DIVYA HANDA

Auburn, Alabama

405-564-2194 | dhanda@auburn.edu

LinkedIn: www.linkedin.com/in/divya-handa

EDUCATION

Ph.D.   **Iowa State University (Jan 2019- July 2022)**

Agricultural and Biosystems Engineering

Application of Computer Vision techniques & Deep Learning models in development of non-invasive respiration systems for livestock; GPA - (3.90/4.00)

Relevant Coursework: Data Science & Analytics, Machine learning, Computational Statistics, Computer Vision

Master of Science   **Oklahoma State University (Jan 2017- Dec 2018)**

Bio-systems and Agricultural Engineering

Evaluation of efficiency and uniformity of center pivots and assessment of their impacts on greenhouse gas using Daycent model; GPA - (3.88/4.00)

Bachelor of Technology   **Punjab Agricultural University, India (July 2012- June 2016)**

Agricultural Engineering

PROFESSIONAL EXPERIENCE

Lecturer (Auburn University)   **(Aug 2025 - Present)**

- Teaching responsibilities include Digital Ag, Irrigation, Data Science and CAD related courses.

Research Engineer (Digital Ag Innovation, Iowa State University)   **(Feb 2024 – Aug 2025)**

- Developed UI infrastructure for data scaling and analysis automation.
- Owned and scaled data pipeline of nozzle data and grain sensing data.
- Developed computer vision-based model for sugarcane parts identification & classification.
- Performed image extraction, data analysis for grain quality and agronomy teams.

Data Scientist (Colaberry Inc., Water Management Team)   **(Aug 2022 – Dec 2023)**

- Evaluated, ingested, and analyzed sensor and IOT data from agronomic systems.
- Compared predictive model results to field measurements.
- Performed QA and testing of sensing and environmental data streams.
- Assisted with sensor integration and developmental analysis & automated report generation.
- Connected to software and data engineering partners for productionizing data streams.

        (On-Farm Experiments Team)

- Designed, analyzed, and validated soil contamination models
- Evaluated and predicted the impact of an application product to determine the effect on treatment outcome using statistical models
- Improved model training pipeline to evaluate yield prediction and perform crop yield performance comparisons with competitor seed products under split-plant planting trials
- Performed exploratory data analysis and visualization on field trial and customer data to support model development of seed showcase project
- Supported and collaborated with data scientists to optimize model pipeline implementation

---

RESEARCH EXPERIENCE

Research Assistant (Iowa State University)   **(Jan 2019- July 2022)**

    Research projects:

- Researched, developed, and implemented machine learning algorithms and novel computer vision techniques to automate agricultural processes and improve livestock management.
- Developed non-invasive respiration rate monitoring system for livestock (pigs, cattle) using computer vision and machine learning
- Tracked and monitored animal behavior using machine learning (object detection, segmentation, classification, tracking)

Research Assistant (Oklahoma State University)   **(Jan 2017- Dec 2018)**
Research projects:
- Assessed the energy consumption efficiency and irrigation application uniformity of center- pivot irrigation systems in Western Oklahoma.
- Analyzed the impact of irrigation non-uniformities on energy consumption and on site greenhouse- gas emissions using the Daycent model.
- Conducted site specific life cycle assessment by evaluating the effect of on-site greenhouse- gas emissions on various impact categories using the Simapro model.

TEACHING EXPERIENCE
Lab Instructor, TSM 363 (Iowa State University)   **(Aug 2021- May 2022)**
- Instructed electrical circuit design course including high/low voltage and motor controller circuit design and implementation.
- Facilitated experimental learning activities for 60 students in individual/group settings
- Assisted in evaluation of labs and maintained grade books.

Undergraduate Mentor (Iowa State University)   **(Jan 2022- May 2022)**
- Mentored 3 undergraduate students in Computer Vision Applications in Agriculture as a part of ISU ABE honors program.
- Provided training in concepts of agriculture, statistics and programming.
- Offered guidance in project selection & management.

Guest Lecturer, ABE 478 (Iowa State University)   **(Jan 2021- May 2021)**
- Provided guest lectures for ABE 478 with a focus on design analysis and numerical problem solving.

EXTENSION EXPERIENCE
- Conducted energy and water audits in the Panhandle and West central Oklahoma.
- Provided recommendations based on the audit results to the growers.

PUBLICATIONS
- **Handa, D.**, Peschel, J. A review of Automated Monitoring Technologies for Livestock Respiratory Diseases (2022). Available at https://www.frontiersin.org/articles/10.3389/fanim.2022.904834/full
- **Handa, D**, Moghadam, A., Sourav, A., Jeon, R., Chen, J., Peschel, J. (2020). An Introduction to Automated Visual Sensemaking for Animal Production Systems. Available at https://elibrary.asabe.org/abstract.asp?aid=52179
- **Handa, D**, Frazier, R.S.,Taghvaeian, S., Warren, J.W. (2019). The efficiencies, Environmental Impacts and Economics of Energy Consumption for Groundwater-Based Irrigation in Oklahoma. Available at https://www.mdpi.com/2077-0472/9/2/27
- **Handa, D**, Taghvaeian, S., Frazier, R.S. (2018). Factsheet on Understanding motor and gear drive nameplate information for irrigation pump evaluations. Available at http://dasnr22.dasnr.okstate.edu/docushare/dsweb/Get/Document-10993/BAE-1292web.pdf
- **Handa, D.**, Masasi B., Frazier, R.S.,Taghvaeian, S., Warren, J., Moriasi D., (2022). Evaluating uniformity of center pivot irrigation systems in western Oklahoma. Available at https://elibrary.asabe.org/abstract.asp?aid=53038
- Frazier, R.S., Taghvaeian, S., **Handa, D**. (2017. Factsheet for measuring depth to groundwater in irrigation wells. Available at http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document- 10865/BAE-1538web.pdf

- **Handa, D.**, Peschel, J. Respiration Rate Estimation of pigs in Commercial Production Facility using Computer Vision Technologies (under review)

LEADERSHIP and ACTIVITIES
- First place in ISU ABE 3MT competition (December 2019).
- Received ASABE Educational Aids Blue Ribbon award (July 2018).
- 2nd place in poster presentation at Oklahoma Clean Lakes and Watersheds Conference (OCLWA) (April 2018).
- ABEGO secretary, ISU ABE department (May 2019- May 2020).
- Member at large for Association of Agricultural, Biological and Food Engineers of Indian origin (AABFEIO) committee ASABE (July 2020- July 2021)

SKILLS
- Programming Languages : Python, R, SQL, Matlab, Power BI, Visual Basic
- ML, DL, CV Libraries : Pandas, Numpy, Scikit-Learn, Geopandas, Seaborn, Pytorch, Tensorflow
- Object Detector Models : Mask R-CNN, YOLOv2, Faster R-CNN
- IDE/Editors/Tools : Domino, Jupyter, PyCharm, Git, AWS, PySpark
- Other skills : Agriculture data analytics, Experimental data visualizations, ability to work in team or independently, excellent communication skills