

Christopher Matthew Chini

Email: cchini2@illinois.edu

Website: <http://stillwell.cee.illinois.edu/people/christopher-chini/>

EDUCATION:

University of Illinois at Urbana-Champaign, Urbana, IL 2018 (Expected)

Doctor of Philosophy, Civil Engineering

Sustainable and Resilient Infrastructure Systems Program

Thesis: The Blue City: Urban Metabolism and the Energy-Water Nexus

Committee: Dr. Ashlynn Stillwell (chair), Dr. Ximing Cai, Dr. Julie Cidell, Dr. Megan Konar

University of Illinois at Urbana-Champaign, Urbana, IL 2015

Master of Science, Civil Engineering

Sustainable and Resilient Infrastructure Systems Program

Thesis: An experimental method for visualizing undrained shearing failure in a transparent soft clay surrogate

Advisers: Dr. Joshua Peschel and Dr. Cassandra Rutherford

Texas A&M University, College Station, TX 2011

Bachelor of Science, Civil Engineering with Foundation Honors

Credentials

U.S. Army Low Impact Development Training Course

Certified Engineer in Training (EIT), Texas Board of Professional Engineers

RESEARCH EXPERIENCE:

National Science Foundation Graduate Research Fellow, Doctoral Research, 2015-present

Department of Civil and Environmental Engineering

- Assessed the current state of urban water data in the U.S.
- Quantified the total water footprint of U.S. cities
- Determined urban metabolism and its embedded energy of multiple cities across U.S.

Graduate Research Assistant, Master's Research, 2013-2015

Department of Civil and Environmental Engineering

- Performed and analyzed laboratory tests for shear strength
- Developed image recognition methodologies for particle tracking in Matlab to determine failure planes around various shear vanes and soil penetrometers

PEER REVIEWED PUBLICATIONS:

Chini, C.M. and Stillwell, A. (2017). Benchmarks of a Blue City: Material Flow Analysis of Urban Water. *Nature Sustainability*. (submitted)

Chini, C.M., Canning, J.F, Schreiber, K.L., Peschel, J.M., and Stillwell, A.S. (2017) The Green Experiment: Cities, Green Stormwater Infrastructure, and Sustainability. *Sustainability*, 9(1), 105. DOI: 10.3390/su9010105. (cover article)

Chini, C.M., Konar, M., and Stillwell, A. (2017). Direct and indirect urban water footprints of the United States. *Water Resources Research*, 53(1), 316-327. DOI: 10.1002/2016WR019473

Chini, C.M., and Stillwell, A. (2016). Where are all the data? The case for a comprehensive water and wastewater utility database. *Journal of Water Resources Planning and Management*, 143(3). DOI: 10.1061/(ASCE)WR.1943-5452.0000739

Chini, C.M., Schreiber, K., Barker, Z., and Stillwell, A. (2016). Quantifying Energy and Water Savings in the U.S. Residential Sector. *Environmental Science & Technology*, 50(17), 9003-9012. DOI: 10.1021/acs.est.6b01559

Chini, C.M., Wallace, J. F., Rutherford, C. J. and J. M. Peschel. (2015). Shearing Failure Visualization via Particle Tracking in Soft Clay Using a Transparent Soil. *Geotechnical Testing Journal*, 38(5), 1-17. DOI: 10.1520/GTJ20140210

TEACHING EXPERIENCE:

Water Resources Engineering, 2017

University of Illinois at Urbana-Champaign

- Advanced undergraduate course
- Led lectures on hydrology
- Held weekly office hours
- Graded homework assignments

Sustainable Urban Systems, 2015

University of Illinois at Urbana-Champaign

- Graduate level course
- Project based course with real-world sponsors
- Created and gave lectures on green infrastructure design, the urban water system, and resilience
- Developed and graded homework assignments
- Held weekly office hours

INDUSTRY EXPERIENCE:

United States Army Corps of Engineers Fort Worth District, 2011-13

Civil Engineer, Civil Engineering/Site Design Group

- Major civil works projects included the execution and completion of the civil planning document for the remediation and improvement of the floodplain and levees in Dallas, Texas including environmental remediation, levee upgrades, and preliminary design of recreational facilities.
- Oversaw several acre facility with six buildings and two contractors for compliance as quality assurance officer
- Major military projects included the design of several sites on the U.S. Army installations Fort Hood, Fort Sam Houston, and Red River Army Depot

AWARDS:

ASCE EWRI Conference Student Sustainability Presentation Competition Winner, 2016

National Science Foundation Graduate Research Fellowship (NSF-GRFP), 2015

Department of the Army Achievement Medal for Civilian Service, 2013

Zachry Department of Civil Engineering Award for Outstanding Academic Achievement, 2011

- Texas A&M University, College Station, TX
- Top Civil Engineering Student in Graduating Class

SMART Scholarship Recipient, 2009

- Granted full tuition and future job opportunities through the Department of Defense
- Included summer internship, 2010

CONFERENCE PROCEEDINGS AND PRESENTATIONS:

Presenter is underlined

Chini, C. and Stillwell, A. (2017). "Much Ado about Data: A need for a Water Utility Database." World Environmental and Water Resources Congress, 21-25 May 2017, Sacramento, California. Presentation Only.

Chini, C. and Stillwell, A. (2016). "Social Indicators and Embedded Energy in Urban Water." American Water Works Association: Annual Conference and Exhibition, 19-22 June 2016, Chicago, Illinois. Poster Presentation Only.

Chini, C. Schreiber, K., Barker, Z., and Stillwell, A. (2016). "The Residential Energy-Water Nexus: A Cost Abatement Curve Analysis." World Environmental and Water Resources Congress, 21-26 May 2016, West Palm Beach, Florida. Presentation Only.

Chini, C. Peschel, J., and Stillwell, A. (2015). "An Analysis of the Green Infrastructure Policy and Feedback Cycle." World Environmental and Water Resources Congress, 17-21 May 2015, Austin, Texas. Presentation Only.

Wallace, J., Chini, C., Rutherford, C.J., and Peschel, J.M. (2015). "Failure mechanism of a T-bar penetrometer visualized in soft clay using transparent soil." The 2015 International Foundations Congress & Equipment Exposition (IFCEE 2015), 17-21 March 2015, San Antonio, Texas.

Wallace, J., Chini, C., Rutherford, C.J., and Peschel, J.M. (2015). "Visualizing the failure surface of a laboratory vane shear in soft clay using transparent soil" 3rd International Symposium on Frontiers in Offshore Geotechnics (ISFOG), 10-12 June 2015, Oslo, Norway.

MENTORING EXPERIENCE:

Undergraduate Mentor, Researchers Initiative, 2016, 2017

University of Illinois at Urbana-Champaign

- Developed and supervised a research project for a freshman undergraduate
- Resulted in an on campus poster presentations

Undergraduate Mentor, 2015

University of Illinois at Urbana-Champaign

- Developed and supervised a research project for a senior undergraduate
- Studied energy and water savings through household appliances and fixtures
- Resulted in a publication in *Environmental Science & Technology*

Undergraduate Mentor, Research Experience for Undergraduates, 2014

University of Illinois at Urbana-Champaign

- Developed and supervised a research project for a junior undergraduate
- Studied resilience of urban water resources

LEADERSHIP EXPERIENCE:

Co-Chair, Annual Interdisciplinary Student Research Summit, 2015

University of Illinois at Urbana-Champaign

- Organized research summit including keynote speaker, student speakers, and student poster presentations
- Coordinated faculty and student meetings with keynote speaker

President and Founder, Interdisciplinary Civil Engineering for Resiliency and Sustainability, 2014-15

University of Illinois at Urbana-Champaign

- Student group for interdisciplinary programs in civil engineering department at UIUC
- Plan annual research summit and other networking activities

President, Morale Welfare and Recreation Association (MWRA), 2011-2013

Fort Worth District, U.S. Army Corps of Engineers

- Committee to plan and host office functions
- Member 2011-2012

OUTREACH:

Volunteer, Girl Scouts of America, Champaign, IL 2015

- Taught 4th grade students about green energy and assisted with experiments about wind turbine design.

Volunteer, STEM Outreach at Booker T. Washington Elementary School, Champaign, IL 2014, 2015

- Taught 4th grade students about green energy and assisted with experiments about wind turbine design.
- Taught 2nd grade children about MSE walls through instruction and hands on activity.

Volunteer, Leal Elementary School Science Fair in Champaign, IL 2014

- Taught and demonstrated the effects of liquifaction of sands (quicksand) to students. (Spring 2014).

Volunteer, STEM Outreach Program at UIUC for High School Students, 2014

- Built MSE walls and optimized design of tidal current turbines

Volunteer, Hill Aerospace Museum in Layton, Utah 2007-2010

- Taught visitors about science of flight
- Created and conducted science competitions about flight for children