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Hyunjung Lee: CURRICULUM VITAE

Personal Information:

Email: hyunjung.lee@marquette.edu
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Education:

Ph.D. in Computational Sciences Aug 2017 - Present
Marquette University, Milwaukee, WI
Thesis advisor: Dr. Elaine Spiller
Research topic: Uncertainty Quantification (UQ) on Coupled Hazards
Anticipated graduation: May 2021

M.S. in Environmental Engineering Sept 2016
"Nutrient Removal in Constructed Wetlands Treating Agricultural Tile Drainage"
University of Kansas, Lawrence, KS

B.S. in Civil Engineering May 2014
Minnesota State University, Mankato, MN

Research Experience:

1. Visiting Graduate Fellow Fall 2018
Statistical and Applied Mathematical Sciences Institute (SAMSI), Durham, NC

- Published an extended abstract for Society of Exploration Geophysicists Conference 2019
- Participated actively in reduce order models and data fusion working groups as a part of the year-long research program on Model Uncertainty: Mathematical and Statistical (MUMS)

2. Graduate Research Assistant Fall 2017 - Present

Marquette University, Milwaukee, WI

- Participated in uncertainty quantification and hazard forecasting study on a coupled volcanic hazards

3. Graduate Research Assistant Fall 2015

University of Kansas, Lawrence, KS

- Studied the variation in weather-driven nutrient and atrazine inputs of a two-year data collected from agricultural fields with subsurface tile drainage system into treatment wetlands
- Evaluated data for statistical significance, particularly for wetland performance, using R and Excel extensively, and provided results for the final project report

4. ArcGIS Course Project Fall 2015

University of Kansas, Lawrence, KS

"Impaired Waterbodies in Kansas"

- Analyzed and quantified the number of impaired waterbodies in the state of Kansas using ArcGIS extensively
- Created maps and prepared a final report

5. Water Resources Team Lead Fall 2013 to Spring 2014

Minnesota State University, Mankato, MN

"Ski Resort Improvement and Redevelopment"

- Worked extensively with three team members along with teams of other disciplines, including structural, environmental, geotechnical and transportation, under the supervision of a project manager and a professional advisor for a flood control and drainage plan to account for the restrictions imposed by the existing culvert and limitations to integrating storm water control with the existing flood mitigation system
- Presented at the final town hall meeting as a water resources team lead

Academic Courses:

1. **Mathematics and Statistics Coursework:**
    - Model Uncertainty: Mathematical and Statistical (MUMS) at SAMSI; Summer School on Mathematical and Statistical Model Uncertainty sponsored by SAMSI and CANSSI at Simon Fraser University; Mathematics of Medical Imaging; Applied Linear Algebra; Simulation; Applied Mathematical Analysis; and Probability
2. **Environmental Engineering Related Coursework:**
    - Physical Hydrogeology; Physical, Biological and Chemical Principles of Environmental Engineering Processes; Water Chemistry; Air Pollution Control; Water Reuse; Wetlands Hydrology and Introduction to Management; Landfill Design; and Oil Spill and Hazardous Remediation
3. **Technical Coursework:**
    - Parallel and Distributed Systems; Elements Software Development; Engineering Analysis (using MATLAB); Introduction to Problem Solving/Civil Engineering Design; and Introduction to ArcGIS

Computer Skills:

MATLAB, Python, R, ArcGIS, and BioWin

Awards and Achievements:

Ross E. McKinney Environmental Engineering Scholarship Fall 2014 & Fall 2015
Department of Civil, Environmental and Architectural Engineering, University of Kansas, Lawrence, KS

College of Science, Engineering & Technology Scholarship Aug 2011 – May 2013
College of Science, Engineering & Technology, Minnesota State University, Mankato, MN

Dean's List Fall 2010 & Fall 2011
College of Science, Engineering & Technology, Minnesota State University, Mankato, MN

Teaching Experience:

1. Graduate Teaching Assistant Spring 2015 & Spring 2016

University of Kansas, Lawrence, KS

- Assisted and demonstrated the assessment and upgrading of performance of the Kansas River Wastewater Treatment Facility to enhance nutrient removal using a wastewater modeling software, BioWin.

Certificate:

Engineer-In-Training (EIT) Certificate May 2014

Passed the Fundamentals of Engineer (FE) Exam

Academic Membership:

American Mathematical Society (AMS) Since 2018

Society for Industrial and Applied Mathematics (SIAM) Since 2018

Academic Presentations:

Lee, H., Spiller, E. T., & Minkoff, S. E. (2019). *Dimension reduction and global sensitivity metrics using active subspaces for coupled flow and deformation modeling*. Society of Exploration Geophysicists Conference 2019 at San Antonio, TX. (Platform)

Lee, H., Spiller, E. T., & Minkoff, S. E. (2019). *Dimension reduction and global sensitivity metrics using active subspaces for coupled flow and deformation modeling*. SAMSI Transition Workshop at Raleigh, NC. (Platform)

Lee, H., Pitman, B., & Spiller, E. T. (2019). *Uncertainty quantification in 1-D coupled geophysical models.* SAMSI Coupling Uncertain Geophysical Hazards Workshop at Raleigh, NC. (Poster)

Lee, H. (2019). *Coupling geophysical models using their statistical emulators*. SAMSI Model Uncertainty Program Data Fusion Working Group at Durham, NC. (Talk)

Lee, H., Luellen, L., Young, C. B., Peltier, E. (2016). *Nutrient removal in wetlands treating agricultural runoff*. World Environmental & Water Resources Congress at West Palm Beach, FL. (Platform)

Schimmel, J., Radue, C., Bastola, N., **Lee, H.**, Asaolu, A., Druschel, S. J. (2012). *Effects of flocculants on storm water sediment detention*. National Conference on Undergraduate Research at Weber State University, Ogden, UT. (Poster)

Schimmel, J., Radue, C., Bastola, N., **Lee, H.**, Asaolu, A., Druscehl, S. J. (2012). *Effects of flocculants on storm water sediment detention*. 2012 MSU Undergraduate Research Symposium at Minnesota State University, Mankato, MN. (Poster)

Publications:

Lee, H., Spiller, E. T., & Minkoff, S. E. (2019). *Dimension reduction and global sensitivity metrics using active subspaces for coupled flow and deformation Modeling*. Society of Exploration Geophysicists