Shuyu Chang
Department of Geography
Pennsylvania State University
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EDUCATIONS

Pennsylvania State University, State College, PA, USA. May. 2019 - Present
Ph.D. in Geography (Ecohydrology)

University of Illinois-Chicago, Chicago, IL, USA Jan. 2019 – May. 2019
Ph.D. in Earth Science (Ecohydrology) GPA: 4.0/4.0

Johns Hopkins University, Baltimore, MD, USA Sep. 2017 - Dec. 2018
M.S.E in Water Resources Engineering GPA: 3.86/4.0

University of Connecticut (UCONN), Storrs, CT, USA Sep. 2015 - Oct. 2016
Natural Resources and the Environment (GIS & Remote Sensing) GPA: 3.79/4.0

China Agricultural University (CAU), Beijing, China Sept.2012-July 2015
B.S in Hydraulic and Hydropower Engineering; Minor: Finance, with honors GPA:3.75/4.0

APPOINTMENTS

Graduate Research Assistant (Pennsylvania State University) 2021 - present
NASA DEVELOP summer internship (Science Systems and Applications, Inc). 2021
Graduate Research & Teaching Assistant (University of Illinois-Chicago) 2019 -2021
Graduate Research & Teaching Assistant (Johns Hopkins University, funded by NSF) 2017 -2018
TOEFL & ACT English Teacher (New Oriental Education Co., Ltd, Beijing) 2016 - 2017
Graduate Research Assistant (University of Connecticut) 2015 - 2016

RESEARCH

In my research, I strive to develop process-based models and data-driven approaches to better our understanding of water quality problems and to support decision making regarding water resources across different spatial and temporal scales. I am interested in exploring the ways in which human activity changes the delivery of nutrients (nitrogen, phosphorus, carbon, silicon) to downstream water bodies, and the impacts of these changes on water quality in anthropogenic landscapes, by combining remote sensing techniques, machine learning, and hydrological modeling.

PUBLICATIONS

- **Chang, S. Y.,** Zhang, Q., Byrnes, D. K., Basu, N. B., & Van Meter, K. J. (2021). Chesapeake legacies: the importance of legacy nitrogen to improving Chesapeake Bay water quality. Environmental Research Letters, 16(8), 085002.
- **Chang, S. Y.**, Ortiz-Bobea, A., Wilusz, D. C., Ball, W. P., Bhatt, G. and Harman, C. J. Effects of Seasonal and long-term climate variability on hydrology and nitrate export in the Chesterville Branch catchment of the Eastern shore, MD (*In preparation*).
- **Chang, S.Y**, Byrnes, D.K., Basu, N.B., Van Meter, K. J. A Downscaled, Landuse-specific Accounting of N Mass Balance Components using the TREND-Nitrogen Dataset (*In preparation*).

PRESENTATIONS

- (Talk) Society for Freshwater Science 2021 Meeting
- (Invited Talk) American Geophysical Union 2020 Fall Meeting, San Francisco, CA
- (Poster) American Geophysical Union 2019 Fall Meeting, San Francisco, CA

- (Talk) American Geophysical Union 2018 Fall Meeting, Washington DC
- (Poster) CUAHSI 2018 Biennial Colloquium, Shepherdstown, WV
- (Talk) 2018 Chesapeake Community Research and Modeling Symposium, Annapolis, MD
- (Talk) ConnecticutView 2016 Student Project Presentation, Storrs, CT

SELECTED AWARDS

- 2021 Illinois-Indiana Sea Grant Graduate Scholarship, IISG, $7,000
- 2021 Earth and Environmental Systems Institute Graduate Scholarship, PSU, PA, $2,000
- 2021 Coastal and Estuarine Research Student Participant Award, WA, $200
- 2019 Provost's Graduate Research Award (PGRA), University of Illinois at Chicago, IL, $5,000
- 2019 LAS (College of Liberal Arts and Sciences) Travel Grant, University of Illinois at Chicago, IL, $300
- 2018 CUAHSI Student Travel Grant, CUAHSI, Golden, CO, $500
- 2016 ConnecticutView Remote Sensing Fellowship, Storrs, CT, $1,000
- 2016 College Graduate Excellence Award of Beijing, Beijing, China
- 2016 College Graduate Excellence Award of CAU, Beijing, China
- 2012-2015 Outstanding Student Scholarship, Beijing, China

SKILLS & EXPERTISES

Programming: Python, Matlab, R
Software and Computer: AWS, TensorFlow, Keras, GDAL, ArcGIS-python, QGIS-python, ERDAS Imagine, AutoCAD, Parflow, ArcSWAT, SWATCUP, HEC-HMS, ANYSIS, NetLogo, HEC-HMS, STELLA, Access
Environment: Landscape and hydrology, Ecohydrology, Climate change, Contaminant transport, Watershed, Nutrients, Chesapeake Bay, Anthropogenic effects
Analytics: Machine learning, Deep learning, Hydrological Modeling, Numerical methods

WORKSHOPS

- 2019 Environmental Models and Bayesian Methods, Waterloo, Canada
- 2018 Integrated Simulation of Watershed Systems Using ParFlow, Golden, CO

STUDENT SUPERVISION

- Matt Ziminski, Undergraduate Research Assistant, majoring in Computer Science Engineering at