Satya Venkatesh Kosaraju

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Education

M.Sc. in Agricultural and Biosystems Engineering (3.25/4) **2025**

Thesis Title: Optimization of Dry Fertilizer Spreaders: DEM-Based Material Flow Analysis and Experimental Validation

Iowa State University, Ames, IA, USA

Bachelor of Technology in Agricultural Engineering (8.31/10) **2023**

Vignan's Foundation for Science, Technology, and Research, Guntur, India

Professional Experience

Research Assistant **2023 - 2024**

(Collaboration with Soil Machine Dynamics Laboratory, Iowa State University, Ames, IA & John Deere)

- Optimization of Dry Fertilizer Spreaders: DEM-Based Material Flow Analysis and Experimental Validation
- Developed a DEM model for dry fertilizer particles to analyze and improve distribution uniformity.
- Created CAD models and optimized equipment configurations through simulation and field validation.

Patent

Mechatronic Robotic Device for Self-Regulating and Precision Irrigation Using Robotic Operating System **2020 - 2021**

Authors: Satya Venkatesh Kosaraju, Dr. Balamurugan Karnan, and Dr. T. P. Latchoumi.

- Patent No: 202141009919 (https://ipindia.gov.in/writereaddata/Portal/IPOJournal/1_4961_1/Part-1.pdf)
- Developed an autonomous robot with CNN-based weed detection and precision spraying for irrigation and targeted herbicide application.

Technical Skills

- AutoCAD
- SolidWorks
- Fusion360
- Creo
- EDEM
- HyperMesh
- CFD
- Python
- ImageJ
- AcuSolve
- MATLAB
- JMP data analysis

Soft Skills

- Technical Collaboration
- Teamwork
- Critical thinking
- Decision making
- Adaptability
- Resilience

Leadership and Service

Iowa State University Engineering Career Services, Ames, IA (Ambassador) **2023**

- Assisted in organizing the event, providing guidance and support to recruiters and student attendees.

National Farm Progress Show, Boon, IA (Ambassador) **2024**

- Presented the soil machine dynamic laboratory work (Soil Compaction) to the farmers and companies.

World Food Price International Conference, Des Moines, IA (Volunteer) **2024**

- Assisted in planning and organizing the Norman E. Borlaug International Dialogue Event 2024.

Presentations

Center for Multiphase Flow Research and Education Conference, Ames, IA **2023**

Title: Developing Digital Twins of Cleaning Shoe Separation of Corn Biomass Particles
Authors: Satya Venkatesh Kosaraju, Jong-Myung Noh, Mehari Z. Tekeste, Ravi Teja Chaganti, Yumeng Zhao

Undergraduate Projects

- Mechatronic Robotic Device for Self-Regulating and Precision Irrigation Using Robotic Operating System **2020 - 2021**
- Solar Integrated Briquetting Machine **2020 - 2021**
- Integrated Hydroponics (Plants, Chicken, Fish) **2021 - 2021**
- Solar Integrated Sustainable Egg Hatching Incubator **2022 - 2023**
- Tractor Mounted Multi Crop Seedling Transplanter **2022 - 2023**

Awards

Gold medal for the best outgoing student of the year, 1/106 students, Vignan University, Guntur, India **2023**

Professional Affiliations

- Member of the American Society of Agricultural and Biological Systems Engineering
- Member of the Center for Multiphase Flow Research and Education
- Member of the Food and Agriculture Organization of the United Nations

References

Dr. Mehari, Tekeste
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Dr. Harman Singh Sangha
Ph.D., Engineer | Iowa State University | Ames, IA, 50010

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