatory under the guidance of Prof. Kaloyan Penev

Honors & Awards

- **Chester M. McKinney Graduate Fellowship in Acoustics**: awarded by the Applied Research Laboratories (ARL:UT) for support in acoustics research, *2022-2025*
- **T. W. Whaley, Jr. Friends of Alec Endowed Scholarship**: awarded by the Cockrell School of Engineering at UT Austin, *2021-2022*
- **Eugene McDermott Scholar**: One of twenty-three undergraduates selected for flagship scholarship at UT Dallas, *2017-2021*

Publications

- C. A. Gokani, M. R. Haberman, M. F. Hamilton, "Analytical solutions for acoustic vortex beam radiation from planar and spherically focused circular pistons," *JASA Express Lett.* **4**, 124001, (2024). Editor's choice.
- C. A. Gokani, M. R. Haberman, M. F. Hamilton, "Paraxial and ray approximations of acoustic vortex beams," *J. Acoust. Soc. Am.* **155**, 2707-2723, (2024).

Conference proceedings

- C. A. Gokani, T. S. Jerome, M. R. Haberman, M. F. Hamilton, "Born approximation of acoustic radiation force used for acoustofluidic separation," *Proc. Mtgs. Acoust.* **48**, 045002 (2022).

Conference talks

- C. A. Gokani, M. R. Haberman, M. F. Hamilton, "Effects of increasing orbital number on the field transformation in focused vortex beams," *J. Acoust. Soc. Am.* **155**, A346 (2024).
- C. A. Gokani, J. M. Cormack, M. F. Hamilton, "Growth rates of harmonics in nonlinear vortex beams," *J. Acoust. Soc. Am.* **154**, A328 (2023).
- C. A. Gokani, S. P. Wallen, M. R. Haberman, "Reciprocity, passivity, and causality in fully coupled acousto-electrodynamic media," *J. Acoust. Soc. Am.* **154**, A118 (2023).
- C. A. Gokani, S. P. Wallen, M. F. Hamilton, M. R. Haberman, "Source-driven homogenization theory for electro-momentum coupled scatterers," *J. Acoust. Soc. Am.* **153**, A120 (2023). Tied for first place for in the Structural Acoustics and Vibrations Student Competition at 183rd ASA in Chicago.
- S. P. Wallen, B. M. Goldsberry, C. A. Gokani, M. R. Haberman, "Computational analysis of sub-wavelength scatterers exhibiting electro-momentum coupling," *J. Acoust. Soc. Am.* **153**, A120 (2023).
- C. A. Gokani, Y. Meng, M. R. Haberman, M. F. Hamilton, "Analytical solution for a focused vortex beam radiated by a Gaussian source," *J. Acoust. Soc. Am.* **152**, A56 (2022).
- C. A. Gokani, M. R. Haberman, M. F. Hamilton, "Physical acoustics homework problems written by students: undisciplined, irreverent, and original," *J. Acoust. Soc. Am.* **152**, A168 (2022).
- C. A. Gokani, T. S. Jerome, M. R. Haberman, M. F. Hamilton, "Born approximation of acoustic radiation force used for acoustofluidic separation," *J. Acoust. Soc. Am.* **151**, A90 (2022). (Also presented at the 22nd International Symposium on Nonlinear Acoustics, Oxford, UK)

Seminar talks

- C. A. Gokani, M. R. Haberman, M. F. Hamilton, "Paraxial and ray approximations of acoustic vortex beams," Center for Nonlinear Dynamics, Department of Physics, UT Austin, September 25th, 2024.

Posters

- C. A. Gokani, M. R. Haberman, M. F. Hamilton, "Acoustic radiation force on subwavelength objects due to progressive waves," Walker Department of Mechanical Engineering Research Poster Competition, February 21st, 2025, tied for 1st place out of 30 posters.
- C. A. Gokani, M. R. Haberman, M. F. Hamilton, "Paraxial and ray approximations of acoustic vortex beams," Walker Department of Mechanical Engineering Research Poster Competition, March 18th, 2024, 3rd place out of 30 posters.

Technical skills

- **Theory**: acoustics, electrodynamics, continuum and classical mechanics
- **Computation**: MATLAB, Mathematica
- **Writing**: LaTeX, HTML/CSS, Markdown, MS Office

Websites

- **Acoustics PhD qualifying exam review site**, review of physical acoustics, ultrasonics, nonlinear acoustics, and math for the PhD qualifying exam in acoustics at UT Austin, *summer 2020*
- **ICA 2025 New Orleans**: meeting website for the 25th International Congress on Acoustics and 188th Meeting of the ASA.
- **IntelliChoice SAT Math Course**, free math course for high school students studying for the SAT, *summer 2020*
- **Wave Phenomena**, web-based class notes from ME 384N, taught by Prof. Mark F. Hamilton, *spring 2024*

Affiliations

- **Acoustical Society of America, Student Member**, *2021-present*
- **Texas Astronomical Society, Student Member**, *2018-2021*

Volunteering

- **Women in STEM**, volunteer, *2022 - present*
- **IntelliChoice**, math tutor and branch manager, *2018 - 2022*
- **Society of Physics Students at UTD**, star party coordinator, *2017 - 2021*
- **Helbing Jazz Initiative**, jam session coordinator, *2019-2020*
- **Richardson Public Library**, volunteer, *2017 - 2020*

Extracurricular activities

- **Wind chimes**: I have been handcrafting wind chimes since my sophomore year at UTD.
- **Music**: I have had a lifelong love for music.