

EMILY G. YANG

2549 Space Research Building • Ann Arbor, MI 48109 • egyang@umich.edu

EDUCATION

University of Michigan – Ann Arbor, MI

Ph.D. in Climate and Space Sciences and Engineering (CLaSP), expected August 2022

Graduate Certificate in Science, Technology, and Public Policy, April 2020

M.S. in Climate and Space Sciences and Engineering, April 2018

Pomona College – Claremont, CA

B.A. in Physics, Minor in Environmental Analysis, May 2014, *Cum Laude*

Thesis: *Fabrication, Characterization, and Stability of Inverted P3HT:PCBM Organic Photovoltaics*

RESEARCH EXPERIENCE

Research Assistant under Professor Eric A. Kort

Sep 2015 – Present

Department of Climate and Space Sciences and Engineering, University of Michigan – Ann Arbor, MI

Quantifying Urban CO₂ Emissions

- Analyze satellite remote sensing data over urban areas
- Model urban CO₂ enhancements with Lagrangian modeling
- Develop data-based methods to quantify urban CO₂ fluxes and trends

Research Assistant under Professor Philip I. Choi (*part-time, telework*)

Jun 2014 – Feb 2016

Department of Physics and Astronomy, Pomona College – Claremont, CA

Creation of Data Visualization Tools for Adaptive Optics

Fulbright U.S. Student under Prof. Dr. Andreas Lorke

Sep 2014 – Jul 2015

Institute of Environmental Sciences, University of Koblenz-Landau – Landau, Germany

Greenhouse Gas Emissions from Rhine System Inland Waters

Research Assistant under Professor David M. Tanenbaum

Jan 2011 – May 2014

Department of Physics and Astronomy, Pomona College – Claremont, CA

Fabrication and Characterization of P3HT:PCBM Organic Photovoltaic Cells

Research Intern under Dr. Matthew D. Eisaman

Jun 2013 – Aug 2013

Sustainable Energy Technologies Department, Brookhaven National Laboratory – Upton, NY

High-Resolution Spatial Mapping of Thin-Film Photovoltaic Cells

WORK EXPERIENCE

Electronics Grader

Feb 2014 – May 2014

Pomona College Physics Department – Claremont, CA

Intern

Sep 2013 – Dec 2013

Council for Watershed Health – Los Angeles, CA

Physics 41 Tutor
Pomona College Physics Department – Claremont, CA

Mar 2012 – May 2012

PROFESSIONAL DEVELOPMENT

UC Santa Cruz Climate Engagement Program **Nov 2019**
Leadership and communication training on climate change for engagement with diverse stakeholder groups outside of academia – Mt. Hamilton, CA

4th Integrated Carbon Observation System (ICOS) Summer School **May 2017 – Jun 2017**
Training on challenges in measurement and interpretation of greenhouse gas concentrations and fluxes – Hyytiälä, Finland

COMMUNITY ENGAGEMENT

Member, Science Outreach Volunteer **Sep 2016 – present**
Graduate Society of Women Engineers (GradSWE) – Ann Arbor, MI

Student Participant/Volunteer **Jan 2021 – May 2021**
Washtenaw County Water Resources Commissioner's Office, Univ. of MI CLaSP– Ann Arbor, MI

Science Communication Fellow **Sep 2019 – Dec 2019**
University of Michigan Museum of Natural History – Ann Arbor, MI

Member, UNFCCC 24th Conference of Parties (COP24) Delegate **Sep 2018 – Aug 2019**
Climate Blue – Ann Arbor, MI

Communications Coordinator **Jun 2017 – April 2019**
Michigan University-wide Sustainability and Environment Conference Committee – Ann Arbor, MI

Community Connections Assistant **Nov 2015 – Jan 2016**
COP21 Ground Control Team (now Climate Blue) – Ann Arbor, MI

Co-founder **Nov 2013 – May 2014**
Awesome Ladies in Physics and Astronomy (ALPhA) – Claremont, CA

Intern **Sep 2012 – May 2014**
Asian American Resource Center (AARC) – Claremont, CA

Mentor **Aug 2011 – May 2012**
Asian American Mentor Program – Claremont, CA

PUBLICATIONS

Yang, E. G., Kort, E. A., Wu, D., Lin, J. C., Oda, T., Ye, X., & Lauvaux, T. (2020). Using space-based observations and Lagrangian modeling to evaluate urban carbon dioxide emissions in the Middle East. *Journal of Geophysical Research: Atmospheres*, 125, e2019JD031922.
<https://doi.org/10.1029/2019JD031922>

Ye, X., Lauvaux, T., Kort, E. A., Oda, T., Feng, S., Lin, J. C., **Yang, E. G.**, & Wu, D. (2020). Constraining fossil fuel CO₂ emissions from urban area using OCO-2 observations of total column CO₂. *Journal of Geophysical Research: Atmospheres*, 125, e2019JD030528. <https://doi.org/10.1029/2019JD030528>

Wu, D., Lin, J. C., Oda, T., Ye, X., Lauvaux, T., **Yang, E. G.**, & Kort, E. A. (2018). A Lagrangian approach towards extracting signals of urban CO₂ emissions from satellite observations of atmospheric column CO₂: X-Stochastic Time-Inverted Lagrangian Transport model ("X-STILT v1.1"). *Geoscientific Model Development Discussions*, 1-43. <https://doi.org/10.5194/gmd-11-4843-2018>

ORAL AND POSTER PRESENTATIONS

Toward Using Space-Based CO₂ and NO₂ Observations to Estimate Urban CO₂ Emissions

OCO-2/3 Science Team Meeting – virtual
Poster presentation, October 2021

Toward Using Space-Based CO₂ and NO₂ Observations to Estimate Urban CO₂ Emissions

OCO-2/3 Science Team Meeting Validation/Local Breakout – virtual
Oral presentation, October 2021

Toward Using Space-Based CO₂ and NO₂ Observations to Estimate Urban CO₂ Emissions

American Geophysical Union (AGU) Fall Meeting – virtual
Oral presentation, December 2020

Using OCO-2 and X-STILT to Constrain Urban CO₂ Emissions in the Middle East

OCO-2/3 Science Team Meeting – Cocoa Beach, FL
Oral presentation, April 2019

Toward Using OCO-2 Observations and Lagrangian Modeling to Estimate Urban Carbon Dioxide Emissions in the Middle East

Michigan University-wide Sustainability and Environment (MUSE) Conference – Ann Arbor, MI
Poster presentation, February 2019

Toward Using OCO-2 Observations and Lagrangian Modeling to Estimate Urban Carbon Dioxide Emissions in the Middle East

American Geophysical Union (AGU) Fall Meeting – Washington, DC
Poster presentation, December 2018

Toward Using OCO-2 Observations and Lagrangian Modeling to Estimate Urban Carbon Dioxide Emissions in the Middle East

Urban Environment and Social Inclusion Index Launch Reception – Katowice, Poland
Poster presentation, December 2018

Using OCO-2 Observations and Lagrangian Modeling to Constrain Urban Carbon Dioxide Emissions in the Middle East

Michigan University-wide Sustainability and Environment (MUSE) Conference – Ann Arbor, MI
Poster presentation, February 2018

Using OCO-2 Observations and Lagrangian Modeling to Constrain Urban Carbon Dioxide Emissions in the Middle East

American Geophysical Union (AGU) Fall Meeting – New Orleans, LA
Poster presentation, December 2017

Using Space-Based Observations to Quantify Urban Carbon Dioxide Emissions

Michigan University-wide Sustainability and Environment (MUSE) Conference – Ann Arbor, MI
Poster presentation, February 2017

Fabrication, Characterization, and Stability of Inverted P₃HT:PCBM Organic Photovoltaics

Pomona College Physics Department Senior Thesis Presentations – Claremont, CA
Oral presentation, April 2014

High-Resolution Spatial Mapping of Thin-Film Photovoltaic Cells

Conference for Undergraduate Women in Physics (UC Berkeley) – Berkeley, CA
Oral and poster presentation, January 2014

High-Resolution Spatial Mapping of Thin-Film Photovoltaic Cells

Pomona College Physics Department Colloquium – Claremont, CA
Oral presentation, September 2013

High-Resolution Spatial Mapping of Thin-Film Photovoltaic Cells

Pomona College Summer Undergraduate Research Program Conference – Claremont, CA
Poster presentation, September 2013

High-Resolution Spatial Mapping of Thin-Film Photovoltaic Cells

Brookhaven National Laboratory Summer Symposium – Upton, NY
Oral and poster presentation, August 2013

Inverted P₃HT:PCBM Organic Photovoltaic Cells

Pomona College Summer Undergraduate Research Program Conference – Claremont, CA
Poster presentation, September 2012

The Fabrication and Characterization of P₃HT:PCBM Organic Photovoltaic Cells

Pomona College Summer Undergraduate Research Program Conference – Claremont, CA
Poster presentation, September 2011

AWARDS AND HONORS

- Delegate in the University of Michigan Delegation to the 24th Conference of Parties (2018)
- University Corporation for Atmospheric Research Capitol Hill Essay Contest winner (2018)
- National Science Foundation Graduate Research Fellowship (2017)
- Sigma Xi nomination (2014, 2017)
- Rackham Merit Fellowship (2016)
- Fulbright Study/Research Grant (2014)
- Distinction in Senior Exercise (2014)
- Richard P. Edmunds Physics Prize (2014)

- Phi Beta Kappa induction (2014)
- Pomona College Scholar (2010-2013)
- The Robert and Marilyn Laugen Scholarship (2013)
- Rose Hills Foundation Scholarship (2012, 2013)
- Tileston Sophomore Physics Prize (2012)
- Mabel Wilson Richards Scholarship (2012)
- Samuel Ritter Brown Scholarship (2012)

COMPUTER SKILLS

- Proficiency in Python, R, and Microsoft Office
- Basic knowledge of MATLAB, Mathematica, LabVIEW, and ArcGIS