Chirag Gokani

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Education

- **University of Texas at Austin (UT Austin)** — *August 2021 – May 2026*
  Ph.D. candidate, Mechanical Engineering (Acoustics concentration) — *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**
  Graduate Research Assistant — *August 2021 – May 2026*
  - Studying acoustic radiation force, bianisotropic media, and vortex beam diffraction under the supervision of Profs. M. R. Haberman and M. F. Hamilton
  - Dissertation title: *Scattering and diffraction of acoustic waves in three 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)**
  Student Council — *Fall 2023 – Spring 2026*
  - As Student Council Chair (2025-2026), promoted interests of students and organized student-related activities at meetings
  - As Biomedical Acoustics Technical Committee Student Council Representative (2023-2025), reported on student activities at Technical Committee meetings and managed website
- **International Congress on Acoustics**
  Webmaster for 25th International Congress on Acoustics — *2025*
- **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 rheometry 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. M. H. Kesden
  - Cataloged data from the Gaia space observatory under the guidance of Prof. K. Penev

Honors & Awards

- **Chester M. McKinney Graduate Fellowship in Acoustics**: awarded by the Applied Research Laboratories at UT Austin for support in acoustics research, *2022-2026*
- **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, R. P. Williams, M. R. Haberman, M. F. Hamilton, "An alternative approach to modeling radiation from baffled circular piston," *J. Acoust. Soc. Am.*, in press.
- 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 and M. R. Haberman, "Acousto-electromagnetic media: Homogenization and constraints," 19th International Congress on Artificial Materials for Novel Wave Phenomena - Metamaterials 2025, in press.
- P. G. Kaufinger, C. A. Gokani, M. F. Hamilton, "Creative ways to study for an acoustics qualifying exam," *Proc. Mtgs. Acoust.*, **56**, 025001 (2025)
- 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).

Seminar talks

- C. A. Gokani, "Radiation Force: History, Theory, and Recent Advances," Texas Acoustics Seminar, Walker Department of Mechanical Engineering, UT Austin, October 3rd, 2025.
- C. A. Gokani, "Radiation forces due to progressive waves on a string and acoustic waves," Center for Nonlinear Dynamics, Department of Physics, UT Austin, September 10th, 2025.
- 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.

Conference talks

- C. A. Gokani, M. R. Haberman, M. F. Hamilton, "Radiation force on inhomogeneous subwavelength scatterers due to progressive waves," *J. Acoust. Soc. Am.* **157**, A112–A113 (2025).
- C. A. Gokani and P. S. Wilson, "Timbral effects of the right-hand techniques of Wes Montgomery and Joe Pass," invited. *J. Acoust. Soc. Am.* **157**, A107 (2025).
- C. A. Gokani, M. R. Haberman, M. F. Hamilton, "Analytical solutions for acoustic vortex beam radiation from planar and spherically focused circular pistons," *J. Acoust. Soc. Am.* **157**, A363 (2025).
- 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. See also: "Computational analysis of sub-wavelength scatterers exhibiting electro-momentum coupling."
- 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, 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)

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. Also presented at the 188th ASA/25th ICA meeting in New Orleans on May 23rd, 2025 (tied for 2nd place out of 20 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**, *summer 2023*
- **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.