

Tomás Ahumada

9044 Rhode Island Avenue, College Park, MD 20740

✉ tahumada@astro.umd.edu

✉ tomas.f.ahumadamena@nasa.gov

📞 tahumada

📞 301-257-6402

🌐 tahumada.github.io

Education

University of Maryland at College Park

Ph.D. in Astronomy

College Park, MD

2022 (Expected)

University of Maryland at College Park (UMD)

M.Sc. in Astronomy

College Park, MD

Sept 2019

- Graduate Teaching assistant to: Solar System Astronomy and Stars and Stellar Systems.

Pontificia Universidad Católica de Chile (PUC)

B.Sc. in Astronomy

Santiago, Chile

July 2016

- *Senior Thesis*: Using Machine Learning to identify quasars on ATLAS fields.

- Teaching assistant to: Modern Physics, General Physics, Astronomy workshop and various labs.

Research Experience

NASA Goddard Space Flight Center

Graduate Research Assistant

Greenbelt, MD

Mar 2018 – Present

University of Maryland at College Park

Graduate Research Assistant

College Park, MD

Mar 2018 – Present

Gemini Observatory

Intern

La Serena, Chile

Feb 2017 – Aug 2017

Pontificia Universidad Católica de Chile

Undergraduate Research Assistant

Santiago, Chile

Mar 2016 – Dec 2016

Cerro Tololo Inter-American Observatory (CTIO)

Research Experience for Undergraduates

La Serena, Chile

Jan 2016 - Mar 2016

Talks, conferences and meetings

Discovery and confirmation of the shortest GRB from a collapsar

Invited Talk at the Gemini science coffee, La Serena, Chile

Gemini South, Talk

October 2020

Discovery and confirmation of the shortest GRB from a collapsar

NASA Astroparticle Physics Lab meeting, Greenbelt, MD, US

NASA GSFC, Talk

September 2020

Discovery and confirmation of the shortest GRB from a collapsar

Invited Talk at the Marcel Grossmann 16th meeting, Virtual meeting

Virtual talk

June 2020

Discovery and confirmation of the shortest GRB from a collapsar

ZTF II team meeting, virtual meeting

Virtual talk

May 2021

In the search of the optical counterpart of SGRBs

ZTF-Caltech/SVOM topical workshop on GRBs, Virtual meeting

Invited talk

May 2021

ZTF10abwysq, the shortest gamma-ray burst with a collapsar origin

ZTF team meeting, Pasadena, CA, USA

Caltech, Talk

October 2020

In search of the optical counterpart of short gamma-ray bursts

American Astronomical Society meeting, Honolulu, HI, USA

AAS, Talk

January 2020

Astrobits - The Astrobites in Spanish

American Astronomical Society meeting, Honolulu, HI, USA

AAS, Poster

January 2020

The Extended Globular Cluster System of NGC3923 <i>GROWTH team meeting, Mumbai, India</i>	IIT Bombay, Talk <i>December 2018</i>
The Extended Globular Cluster System of NGC3923 <i>American Astronomical Society meeting, Grapevine, TX, USA</i>	AAS, Poster <i>January 2017</i>
Using Machine Learning to identify quasars on ATLAS fields <i>ANILLO workshop 2016, Santiago, Chile</i>	PUC, Talk <i>December 2016</i>
The Extended Globular Cluster System of NGC3923 <i>REU Workshop, Cerro Tololo Inter-American Observatory, La Serena, Chile</i>	CTIO, Talk <i>March 2016</i>

Academic awards

- o LSSTC Data Science Fellowship
- o Monseñor Carlos Casanueva Scholarship (2012, 2013)
- o Matrícula de honor Scholarship (2012, 2013)

Teaching and Mentoring Experience

Head Teaching Assistant Head TA and member of the organizing committee for the virtual ZTF summer school	<i>August 2021</i>
Lecturer Lecturer in the Python seminars for PAARC	<i>July 2021</i>
Lecturer Lecturer of the Python module on image analysis at the GRADMAP Winter Workshop	<i>January 2021</i>
Mentor Mentor of Lenin Nolasco and Maria-Clara Heringer at the GRADMAP Winter Workshop	<i>January 2021</i>
Graduate Teaching Assistant TA at the virtual GROWTH school	<i>November 2020</i>
Graduate Teaching Assistant, University of Maryland Graduate Teaching assistant to: Solar System Astronomy and Stars and Stellar Systems.	<i>September 2017 - December 2017</i>
Teaching Assistant, Pontificia Universidad Católica de Chile Teaching assistant to: Modern Physics, General Physics, Astronomy workshop and various labs.	<i>2013 - 2016</i>
Physics Teacher Teach physics in a free online-streaming college preparation course, available on Youtube	<i>Apr 2014 - Jun 2016</i>
Physics Teacher Teach physics in a free online-streaming college preparation course, available on Youtube	<i>Apr 2014 - Jun 2016</i>

Telescope time

Allocated time.....

- o PI Gemini North (24hrs) - 2021A.
- o Co-I Lowell Discovery Telescope (21hrs) 2021A, 2021B
- o Co-I Las Cumbres Observatory (27hrs) 2019A, 2019B, 2020A, 2020B.
- o Co-I Dark Energy Camera (12hrs) 2020A.
- o Co-I SOAR telescope (12hrs) 2020A.
- o Co-I Gemini North and South (12hrs) 2020A.

Observing experience.....

- o CTIO 0.9m

- Kitt Peak 2.1m (KPED)
- Keck I
- Gemini North and Gemini South
- Lowell Discovery Telescope

Volunteering and Community Service

Community

Apr 2013 – Jun 2017

- Lead the volunteering NGO [TECHO](#) intervention in a suburban area in the Santiago Metropolitan area.
- Tutor teenagers from low economic backgrounds in their school assignments.
- Awarded funds (3500 USD) for upgrades in the community center.

Astronomy community service

- Content writer in the astronomy science blog [Astrobitos](#) since January 2018.
- Undergraduate representative and Academic Advisor of the Astronomy Undergraduate Program, 2015.
- Millennium Institute of Astrophysics instructor for science fairs.
- Volunteer at the Smithsonian National Air and Space Museum during 2018, Washington DC.
- Volunteer at Skype with a scientist. [Youtube link](#)
- Various interviews in Spanish as a NASA scientist: [Telemundo](#), [Science social media influencer](#) .
- Spanish narration of the [NASA video](#) for the discovery of the shortest GRB from a collapsar and translation of the [press release article](#).

Skills

- Programming Languages: Python, C.
- OS: Linux, MacOS, Windows.
- Languages: Native in Spanish, full professional proficiency in English (TOEFL score 102), basic knowledge of Italian, Portuguese and French.

Publications

In addition to the articles listed bellow, I have contributed to another 80+ (20+ first author) non referred publications, i.e. GCN, ATel. See the full list [here](#).

First to third author

1. Michael W Coughlin, **Tomás Ahumada**, et al. 2900 square degree search for the optical counterpart of short gamma-ray burst grb 180523b with the zwicky transient facility. *Publications of the Astronomical Society of the Pacific*, 131(998):048001, 2019.
2. Michael W Coughlin, **Tomás Ahumada**, et al. Growth on s190425z: searching thousands of square degrees to identify an optical or infrared counterpart to a binary neutron star merger with the zwicky transient facility and palomar gattini-ir. *The Astrophysical Journal Letters*, 885(1):L19, 2019.
3. Mansi M Kasliwal, Shreya Anand, **Tomás Ahumada**, et al. Kilonova luminosity function constraints based on zwicky transient facility searches for 13 neutron star merger triggers during o3. *The Astrophysical Journal*, 905(2):145, 2020.
4. **Tomás Ahumada**, Leo Singer, Shreya Anand, Michael W Coughlin, Mansi M Kasliwal, et al. Discovery and confirmation of the shortest gamma ray burst from a collapsar. *Nature astronomy*, 7, 2021.

Significant contribution

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6. Shreya Anand, Michael W Coughlin, Mansi M Kasliwal, Mattia Bulla, **Tomás Ahumada**, et al. Optical follow-up of the neutron star–black hole mergers s200105ae and s200115j. *Nature astronomy*, 5(1):46–53, 2021.
 7. Igor Andreoni, Daniel A Goldstein, Shreya Anand, Michael W Coughlin, Leo P Singer, **Tomás Ahumada**, et al. Growth on s190510g: Decam observation planning and follow-up of a distant binary neutron star merger candidate. *The Astrophysical Journal Letters*, 881(1):L16, 2019.
 8. Igor Andreoni, Erik C Kool, Ana Sagués Carracedo, Mansi M Kasliwal, Mattia Bulla, **Tomás Ahumada**, et al. Constraining the kilonova rate with zwicky transient facility searches independent of gravitational wave and short gamma-ray burst triggers. *The Astrophysical Journal*, 904(2):155, 2020.

Contributed publications

8. Mouza Almualla and others (includes **Tomás Ahumada**). Towards regular serendipitous detections of kilonovae by wide-field surveys. *arXiv preprint arXiv:2011.10421*, 2020.
9. Igor Andreoni, Michael W. Coughlin, and others (includes **Tomás Ahumada**). Fast-transient Searches in Real Time with ZTFReST: Identification of Three Optically-discovered Gamma-ray Burst Afterglows and New Constraints on the Kilonova Rate. *arXiv e-prints*, page arXiv:2104.06352, April 2021.
10. Igor Andreoni and others (includes **Tomás Ahumada**). Growth on s190814bv: Deep synoptic limits on the optical/near-infrared counterpart to a neutron star–black hole merger. *The Astrophysical Journal*, 890(2):131, 2020.
11. Bryce T Bolin and others (includes **Tomás Ahumada**). Characterization of temporarily captured minimoon 2020 cd3 by keck time-resolved spectrophotometry. *The Astrophysical Journal Letters*, 900(2):L45, 2020.
12. Michael W Coughlin and others (includes **Tomás Ahumada**). The kitt peak electron multiplying ccd demonstrator. *Monthly Notices of the Royal Astronomical Society*, 485(1):1412–1419, 2019.
13. Daniel A Goldstein and others (includes **Tomás Ahumada**). Growth on s190426c: Real-time search for a counterpart to the probable neutron star–black hole merger using an automated difference imaging pipeline for decam. *The Astrophysical Journal Letters*, 881(1):L7, 2019.
14. Siddharth R. Mohite, Priyadarshini Rajkumar, Shreya Anand, and others (includes **Tomás Ahumada**). Inferring kilonova population properties with a hierarchical Bayesian framework I : Non-detection methodology and single-event analyses. *arXiv e-prints*, page arXiv:2107.07129, July 2021.
15. Daniel A Perley and others (includes **Tomás Ahumada**). The fast, luminous ultraviolet transient at2018cow: extreme supernova, or disruption of a star by an intermediate-mass black hole? *Monthly Notices of the Royal Astronomical Society*, 484(1):1031–1049, 2019.
16. Josiah N Purdum and others (includes **Tomás Ahumada**). Time-series and phasecurve photometry of episodically-active asteroid (6478) gault in a quiescent state using apo, growth, p200 and ztf. *arXiv preprint arXiv:2102.13017*, 2021.
17. Robert Stein and others (includes **Tomás Ahumada**). A high-energy neutrino coincident with a tidal disruption event. *arXiv preprint arXiv:2005.05340*, 2020.

References

- Dr. Leo Singer, NASA - leo.p.singer at nasa.gov (PhD advisor)
- Dr. Brad Cenko, NASA - brad.cenko at nasa.gov

- Prof. Mansi Kasliwal, Caltech - [mansi at astro.caltech.edu](mailto:mansi@astro.caltech.edu)
- Prof. Michael Couhlin, U. of Minnesota - [cough052 at umn.edu](mailto:cough052@umn.edu)