**Preetika Kaur**

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**EDUCATION**

**Ph.D. 2026** **University of Wyoming, Laramie, WY**

Civil Engineering – Hydrologic Sciences

Dissertation: Evaluation of L-band InSAR using L-band GPR: Sensitivity to Liquid Water Content, Topography, and Land Cover to Determine Feasibility for Global SWE Applications.

Advisor: Dr. Ryan Webb

**M.S. 2023** **Auburn University, Auburn, AL**

Biosystems Engineering – Soil and Water Engineering (GPA- 4.0/4.0)

Thesis: Effects of tillage practices and cover crops on X-ray computed tomography derived soil pore characteristics.

Advisor: Dr. Jasmeet Lamba

**B.S. 2020** **Punjab Agricultural University, Ludhiana, Punjab, India**

Agricultural Engineering (GPA- 3.49.0/4.0)

**RESEARCH EXPERIENCE**

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| **Aug 2023- Present** | **Graduate Research Assistant**, *Civil Engineering, University of Wyoming* |
| **Jan 2021- Aug 2023** | **Graduate Research Assistant**, *Biosystems Engineering, Auburn University*  \*Collect field data for research project that includes soil samples for determination of their physical and chemical properties. \*Conduct laboratory experiments for my master’s research. \*Administer computer-based image processing and data analysis. |

TEACHING EXPERIENCE

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| **Aug– Dec 2022** | **Graduate Teaching Assistant**, BSEN 6220- Geospatial Technologies in *Biosystems Engineering, Auburn University*  \*Assist 57 students with GPS (Trimble-connected device) and ArcGIS-related labs. \*Conduct grading for student assignments to ensure their understanding of the topic. \*Create lab assignments for students related to Python interface within ArcMap. |

**INTERNSHIP & WORKSHOPS**

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| **Nov 2023** | **Environmental MosAIc**, *University of Colorado, Boulder, CO*  What did you learn? |
| **Oct 2023** | **GeoSMART hackweek**, University of Washington, Seattle, WA  What did you learn? |
| **Aug 2023** | **Image Datapalooza 2023**, The Ohio State University, Columbus, OH  What did you learn? |
| **Jun-Aug 2019** | **Summer Intern**- *Supply Chain Management Department CLAAS India Pvt. Ltd., Morinda, Punjab, India*  \*Completed a project titled ‘Reverse Logistics’ that covered analysis of the current problems faced by the company. \*Applied reverse logistics to improve the supply chain management system. |

**SKILLS**

**Computer:** ArcGIS, digital image analysis with Image-J software, data analysis with Excel, Python, R, SAS, hydrologic modeling with HEC-HMS, Modflow, SWAT.

**Instrumentation:** Experience in Soil Water Engineering Laboratory (Auburn University) for Rainfall simulation experiments by use of delicate instruments such as peristaltic pump, bromide probes, and measurement of basic physical properties using pH and EC probes.

**Equipment:** LeBlond engine lathe and band saw

**LANGUAGES**

Fluent in English, Punjabi, Hindi

**RESEARCH PROJECTS**

**Master’s Research:** *Auburn University, Auburn, AL and EV Smith Research Center, Shorter, AL*

Comparing the effects of cover crop and tillage practices on Computed Tomography derived soil pore characteristics for a sandy loam soil planted with cotton.

**Outreach Research:** *Auburn University, Auburn, Alabama*

The Ecology of Opportunity: Environmental Health and Student Learning in Alabama

**Undergraduate Research:** *Punjab Agricultural University, Ludhiana, Punjab, India*

Effect of ozone treatment on storage life of processed products (Gram flour, Semolina, wheat grits, Barley flour, Pearl millet flour, and refined wheat flour)

**AWARDS AND HONORS**

Auburn University, Auburn, Alabama.

* *Graduate student paper award (1st position) ASABE 2023 held at Omaha, NE*
* *Presentation excellence award ASABE 2023 held at Omaha, NE*
* *Graduate student travel award* (2022)
* *100+ Strong Women Abroad- Women in Engineering Scholarship* (2022)
* *Society of Women Engineers (SWE) student member* (August 2022 – present)
* *Alpha Epsilon Honorary Society for Agricultural Engineers (*August 2022- Present*)*
* *Graduate Student Ambassador* (August 2022- Present)

Punjab Agricultural University, Punjab, India.

* *R.N Kaul Memorial Scholarship for B.Tech Agricultural Engineering Female students in their senior year.* (2019-2020)
* *University Merit scholarship* (2016-2019)

**PUBLICATIONS**

**Kaur, P**., Lamba, J., Way, T. R., Balkcom, K. S., Sanz-Saez, A., & Watts, D. B. (2023). Effects of tillage practices on X-ray computed tomography derived soil pore networks. Soil & Tillage Research (Submitted).

Pendola, A., Dai, Y., Smith-Murphy, K., Mohundro, A., Odeniyi, O., Billingslea, W., Taylor, K., Woods, A., **Kaur, P.**, Rabinowitz, N. (Revise & Resubmit). The ecology of opportunity: Environmental health and student achievement. Submitted 6/22/23.

**Kaur, P**., Lamba, J., Way, T. R., Balkcom, K.S., & Watts, D.B. (2023). Effect of Image Resolution and Soil Core Diameter on Soil Pore Characteristics Quantified Using X-Ray Computed Tomography. Catena (Submitted). Preprint available at <http://dx.doi.org/10.2139/ssrn.4540434>

**Kaur, P**., Lamba, J., Way, T. R., Sandhu, V., Balkcom, K. S., Sanz-Saez, A., & Watts, D. B. (2023). Cover crop effects on X-ray computed tomography–derived soil pore characteristics. Journal of Soils and Sediments, <https://doi.org/10.1007/s11368-023-03596-7>

**POSTER AND ORAL PRESENTATIONS**

**Kaur, P**., Lamba, J., Way, T. R., Balkcom, K. S., Sanz-Saez, A., & Watts, D. B. (2023, July). Temporal and spatial variation of X-Ray CT derived soil pore networks under conventional and conservation tillage practices. [Poster]. ASABE AIM 2023, Omaha, Nebraska**. [Presentation excellence award]**

**Kaur, P**., Lamba, J., Way, T. R., Sandhu, V., Balkcom, K. S., Sanz-Saez, A., & Watts, D. B. (2023, July). Cover crop effects on X-ray computed tomography–derived soil pore characteristics. [Oral Talk]. ASABE AIM 2023, Omaha, Nebraska**.**

**Kaur, P.,** J. Lamba, V. Sandhu, T. Way, K. Balkcom (2022, November). Effects of Cover Crops and Tillage Practices on Soil Pore Characteristics. [Oral Talk]. 2022 ASA, CSSA, SSSA International Annual Meeting, Baltimore, Maryland.

**Kaur, P.,** J. Lamba, V. Sandhu, and T. Way (2022, October). Quantifying effects of soil management practices on X-ray computed tomography derived soil pore properties. [Poster]. 2022 Graduate Engineering Research Showcase, Auburn University, Alabama.

**Kaur, P.,** J. Lamba, V. Sandhu, and T. Way (2022, October). Effects of Cover Crops and Tillage Practices on Soil Pore Characteristics. [Poster]. College of Agriculture Graduate Student Poster Showcase, Auburn University, Alabama.

**Kaur, P., J. Lamba, V. Sandhu, and T. Way** (2022, September). Effects of Cover Crops and Tillage Practices on Soil Pore Characteristics. [Poster]. 2022 Alabama Water Resources Conference, Perdido Beach Resort, Orange Beach, Alabama.

**Kaur, P., J. Lamba, V. Sandhu, and T. Way** (2022, September). Effects of Image Resolution and Sample Size on Soil Pore Characteristics. [Lightning Talk]. 2022 Alabama Water Resources Conference, Perdido Beach Resort, Orange Beach, Alabama.

**Kaur, P., S. Budhathoki, K. Malhotra, J. Lamba, and T. Way** (2022, March). Biopore Quantification based on macropores shape in pastures. [Poster]. Auburn Research Student Symposium, Auburn University, Alabama

**Kaur, P., S. Budhathoki, K. Malhotra, J. Lamba, and T. Way** (2021, October). Quantification of Biopores based on Macropores Shape in Pastures. [Poster]. College of Agriculture Graduate Student Poster Showcase, Auburn University, Alabama.

**Kaur, P., S. Budhathoki, K. Malhotra, J. Lamba, and T. Way** (2021, October). Biopore Quantification based on Macropores Shape in Pastures. [Poster]. Graduate Engineering Research Showcase, Auburn University, Alabama.

**LEADERSHIP AND INVOLVEMENT**

*Alpha Epsilon*– Vice President and Member, an honor society for Agricultural and Biological Engineers. (August 2022- Present)

*First Year Mentorship Program-* Mentoring first year graduate student who joined Auburn University from fall 2022 for a PhD in Biosystems Engineering. (August 2022- Present)

*1887 Graduate Student Ambassador***-** Graduate student representative of Auburn family and Auburn creed. Duties include volunteer for new graduate student welcome event & orientation (August 2022)

*Gator-Byte Testing* at Chewacla River to measure water quality by Dr. Eban Bean (Assistant Professor and Extension Specialist of Urban Water Resources Engineering at the University of Florida) (April2022)

*E day* at Biosystems Engineering Department, Auburn University. Represented Biosystems Engineering Department (March 2022)

*The Big Event* at University Program Council at Auburn University, Auburn. Community service for residents of Auburn (Feb-2022)

*Parkerson Mill Creek Clean-up* at AU Water Resources Center, Auburn stream restoration (February 2022)

*Tree Planting Event* at Office of Sustainability, Auburn University, Auburn. Planted shortleaf pine trees at the Kreher Preserve and Nature Center (January 2022)

*Gameday Recycling Event* at Waste Reduction and Recycling Department at Auburn University, Auburn. Convinced tailgaters to put and separate out all the trash in the provided trash bags (October 2021)