

– ANIKET SANGHI –

Curriculum Vitae

CONTACT INFORMATION

California Institute of Technology
Cahill Center for Astronomy and Astrophysics
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Pasadena, CA 91125

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EDUCATION

California Institute of Technology
Ph.D. in Astrophysics

Anticipated 2028
Graduate Advisor: Dimitri Mawet

The University of Texas at Austin
B.S. in Astronomy (Honors) & B.S. in Physics

May 2023
Summa Cum Laude

PROFESSIONAL APPOINTMENTS

- **NSF Graduate Research Fellow, California Institute of Technology** **August 2023 – Present**
- Undergraduate Research Assistant, Dept. of Astronomy, The University of Texas at Austin **August 2019 – May 2023**
 - (3) *Advisor: Drs. Brendan Bowler and Yifan Zhou*
Topic: High-contrast Imaging Observations of Accreting Protoplanets with HST/WFC3
 - (2) *Advisor: Drs. Michael Montgomery and Zachary Vanderbosch*
Topic: Identifying Periodic Variable Stars and Eclipsing Binary Systems with LCO
 - (1) *Advisor: Dr. William Best*
Topic: Population Synthesis Simulations with a 25 pc Volume-limited Sample of Ultracool Dwarfs
- NSF REU Fellow, Institute for Astronomy, University of Hawai'i at Mānoa **May 2022 – August 2022**
Advisor: Dr. Michael Liu
Topic: Fundamental Properties for 1000+ Ultracool Dwarfs and Planetary-mass Companions
- SURF Fellow, California Institute of Technology **May 2021 – August 2021**
Advisor: Drs. Dimitri Mawet and Jason Wang
Topic: SUPER-RDI: Improving Exoplanet Detection Limits at Small Angular Separations with Keck/NIRC2

RESEARCH INTERESTS

High-contrast imaging and spectroscopy • Brown dwarf atmospheres and evolution • Young planets and circumstellar disks

HONORS & AWARDS

Significant Recognitions

- NSF Graduate Research Fellowship — National Science Foundation **09/2023**
Recognizes and supports outstanding graduate students who have demonstrated the potential to be high achieving scientists and engineers, early in their careers.
- Hertz Fellowship Finalist — Fannie and John Hertz Foundation **02/2022**
- Barry M. Goldwater Scholar (\$7500) — Barry Goldwater Scholarship and Excellence in Education Foundation **03/2022**
Support students who show exceptional promise of becoming the Nation's next generation of research leaders.
- Thomas McGetchin Distinguished Undergrad. Award (\$5000) — Universities Space Research Association **11/2021**
Granted to students who tackle challenging problems in aerospace engineering, space science research and exploration, demonstrate leadership, promote diversity in science and engineering, and are poised to make significant contributions to their fields.
- NASA Texas Space Grant Consortium STEM Scholarship (\$2000) — NASA Space Grant Consortium **07/2021**
Recognize high-quality students and encourage their consideration of graduate studies in science, technology, engineering and mathematics fields.

- Chambliss Astronomy Achievement Student Award — American Astronomical Society 01/2021
Recognize exemplary research by undergraduate and graduate students who present at one of the poster sessions at the meetings of the AAS.

Astronomy & Physics Departmental Scholarships

- Sinclair Smith Fellowship in Astrophysics — Dept. of Astronomy, Caltech 10/2023
- Ralph Cutler Greene Endowed Scholarship (\$2500) — Dept. of Astronomy, UT Austin 12/2022
Outstanding senior astronomy student, awarded once per year.
- John Kelley Texas Amateur Astronomers' Scholarship (\$3000) — Dept. of Astronomy, UT Austin 12/2021
Excellence in astronomy research and outreach, awarded once per year.
- Nancy & William McMinn Endowed Presidential Scholarship (\$3175) — Dept. of Physics, UT Austin 06/2021
- John W. Cox Endowment Award (\$4320) — Dept. of Astronomy, UT Austin 05/2020

University/College-Wide Awards

- Dean's Honored Graduate (Research Distinction) — College of Natural Sciences, UT Austin 05/2023
The highest honor a CNS student can earn, 25-30 students a year, top 1% of each spring's graduating class.
- Distinguished College Scholar — College of Natural Sciences, UT Austin 2021–2023
- Hou-Li Scholarship in Natural Sciences (\$1500) — College of Natural Sciences, UT Austin 07/2022
- Ralph Nelson Endowed Presidential Scholarship (\$2500) — UT Austin 05/2022
- George H. Mitchell Award (Grand Prize/STEM) (\$7000) — University Co-op, UT Austin 05/2022
For superior scholarly or creative achievement, awarded once per year.
- Emory and Ella Peterson Endowed Presidential Scholarship (\$2500) — UT Austin 05/2021
- CNS Second Year Excellence Award — College of Natural Sciences, UT Austin 03/2021
- Carl Stone Benedict Scholarship (\$1000) — College of Natural Sciences, UT Austin 07/2020
- Harwood Family Endowed Scholarship in Natural Sciences (\$1500) — College of Natural Sciences, UT Austin 05/2020

Conference Awards

- 2022 SACNAS NDiSTEM Conference Poster Presentation Awardee (\$200) — San Juan, Puerto Rico 10/2022
- Best Poster Design (\$500) — Longhorn Research Poster Session, Office of Undergraduate Research, UT Austin 04/2021
- Honorable Mention Research Video — Texas Research Showdown, UT Austin 03/2021
- Conference Travel Award (\$200) — Dept. of Astronomy, University of Texas at Austin 11/2020

PUBLICATIONS

Refereed publications: 13 (6 first/dual-first-authored; 7 co-authored)

Total citations (all papers): 73

Total citations (first author): 32

h-index (all papers): 6

First/Dual-First (*) Author Papers

1. "SUPER-RDI: A Keck/NIRC2 Imaging Search for Low-Mass Companions around M Dwarfs with Improved Sensitivity at Small Angular Separations."
Sanghi, A., Xuan, J. W., Wang, J. J., et al., 2023, *AJ*, submitted.
2. "The Hawaii Infrared Parallax Program. VI. The Fundamental Properties of 1000+ Ultracool Dwarfs and Planetary-mass Objects Using Optical to Mid-IR SEDs and Comparison to BT-SETTL and ATMO 2020 Model Atmospheres."
Sanghi, A., Liu, M. C., Best, W. M., et al., 2023, *ApJ*, 959, 63. ([Zenodo Dataset](#))
3. "HST/WFC3 H α Direct-Imaging Detection of a Pointlike Source in the Disk Cavity of AB Aur."
Zhou, Y.*, Sanghi, A.*, Bowler, B. P., et al., 2022, *ApJL*, 934, L13.
4. "Efficiently Imaging Accreting Protoplanets from Space: Reference Star Differential Imaging of the PDS 70 Planetary System using the HST/WFC3 Archival PSF Library."
Sanghi, A., Zhou, Y., Bowler, B. P., 2022, *AJ*, 163, 119.
5. "Identifying Periodic Variable Stars and Eclipsing Binary Systems with Long-Term Las Cumbres Observatory Photometric Monitoring of ZTF J0139+5245."
Sanghi, A., Vanderbosch, Z. P., Montgomery, M. H., 2021, *AJ*, 162, 133.

6. *“Visualizing the Complex Roots of Quadratic and Cubic Polynomial Functions in Three Dimensions.”*
Sanghi, A., 2021, *The College Mathematics Journal*, 52(5), 373–379.

Co-author Papers

1. *“A Volume-Limited Sample of Ultracool Dwarfs. II. The Substellar Age and Mass Functions in the Solar Neighborhood.”*
Best, W. M., Sanghi, A., Liu, M. C., et al., 2023, *ApJ*, submitted.
2. *“Validation of elemental and isotopic abundances in late-M spectral types with the benchmark HIP 55507 AB system”*
Xuan, J. W., Wang, J. J., Finnerty, L., et al. (incl. Sanghi, A.), 2023, *ApJ*, accepted.
3. *“UV-Optical Emission of AB Aur b is Consistent with Scattered Stellar Light.”*
Zhou, Y., Bowler, B. P., Yang, H., Sanghi, A., et al., 2023, *AJ*, accepted.
4. *“Astrometric Accelerations as Dynamical Beacons: A Giant Planet Imaged Inside the Debris Disk of the Young Star AF Lep.”*
Franson, K., Bowler, B. P., Zhou, Y., et al. (incl. Sanghi, A.), 2023, *ApJL*, 950, L19.
5. *“Polarized radio pulsations from a new T dwarf binary.”*
Vedantham, H. K., Dupuy, T. J., Evans, E. L., Sanghi, A., et al., 2022, *A&A*, 675, L6.
6. *“Astrometric Accelerations as Dynamical Beacons: Discovery and Characterization of HIP 21152 B, the First T-Dwarf Companion in the Hyades.”*
Franson, K., Bowler, B. P., Bonavita, M., et al. (incl. Sanghi, A.), 2023, *AJ*, 165, 39.
7. *“On the Masses, Age, & Architecture of the VHS J1256-1257AB b System.”*
Dupuy, T. J., Liu, M. C., Evans E. L., et al. (incl. Sanghi, A.), 2023, *MNRAS*, 519, 1688.

AAS Research Notes & Software Contributions

1. *“Ultracool Dwarf Absolute Magnitude Versus Spectral Type Relations for JWST NIRCам Filters.”*
Sanghi, A., Liu, M. C., Best, W. M. J., et al., 2023, *RNAAS*, 7, 194. ([Zenodo Dataset](#))
2. *“Updated Spectral Type Polynomials for Ultracool Dwarfs with CatWISE Photometry.”*
Feeder, S. J., Best, W. M. J., Sanghi, A., & Liu, M. C., 2022, *RNAAS*, 6, 265.
3. *“The Astropy Project: Sustaining and Growing a Community-oriented Open-source Project and the Latest Major Release (v5.0) of the Core Package”*
The Astropy Collaboration, Price-Whelan, A. M., Lian Lim, P., et al. (incl. Sanghi, A.), 2022, *ApJ*, 935, 167.

TELESCOPE TIME

Co-I Programs (Significant Contributions)

1. *“Confirming the Protoplanet Candidate AB Aur b with Accretion Light Echoes.”*
HST Cycle-30 GO Program (PI: Dr. Brendan Bowler; 20 orbits).
2. *“A Search for Accreting Protoplanets within Transition Disk Gaps.”*
HST Cycle-29 GO Program (PI: Dr. Yifan Zhou; 30 orbits).

TEACHING & OUTREACH

- Advanced Physics, Math, Astronomy Tutor, Sanger Learning Center, UT Austin 08/2020–05/2023
500+ Appointment and Drop-In Tutoring Hours.
- *“A Journey Into the Unknown”*, Reverberance Newsletter, Udaan-Career Counselling, NPS Koramangala 03/2023
- *“Photographing Distant Alien Worlds,”* Schrödingers Pint, Darwin’s Piano Bar, Austin, TX 09/2022
- Outreach Volunteer, Astronomy Student’s Association, UT Austin 09/2019–05/2022
Astronomy presentation at Kealing Middle School, physics and astronomy demonstrations at Geosciences “Hot Science — Cool Talks”, STEM art activities for UT Girl Day, and public telescope viewings in and around Austin, TX.
- [Research Communication Video](#) (300+ views), 2021 Texas Research Showdown, UT Austin 03/2021

LEADERSHIP & SERVICE

- Student Marshall, 75th Annual Honors Day Ceremony, UT Austin 04/2023
- Undergraduate Q&A Panelist, UT Astronomy Prospective Day 2021–2022–2023
- Goldwater Ambassador, Goldwater D&I Mentorship Program, Goldwater Scholars Community 06/2022–05/2023
- LEAP Program Mentor and Advanced Leader, Leadership and Ethics Institute, UT Austin 01/2020–12/2020
- Tutor Coordinator and College Readiness Mentor, College of Natural Sciences, UT Austin 03/2020–08/2020

SCIENTIFIC TALKS & POSTERS

Contributed Talks

- [UH/IfA REU Final Presentation](#), University of Hawai'i at Mānoa/IfA, Honolulu, HI 07/28/2022
- [CHAMPs Exoplanet Early Career Highlight Seminar](#), Virtual Seminar 01/14/2022
- [SURF Fall Seminar Day](#), California Institute of Technology, Virtual Seminar 10/16/2021
- [Capital of Texas Undergraduate Research Conference](#), UT Austin, Virtual Conference 01/26/2021
- Society of Physics Students General Meeting, UT Austin, Virtual Meeting 11/04/2021
- Astronomy Students Association General Meeting, UT Austin, Virtual Meeting 10/17/2020
- Summer Undergraduate Research Seminar, Department of Astronomy, UT Austin, Virtual Seminar 08/14/2020

Contributed Posters

- [241st American Astronomical Society Meeting](#), Seattle, WA 01/08/2023
- SACNAS National Diversity in STEM Conference, San Juan, Puerto Rico 10/27/2022
Received SACNAS Poster Award in the Physics/Astronomy category for research poster and presentation.
- [Emerging Researchers in Exoplanet Science VII](#), Pennsylvania State University, State College, PA 08/01/2022
- [SURE Poster Symposium](#), University of Hawai'i at Mānoa, Honolulu, HI 07/29/2022
- [Sagan Summer Workshop](#), NExScI, Virtual Workshop 09/19/2021
- [237th American Astronomical Society Meeting](#), Virtual Meeting 01/13/2021
Received Chambliss Astronomy Achievement Award for research poster and presentation..
- Undergraduate Research Forum, UT Austin, Virtual Forum 2020–2021
- Longhorn Research Poster Session, UT Austin, Virtual Forum 2020–2021
Received award for Best Poster Design (2021).