

YUSHAN (SHAWN) HAN

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EDUCATION

- Ph.D. University of California, Davis Sep 2021- Aug 2026 (expected)
Program: Atmospheric Sciences Graduate Group 3.73/4.00 GPA
Advisor: Prof. Paul A. Ullrich
- B.S. Pennsylvania State University Aug 2017- May 2021
Major: Meteorology and Atmospheric Science
Minors: Geographical Information Science & Energy Business and Finance
Research Advisors: Prof. Xingchao Chen & Prof. Fuqing Zhang

PROFESSIONAL SERVICE

- Graduate Student Researcher* 2021-Present
Department of Land, Air and Water Resources
University of California, Davis
- Web Assistant to Dr. Michael Mann* 2018-2021
Department of Meteorology and Atmospheric Science
Pennsylvania State University
- Weather Forecast and Service Summer Internship* June - July 2019
Meteorological Bureau of Shenzhen Municipality

RESEARCH INTEREST

Tropical/extratropical cyclones, feature detection and tracking, model assessment, weather extremes, machine learning, tropical meteorology, Earth system modeling, climate variability

PUBLICATIONS

1. **Han, Y.**, & Ullrich, P. A. (2025). The system for classification of low-pressure systems (SyCLOPS): An all-in-one objective framework for large-scale data sets. *Journal of Geophysical Research: Atmospheres*, 130(1), e2024JD041287. ([DOI](#) | [Eos Highlight](#))
2. Balaguru, K., Chang, C. C., Leung, L. R., Ullrich, P. A., **Han, Y.**, Rice, J. R., ... & Judi, D. R. (2026). Recent tropical cyclone outer size increases in the western North Atlantic. *Earth's Future*, 14(2), e2025EF007162. ([DOI](#))
3. **Han, Y.**, & Ullrich, P. A. (2026). The Evolution of Tropical Cyclone Intensity and Size in Observations and HighResMIP Models. Submitted to *Journal of Geophysical Research: Atmospheres*. ([Preprint](#))
4. Huang, K., Stansfield, A., **Han, Y.** (2026). A Unified Storm Tracking Framework for Investigating the Climatology of Storms over the Continental United States. *In Final*

Form.

5. **Han, Y.***, Randall, C.* (2026; Co-first author). Machine learning-based prediction of heat index in selected U.S. cities. Submitted to *arXiv preprint*. ([Link](#))

PUBLISHED DATASETS AND SOFTWARE

1. **Han, Y.**, & Ullrich, P. A. (2025). The system for classification of low-pressure systems (SyCLOPS) Dataset (Based on ERA5) [Data set]. *Zenodo*. ([DOI](#))
2. **Han, Y.**, (2026). SyCLOPS [Software]. *GitHub*. ([Link](#))
3. **Han, Y.**, (2026). Objectively Detected and Classified HighResMIP Surface Low-pressure System Tracks (1988-2014). [Data set]. *Zenodo*. ([DOI](#))
4. **Han, Y.**, & Ullrich, P. A. (2026). Objectively Detected HighResMIP Tropical Cyclone Tracks and Tropical Cyclone Size (1988–2014) for Model Evaluation [Data set]. *Zenodo*. ([DOI](#))
5. Ullrich, P. A., Pinheiro C. M., Chen H., Kyle Stachowicz, Zarzycki C., **Han Y.**, Huang K., & Hoyer S. (2026). TempestExtremes: v2.4.2 [Software] *Zenodo*. ([DOI](#))

TEACHING EXPERIENCE

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|---|-------------|
| <i>Teaching Assistant of SAS 40— Photography: Bridging Art & Science</i> University of California, Davis | Winter 2026 |
| <i>Chi Epsilon Pi Tutor of METEO 201, Introduction to Weather Analysis</i> Pennsylvania State University | 2020-2021 |
| <i>Teaching Assistant of New Frontiers in Earth Science Summer Camp</i> Columbia Global Centers, Columbia University | July 2019 |

OTHER PROJECTS

1. **Han, Y.** (2023). How does Environmental Humidity Induce the Rapid Enlargement of Typhoon Chanthu (2021). *Final project of ATM 255 - Numerical Modeling of the Atmosphere*, UC Davis. ([Link](#))

INVITED PRESENTATIONS

- Departmental Seminar, Department of Earth and Planetary Sciences, UC Davis (2026, Jan), Tropical Cyclone Size and Intensity Evolution in Observations and Climate Models

CONFERENCE PRESENTATIONS

- **Han, Y.**, & Ullrich, P. A. (2026, Jan). The system for classification of low-pressure systems (SyCLOPS): An all-in-one objective framework for large-scale data sets. *106th American Meteorological Society Annual Meeting*, Houston, TX, USA. (talk).

- **Han, Y., & Ullrich, P. A.** (2025, April). The system for classification of low-pressure systems (SyCLOPS): An all-in-one objective framework for large-scale data sets. *European Geophysical Union Fall Meeting*, Vienna, Austria. (talk).
- **Han, Y., & Ullrich, P. A.** (2025, Jan). The system for classification of low-pressure systems (SyCLOPS): An all-in-one objective framework for large-scale data sets. *105th American Meteorological Society Annual Meeting*, New Orleans, LA, USA. (poster).
- **Han, Y., & Chen, X.** (2021, Dec). Western North Pacific Tropical Cyclone Activity Shown by a New Index of Accumulated Cyclone Energy Considering TC Size and Asymmetry. *American Geophysical Union Fall Meeting*, New Orleans, LA, USA. (talk).
- **Han, Y., Chen, X., & Zhang, F.** (2020, May). A New Index of Accumulated Cyclone Energy Considering TC Size and Asymmetry. *34th AMS Conference on Hurricanes and Tropical Meteorology*. (poster).

HONORS AND AWARDS

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| The Walter and Margaret Milton Graduate Atmospheric Science Award | 2025 |
| Coulson Travel Awards | 2021-2022 |
| Robert Case Memorial Scholarship | 2020 |
| Corfidi Fund in Meteorology | 2020 |
| Charles L. and Anna R. Hosler Scholarship in Meteorology | 2018-2019 |

SERVICE AND OUTREACH

- *Participant*, The World Climate Research Programme Global KM-scale Hackathon
- *Collaborators*, PCMDI: Earth System Model Evaluation Project
- *Founder and President*, Meteorology Club Union of Shenzhen Students
- *Editor*, China Weather Nerds Social Media Group
- *Alumni*, Penn State Global Engagement and Leadership Experience
- *Forecaster*, Penn State Campus Weather Service (2017-2021)
- *Judge*, International Symposium of Earth and Environmental Sciences for Youth at Lamont-Doherty Earth Observatory of Columbia University (Oct 2019)
- *Founder and President*, Shenzhen Foreign Languages School Meteorological and Astronomical Observatory (2014-2017)

PUBLICATION REVIEWER

Journal of Geophysical Research: Atmospheres (3)
Geophysical Model Development (1)

SKILLS

Programming: Python, MATLAB, Bash, SQL, C++, HTML, CSS, PHP
Platforms: TempestExtremes, Linux/Unix, Weather Research & Forecasting Model (WRF), TensorFlow, MySQL, ArcGIS, WordPress, Dask, Drupal
Languages: Mandarin, English, Cantonese