SAGAR REGMI

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Education

2022 - 2025   **PhD, Agricultural and Biological Engineering**, *University of Illinois Urbana-Champaign*, Urbana, IL, USA.
Dissertation: Machine Sensing and Data for Improved Agricultural Field Surface Management.

2019 - 2021   **MS, Agricultural and Biosystems Engineering**, *North Dakota State University*, Fargo, North Dakota, USA.
Thesis: Manufacturing Low-Density Particleboards from Wheat Straw and Distiller's Dried Grains with Solubles.

2016 - 2018   **MS, Energy for Sustainable Social Development**, *Tribhuvan University*, Kathmandu, Nepal.
Thesis: Understanding Technology Adoption: A Case of ICS in Sindhupalchowk, Nepal.

2011 - 2015   **BE, Mechanical Engineering**, *Tribhuvan University*, Kathmandu, Nepal.
Project: Design, Fabrication, and Testing of Filter Belt Press for Apple Juice Extraction

Academic Experience

Quincy University, Quincy, Illinois

Jan 2026 - Current   **Assistant Professor (Founding, Tenure-Track) of Mechanical Engineering**.
- Taught and developed undergraduate engineering courses including *Materials Science, Foundations of Mechanical Engineering, Electrical Circuits I, and Electrical Circuits II*, integrating theory with hands-on laboratories, design projects, and problem-based learning to support diverse student backgrounds.
- Designed and implemented course curricula, labs, and assessment tools aligned with ABET student outcomes, emphasizing ethical practice, engineering fundamentals, and interdisciplinary connections across mechanical and electrical engineering.
- Mentored undergraduate engineering students through advising, project supervision, and career guidance, fostering strong academic performance, professional skills, and preparation for internships, capstone design, and graduate study.
- Assisted on the search and retention of other engineering faculty at Quincy University as a member of faculty search committee.

University of Illinois Urbana-Champaign, Urbana, Illinois

May 2022- Dec 2025   **Graduate Research and Teaching Assistant**.
- **Tillage Residue Characterization using Deep Learning**: Collaborated with industry partner on a tillage sensing project, utilizing on-machine stereo and multispectral sensors to collect data from multiple locations over several years. Applied ResNet18 as deep learning algorithm, to classify residue cover in collected images. *(Sponsor: John Deere)*
- **Residue Segmentation Tool**: Developed an open-source standalone executable application for crop residue cover segmentation using traditional and modern methods of image segmentation. Used the Residue Segmentation Tool to annotate the crop residue images and trained and tested using U-Net and DeepLabV3 for crop residue cover estimation.
- **Data-informed Surface Drainage and Yield Impact Assessment**: Conducted a longitudinal analysis of 13 years of yield data in collaboration with a farmer co-operator in central Illinois. *(Sponsor: USDA-NIFA)*
- **Combine Harvesting Performance and Grain Loss Distribution in Corn and Soybeans**: Participated in an industry-funded project evaluating the harvesting performance of three Class 9 combine harvesters in corn and soybean production. *(Sponsor: AGCO)*
- **Teaching Assistant for ABE 466: Engineering Off-Road Vehicles (Fall 2023)**:
- **Teaching Assistant for ETMAS 464: Heavy Equipment Powertrains (Fall 2023 & Spring 2023)**:
- Provided mentorship and guidance to undergraduate students working on independent study projects, helping them develop research skills, solve technical problems, and improve their academic performance.

North Dakota State University, Fargo, North Dakota

May 2019-
Jul 2021

Graduate Research Assistant.

- **Manufacturing Particleboards Using Renewable Agricultural Materials**: Conducted research on the development of particleboards made from wheat straw and the high fiber fraction of Distillers Dried Grains with Solubles (DDGS) as a natural, sustainable binder and filler material. *(Sponsor: North Dakota Corn Council)*
- **Particle Size Distribution Analysis and Effect on Board Properties**: Investigated the influence of particle morphology and size distribution on the mechanical and physical properties of particleboards using machine vision techniques in ImageJ.
- **Economic Analysis of Renewable Particleboard Production**: Performed a comprehensive economic analysis to evaluate the cost-effectiveness of producing particleboards using DDGS and wheat straw compared to traditional wood-based panels.

Tribhuvan University, Kathmandu, Nepal

Feb 2016 –
Apr 2019

Instructor.

Taught a broad range of undergraduate Mechanical Engineering courses, independently managing all aspects of instruction, assessment, and student support. Designed lectures, laboratory sessions, and exams while maintaining high academic standards and student engagement.

- Developed and delivered course materials across core areas including Thermodynamics, Heat Transfer, Material Science, and Engineering Mechanics.
- Supervised laboratory experiments and guided students in applying theoretical concepts to practical engineering problems.
- Evaluated student performance, provided constructive feedback, and advised students during office hours.

Courses taught: ME 401 (Engineering Drawing I), ME 402 (Fundamentals of Thermodynamics and Heat Transfer), ME 451 (Engineering Drawing II), ME 501 (Material Science), ME 502 (Engineering Mechanics), ME 504 (Applied Thermodynamics), ME 553 (Instrumentation and Measurement), ME 602 (Mechanics of Solids), ME 604 (Heat Transfer), ME 702 (Theory of Mechanism and Machines).

Industry Experience

Phillips Medisize, Hudson, Wisconsin

Sep 2021-
Apr 2022

Production Engineer.

- Monitored and maintained the QMS for regulatory compliance under ISO 13485 standards, ensuring adherence to strict quality standards and regulations.
- Collaborated with multiple departments to coordinate product changes and process improvements, fostering a culture of continuous improvement and driving efficiency across the organization.
- Identified and implemented effective process control systems to support the development, qualification, and manufacturing of products, ensuring that products met internal and external quality standards and requirements.
- Partnered with production management to ensure technicians understood technical aspects of their assigned products and processes, enabling them to perform their roles efficiently and effectively.
- Fostered regular communication with other departments and suppliers regarding quality matters, building strong relationships and ensuring quality was at the forefront of all business decisions.

Publications

Journal Articles

Regmi, S., Qiu F., & Allen C. M. (2025). A Review on Crop Residue Measurement and Sensing, 13, 172938-172953. IEEE Access. `https://doi.org/10.1109/ACCESS.2025.3616603`

Regmi, S., Rexroad W., Timothy L., & Allen C. M. (2025). Combine Soybean Harvesting Performance with Grain Loss Distribution, 23, 102241. Journal of Agriculture and Food Research. `https://doi.org/10.1016/j.jafr.2025.102241`

Regmi, S., Rexroad W., Timothy L., & Allen C. M. (2025). Evaluation of Combine Harvesting Performance with Grain Loss Distribution Characterization in Corn. Journal of ASABE, 68(2), 225-237. `https://doi.org/10.13031/ja.16217`

Regmi, S., Davidson, P., & Allen, C. (2024). Yield Impact of Data-Informed Surface Drainage: An On-Farm Case Study. Agriculture, 14(12), 2210. `https://doi.org/10.3390/agriculture14122210`

Regmi, S., Bajwa, D., Igathinathane, C., & Nahar, N. (2022). High Fiber Fraction DDGS–A Functional Filler for Manufacturing Low-density Particleboards. Industrial Crops and Products, 181, 114793. https://doi.org/10.1016/j.indcrop.2022.114793

Huda, M. S., Nahar, N., Monono, E., & Regmi, S. (2021). Oil Recovery from Fractionated Dried Distillers Grains with Solubles (DDGS) Using Enzymes. Processes, 9(9), 1507. https://doi.org/10.3390/pr9091507

Journal Articles - in Process

Qiu F., Folorunsho S.O., Regmi, S., & Allen C. M. (2025). Crop Residue Coverage Measurement Using On-board Images and Automatic Estimation with Entangled Random Forest. (Under Review in Smart Agricultural Technology)

Regmi, S., Qiu F., Folorunsho S.O., Schwing A.G., & Allen C. M. (2025). On-Machine Sensing and Transfer Learning for Crop Residue Cover Estimation. (Under Review in Precision Agriculture)

Regmi, S., & Allen C. M. (2025). Residue Segmentation Tool and Machine Learning for Crop Residue Cover Estimation. (Under Review in Computer and Electronics in Agriculture)

Qiu F., Regmi, S., & Allen C. M. (2025). A Review on Crop Residue - Management and Effects. (Draft)

Book Chapter - in Process

GC, S., Regmi, S., Horvath D.,& Sun X. (2025). Harnessing AI for Sustainable Precision Weed Control: A Digital Approach. (Towards Publication)

Conference Proceedings

Regmi, S., Bajracharya, S. B., & Keitsch, M. M. (2017). Understanding Technology Adoption: A Case of ICS in Sindhupalchowk, Nepal.

Awards, Honors, & Fellowships

2024 - 2025   *Mavis Future Faculty Fellow* in The Grainger College of Engineering.

2024   *List of Teachers Ranked As Excellent By Their Students* as a TA for ABE 466: Engineering Off-Road Vehicle for Fall 2023.

Conference/Symposium Participation

2025   First Annual Symposium of Digital Agriculture (SyDAg), Participant, Purdue University, Oct, 2025

2025   Sandia National Laboratories 9th Annual Machine Learning/Deep Learning (MLDL) Workshop, Participant, Aug, 2025

2025   ASABE Agricultural Equipment Technology Conference (AETC), **Poster Presentation**, *Regmi, S., Rexroad W., Timothy L., & Allen, C.M., Davidson, P. Grain Loss Distribution Characterization And Evaluation Of Combine Harvesting Performance In Soybean.* Feb, 2025

2024   Safety for Emerging Robotics and Autonomous Agriculture (SAFER AG) Workshop, Volunteer, Dec, 2024

2024   Center for Digital Agriculture Conference 2024 - Future of Digital Agriculture, Participant, Mar, 2024

2023   ASABE Annual Internation Meeting (AIM) 2023 Conference, **Oral Presentation**, *Regmi, S., Allen, C.M., & Davidson, P. (2023). Exploring Yield Impact of Precision Surface Drainage.* Jul, 2023

2022   International Drainage Symposium, Participant, Aug, 2022.

2021   ASABE AIM 2021 Virtual Conference, **Oral Presentation**, *Regmi, S., Bajwa, D., & Nahar, N. (2021). Effects of Alkaline Pretreatment of Distillers' Dried Grains with Solubles and Wheat Straw on the Physico-Mechanical Properties of Low-Density Particleboards.* Jul, 2021.

2021   NDSU Gamma Sigma Delta Research Symposium, **Oral Presentation**, *Regmi, S., & Nahar, N. Manufacturing Low Density Particleboards from Wheat Straw and Distillers Dried Grains with Solubles.* Apr, 2021.

2020	ASABE AIM 2020 Virtual Conference, **Oral Presentation**, *Regmi, S., Bajwa, D., & Nahar, N. (2020). Value Addition of Corn Distillers Dried Grains with Soluble (DDGS) by Fiber Separation and Application of DDGS Fiber to Manufacture Low-Density Particleboards*. Jul, 2020.
2017	IOE Graduate Conference, **Poster Presentation**, *Regmi S., Keitsch, M. M., & Bajracharya, S. B. (2017). Understanding Technology Adoption: A case of ICS in Sindhupalchowk, Nepal*. Dec 2017.
2016	IOE Graduate Conference, Rapporteur, Nov 2016.

Peer Review Activities

Computer and Electronics in Agriculture, Elsevier Publication – Manuscript Reviewer (2024-Present)

Journal of ASABE, American Society of Agricultural and Biological Engineers – Manuscript Reviewer (2025-Present)

IEEE Access, IEEE Publication – Manuscript Reviewer (2025-Present)

Frontiers in Plant Science, Frontiers Publication – Manuscript Reviewer (2025-Present)

Precision Agriculture (Second Edition) Chapter 21: On-Farm Replicated Strip Trials, & Chapter 22: Precision Agriculture Data Management – Book Chapter Reviewer (2025)

Professional Affiliation

American Society of Agricultural and Biological Engineers (ASABE), Student Member [2019 - Present]

Nepal Engineering Council (NEC), Registered Mechanical Engineer [2016 - Present]

Society of Plastics Engineers (SPE), Student Member [2021 - 2022]

Leadership and Service

2025 - 2026	**Member**, Agricultural Equipment Technology Conference Planning Committee, ASABE - AETC.
	○ Assisted with the planning of AETC 2026 Conference through inputs and planning during the monthly planning meetings.
	○ Searched for potential guest speakers for a Technical Session. Communicated with the potential guest speakers and made sure there are enough speakers of technical relevance to present during the conference.
2023 - 2025	**Grainger Engineering Graduate Student Ambassador**, The Grainger College of Engineering, UIUC.
	○ Mentored six graduate students from various departments within the College of Engineering.
	○ Assisted with recruitment and retention of engineering graduate students with diverse experiences and goals.
	○ Served as a positive role model for prospective and current graduate students by mentoring them throughout the service period.
	○ Planned, organized, and hosted events and supported graduate students throughout their experience at Grainger Engineering.
2023 - 2024	**Student Representative**, ABE DEI Committee, UIUC.
	○ As a student representative of the ABE DEI Committee , helped on creating an inclusive, diverse, and rewarding atmosphere for work and learning for faculty members, staffs as well as graduate and undergraduate students.

Certifications

2024	Graduate College Mentoring Certificate
2023	Remote Pilot Certification - Part 107 (sUAS) from Federal Aviation Administration (FAA)
2022	FE Mechanical Engineering from National Council of Engineering Examiners (NCEES)

Referees

List of References can be provided upon request.