MICHAEL PATRICK SAMA, Ph.D., P.E.
University of Kentucky
Martin-Gatton College of Agriculture, Food and Environment
Department of Biosystems and Agricultural Engineering
119 Charles E. Barnhart Building
Lexington, KY 40546-0276
Office: (859) 218-4325
Email: michael.sama@uky.edu

EDUCATION

Doctor of Philosophy. Biosystems and Agricultural Engineering. University of Kentucky. August 2008 to July 2013. Dissertation: Precise Evaluation of GNSS Position and Latency Errors in Dynamic Agricultural Applications.

Master of Science. Biosystems and Agricultural Engineering. University of Kentucky. August 2004 to July 2008. Thesis: Low-Cost System for Remote Sensing in Agriculture.

Bachelor of Science. Computer and Systems Engineering. Rensselaer Polytechnic Institute. August 2000 to May 2004. Concentration: Signal Processing.

PROFESSIONAL EXPERIENCE

Professor. University of Kentucky. Department of Biosystems and Agricultural Engineering. Lexington, KY. July 2025 to present.

Gatton Foundation Distinguished Professor. University of Kentucky. Martin-Gatton College of Agriculture, Food and Environment. Lexington, KY. May 2024 to present.

Director of Graduate Studies. University of Kentucky. Department of Biosystems and Agricultural Engineering. Lexington, KY. July 2022 to present.

Associate Professor (joint appointment, 0% DOE). University of Kentucky. Department of Electrical and Computer Engineering, Lexington, KY. January 2021 to present.

Associate Professor. University of Kentucky. Department of Biosystems and Agricultural Engineering. Lexington, KY. July 2019 to June 2025.

Assistant Professor. University of Kentucky. Department of Biosystems and Agricultural Engineering. Lexington, KY. July 2013 to June 2019.

Adjunct Instructor. University of Kentucky. Department of Biosystems and Agricultural Engineering. Lexington, KY. January 2010 to June 2013.

Engineer Associate. University of Kentucky. Department of Biosystems and Agricultural Engineering. Lexington, KY. February 2007 to June 2013.

Graduate Research Assistant. University of Kentucky. Department of Biosystems and Agricultural Engineering. Lexington, KY. July 2004 to February 2007.

LICENSURE AND CERTIFICATION

Remote Pilot, Federal Aviation Administration. Certificate Number 3982198. March 2017 to present.

Professional Engineer, Electrical and Computer Engineering, Commonwealth of Kentucky. License Number 28355. December 2011 to present.

Engineer in Training, Commonwealth of Kentucky. Certificate Number 14063. December 2010 to December 2011.

AWARDS AND HONORS

Awards

1. Presidential Citation. American Society of Agricultural and Biological Engineers. 2024.
2. Outstanding Leadership as a Conference Chair. American Society of Agricultural and Biological Engineers. 2024.
3. Outstanding Associate Editor. American Society of Agricultural and Biological Engineers. 2024.
4. Agricultural Equipment Technology Conference MVP. American Society of Agricultural and Biological Engineers. 2024.
5. Outstanding Faculty in Biosystems Engineering. UK College of Engineering. 2023.
6. Teaching Academic Standards, Technology, and Engineering Excellence. BAE Graduate League of Students and Alpha Epsilon. 2022.
7. Superior Paper Award. American Society of Agricultural and Biological Engineers. 2020.
8. Ken Freedman Outstanding Faculty Advisor Nominee. 2018.
9. Superior Paper Award. American Society of Agricultural and Biological Engineers. 2017.
10. Wethington Award (2016-2017). University of Kentucky. 2017.
11. Superior Paper Award. American Society of Agricultural and Biological Engineers. 2016.
12. Wethington Award (2015-2016). University of Kentucky. 2016.
13. Superior Paper Award. American Society of Agricultural and Biological Engineers. 2015.
14. Outstanding Doctoral Student. Gamma Sigma Delta Kentucky Chapter. 2012.
15. New Faces of Engineering. National Engineers Week. 2012.
16. New Faces of ASABE. American Society of Agricultural and Biological Engineers. 2012.
17. Sunkist Young Designer Award. American Society of Agricultural and Biological Engineers. 2011.
18. Outstanding Masters Student. Gamma Sigma Delta Kentucky Chapter. 2006.

Honor Societies

1. Gamma Sigma Delta Kentucky Chapter. 2006.
2. Alpha Epsilon Kentucky Chapter. 2005.

EXECUTIVE SUMMARY

Distribution of Effort

Year	Inst.	Res.	Admin.	Serv.
FY2026	50.91	24.09	20.00	5.00
FY2025	38.66	36.34	20.00	5.00
FY2024	57.66	17.34	20.00	5.00
FY2023	31.00	44.00	20.00	5.00
FY2022	31.50	63.50	0.00	5.00
FY2021	32.50	62.50	0.00	5.00
FY2020	41.00	54.00	0.00	5.00
FY2019	22.50	72.50	0.00	5.00
FY2018	31.50	63.50	0.00	5.00
FY2017	30.83	69.17	0.00	0.00
FY2016	32.30	67.60	0.00	0.00
FY2015	30.00	70.00	0.00	0.00
FY2014	25.00	75.00	0.00	0.00
Average	**35.03**	**55.35**	**6.15**	**3.47**

Grants and Contracts

Category	2019-present	2013-2018	<2013	Total
PI Nationally Competitive[1]	$2,133,307	$1,062,312	$0	$3,195,619
Co-PI Nationally Competitive[2]	$25,037,127	$2,774,192	$0	$27,811,319
PI Other	$59,226	$96,200	$101,271	$256,697
Co-PI Other	$16,867	$472,324	$318,110	$807,301
Total	**$27,246,572**	**$4,405,028**	**$419,381**	**$32,070,936**

1: Includes funding directly to my program (not included in Co-PI)
2: Includes funding as Co-I and senior personnel

Refereed Publications

Category	2019-present	2013-2018	<2013	Total
Published[3]	29 (12)	17 (8)	3 (0)	49 (20)
In-Review[3]	1 (0)	-	-	1 (0)
Total	**30 (12)**	**17 (8)**	**3 (0)**	**50 (20)**

3: Parenthesis indicates the number of publications as first author or when a trainee under my direct supervision was first author

Trainee Supervision as Major Advisor

Category	2019-present	2013-2018	<2013	Total
Undergraduate	14	9	1	24
MS[4]	6 (4)	4 (3)	0	10 (7)
PhD[4]	3 (3)	2 (2)	0	5 (5)
Post-Doctoral	1	0	0	1
Total	**24**	**15**	**1**	**40**

4: Parenthesis indicates the number of graduate students completed

Average Teacher Course Evaluation Scores

Course	2019-present			2013-2018[5]		
	Course Quality	Teaching Quality	n[6]	Course Quality	Teaching Quality	n[6]
BAE 205	4.76	4.85	4	-	-	0
BAE 400	-	-	0	4.18	4.64	3
BAE 502	4.52	4.68	6	4.63	4.88	1
BAE 514	-	-	2	4.88	5.00	3
BAE 516	3.70	4.50	1	4.61	4.83	2
BAE 658	4.75	4.75	3	4.82	4.89	5

5: TCE scores prior to Fall 2016 are converted from a 4-point scale to a 5-point scale for direct comparison by multiplying by 5/4
6: n = number of sections taught

GRANTS AND CONTRACTS

Nationally Competitive ($31,006,938)

Current

1. **Sama**, **M**.**P**., Mark, T., Hoagg, J.B., Arnold, L.M. 2024. Precision Livestock Management: Cattle Monitoring and Herding Using Cooperative Drones. USDA-NIFA Agriculture and Food Research Initiative1,3. **$910,000**. 7/1/24-6/30/2029. Sama: PI 2025-present, Co-I 2024-2025.

2. Salmeron Cortasa, M., **Sama**, **M**.**P**., Haramoto, E.R., Poffenbarger, H.J. 2024. Interdisciplinary and Process-Based Approach to Identifying Nitrogen Limitations and Increase Soybean Yield and Meal Protein. United Soybean Board[1,5]. **$286,221**. 10/1/24-9/30/25. Sama: Co-I.

3. **Sama**, **M**.**P**., Bailey, S.C., Lau, D.L. 2023. Improving the Spatial and Spectral Calibration of Remote Sensing Imagery from Unmanned Aircraft Systems. USDA-NIFA Agriculture and Food Research Initiative[1,3]. **$612,756**. 7/1/23-6/30/2027. Sama: Principal Investigator

4. Sanderson, W.T., Jones, K.R., Montross, M.D., McNeill, S.G., Christian, J., Palli, R.R., **Sama**, **M**.**P**., Sampson, S.O., Winter, K.T., Browning, S., Vincent, S.K., Fedewa, A.L. 2022. Southeast Center for Agricultural Health and Injury Prevention. NIOSH[1,3]. **$8,618,319**. 9/30/22-9/29/27. Sama: Co-I and Deputy Director, joined project in 2023 after awarded.

5. Seales, W.B., Smith, S.W., Reyes-Centeno, H., Balk, J.T., Baker, C.E., Bailey, S.C., Crothers, G.M., Griffioen, J.N., **Sama**. **M**.**P**., Sesma, E.M. 2021. Mid-scale RI-1 (M1:IP) EduceLab – Infrastructure for Next-Generation Heritage Science. NSF[1,3]. **$14,741,226**. 10/1/21-9/30/26. Sama: Senior Personnel ($338,162 to my program).

Completed

1. Salmeron Cortasa, M., **Sama**, **M**.**P**., Haramoto, E.R., Poffenbarger, H.J. 2023. Interdisciplinary and Process-Based Approach to Identifying Nitrogen Limitations and Increase Soybean Yield and Meal Protein. United Soybean Board[1,5]. **$455,531**. 10/1/23-9/30/24. Sama: Co-I.

2. Salmeron Cortasa, M., **Sama**, **M**.**P**., Haramoto, E.R., Poffenbarger, H.J. 2022. Interdisciplinary and Process-Based Approach to Identifying Nitrogen Limitations and Increase Soybean Yield and Meal Protein. United Soybean Board[1,5]. **$347,231**. 10/1/22-9/30/23. Sama: Co-Investigator.

3. Salmeron Cortasa, M., Dillon, C.R., **Sama**, **M**.**P**., Haramoto, E.R., Poffenbarger, H.J. 2021. Interdisciplinary and Process-Based Approach to Identifying Nitrogen Limitations and Increase Soybean Yield and Meal Protein. United Soybean Board[1,5]. **$248,172**. 10/1/21-9/30/22. Sama: Co-Investigator.

4. Hoagg, J.B., Bailey, S.C., Martin, A., **Sama**, **M**.**P**. 2019. CPS: Medium: Data-Driven Adaptive Real-Time (DART) Flow-Field Estimation Using Deployable UAVs. NSF CPS[1,3]. **$1,199,150**. 9/1/19-8/31/22. Sama: Co-Investigator. (PI on $272,389 scope project).

5. Hoagg, J., Jackson, J.J., **Sama**, **M**.**P**., Yang, R. 2017. NRI: INT: Autonomous Unmanned Aerial Robots for Livestock Heath Monitoring. USDA-NIFA National Robotics Initiative[1,3]. **$899,907**. 2/15/18-2/14/22. Sama: Co-Investigator (PI on $202,883 scope project).

6. Luck, J.D., Kruger, G.R., Pitla, S.K., **Sama**, **M**.**P**., 2017. Next-Generation Spray Drift Mitigation via Field-Deployable Real-Time Weather Monitoring and Novel Spray Nozzle Control Technology. USDA-NIFA AFRI[1,3]. **$500,000**. 7/1/17-6/30/22. Sama: Co-Investigator (PI on $54,070 sub-contract from UNL).

7. Dvorak, J.S., **Sama**, **M**.**P**., Montross, M.D., Goff, B.M., Jackson, J.J., Williamson, J. 2016. LIDAR and Photogrammetry to Map Alfalfa Yield and Quality using Unmanned Aircraft Systems. USDA-NIFA Alfalfa and Forage Research Program[1,3]. **$250,000**. 9/1/16-8/31/20. Sama: Co-Investigator.

8. **Sama**, **M**.**P**., Montross, M.D, Dvorak, J.S., McNeill, S.G., Mark, T.B. 2015. Development of a CAN-Based Data Management and Decision Support System for Optimal Equipment and Harvest Timing from Grain Harvest to Storage. USDA-NIFA Agriculture and Food Research Initiative[1,3]. **$500,000**. 11/1/15-10/31/19. Sama: Principal Investigator

9. Smith, S.W., Hoagg, J.B., Bailey, S.C., **Sama**, **M**.**P**., Guzman, M.I. 2015. NSF RII Track-2 FEC: Unmanned Aircraft System for Atmospheric Physics. Oklahoma State University[1,3,7]. **$1,400,000** (Subcontract on $5,995,869 NSF Research Infrastructure Improvement grant). 8/1/15-12/31/19. Sama: Co-Investigator (PI on $305,359 scope project).

10. Taraba, J.L, **Sama**, **M**.**P**., Reed. M.R. 2015. Proposal to Host Borlaug Fellow from Mexico on Greenhouse Gas (GHG) Emissions from Ruminant Manure. USDA Borlaug Fellowship Program[1,3]. **$29,028**. 2/8/16-12/29/17. Sama: Co-Investigator.

11. Pitla, S.K., **Sama**, **M**.**P**., Luck, J.D. 2012. AgStatMonitor: A Mobile Device Application for Agricultural Machine Monitoring. ASABE Mobile App Challenge[1,6]. **$9,397**. 12/1/12-8/31/13. Sama: Co-Principle Investigator.

Regionally Competitive ($187,622)

Completed

1. **Sama**, **M**.**P**., Bailey, S.C., 2021. Distributed Sensing of Aerosol Particle Counts Using Small Unmanned Aircraft Systems. NIOSH[1,3] (SCAHIP Pilot Project). **$37,622**. 9/30/21-9/29/22. Sama: Principal Investigator.

2. Wendroth, O.O., **Sama**, **M**.**P**., Lee, C., Knott, C., Murdock, L., Vellidis, G., Porter, W., Leib, B., Ortiz, B., Delaney, D., Knappenberger, T. 2016. Developing Irrigation Management

Strategies for Soybean Production in Humid Regions of the Southern US. Southern Soybean Research Program[1,5]. **$150,000**. 3/1/16-2/28/19. Sama: Co-Investigator.

Locally Competitive ($333,366)

Completed

1. **Sama**, **M**.**P**., Ladino K.S.†, 2020. Performance of Real-Time Kinematic Global Navigation Satellite System Receivers on Unmanned Aircraft Systems for Precision Meteorology. NASA KY Space Grant Consortium[1,4]. **$45,000**. 8/1/20-7/31/21. Sama: Principal Investigator.

2. **Sama**, **M**.**P**., Jackson, J.J., 2019. Enabling a Citizen Science Contribution to Meteorology Using Small Unmanned Aircraft Systems. NASA KY Space Grant Consortium[1,4]. **$40,000**. 1/1/19-12/31/19. Sama: Principal Investigator

3. McGrath, J., Ritchey, E., **Sama**, **M**.**P**., Shockley, J., Poffenbarger, H. 2018. Nitrogen Rate Decision Support for Kentucky Corn Grain Production. Kentucky Corn Growers Association.[1,5]. **$88,366**. 4/1/18-12/01/19. Sama Co-Investigator.

4. Taraba, J.L., Lee, B., Edwards, D., **Sama**, **M**.**P**. 2015. Phosphorus Runoff Potential and Nitrogen Flux Emissions from Compost Generated in Compost Bedded Pack Barns. USDA-NRCS-KYSO Kentucky State CIG[1,3,4]. **$75,000**. 9/1/15-8/31/18. Sama: Co-Investigator.

5. Dvorak, J.S., **Sama**, **M**.**P**. 2016. Efficient Routing with Multiple Vehicles for Agricultural Area Coverage Tasks. KSEF Research Development Excellence Program[1,4]. **$30,000.** 7/1/16-6/30/17. Sama: Co-Investigator

6. Luck, J.D., **Sama**, **M**.**P**., McGrath, J.M., Luck, B.D., Fulton, J.P. 2015. Precision Agriculture Farm Management Software and Field Hardware Training for Kentucky Soybean, Corn, and Wheat Producers. KY Soybean Board[1,5]. **$5,000**. 1/1/15-12/31/16. Sama: Co-Investigator.

7. **Sama**, **M**.**P**., Bailey, S.C. 2014. Wildlife Conservation UAV Challenge. NASA Kentucky Space Grant Consortium[1,4]. **$10,000**. 1/1/14-12/31/15. Sama: Principal Investigator.

UK Internally Competitive ($339,584)

Completed

1. Feltner, F., Hahn, E., Rayens, M.K., Curry, T., **Sama**, **M**.**P**., Baker, W., Sanderson, W. 2020. Access to Personal Protective Equipment for a High Risk Appalachia Population using Aerial Drones and Community Health Workers. UK-CARES Rapid Response Mini-Grant. **$16,867**. 8/24/2020-3/31/2021. Sama: Co-Investigator.

2. **Sama**, **M**.**P**., Salmeron, M. 2019. Camera System for Drone-Based Remote Sensing Research. UK CAFE Research Activity Award. **$10,000** ($5,000 CAFE, $3,000 BAE, $2,000 PSS). 10/17/2019-6/30/2020. Sama: Principal Investigator

3. Tumlin, K.I., Pekarchik, K., **Sama**, **M**.**P**., 2018. Characterization of Real and Simulated Forces on Back Biomechanics to Promote Safety in Horse Racing Jockeys. Central Appalachian Regional Education and Research Center (CARERC) Pilot Funds[2,7]. **$12,000**. 8/1/18-6/30/19. Sama: Co-Investigator.

4. **Sama**, **M**.**P**. 2017. High-Throughput Soil Sampling System. VPR Minor Equipment Competition[2,7]. **$39,336**. 1/1/18-6/30/18. Sama: Principal Investigator.

5. **Sama**, **M**.**P**., Shearer, C.A., Caudill, R.K., Hubbard, S., Walker, J. 2015. Machine Systems Senior Design Project. Charles E. Barnhart Fund for Excellence[2]. **$1,000**. 7/1/15-6/30/16. Sama: Principal Investigator.

6. **Sama**, **M**.**P**., Stombaugh, T.S., Luck, J.D. 2010. Scalable Control and Data Acquisition for Variable-Rate Applications. USDA-NIFA Special Grant[2,3]. **$48,710**. 9/1/10-8/31/13. Sama: Principal Investigator.

7. Luck, J.D., Pitla, S.K., **Sama**, **M**.**P**., Shearer, S.A. 2010. Sprayer Controller Evaluation for Improving Spatial Application of Pesticides. USDA-NIFA Special Grant[2,3]. **$49,976**. 9/1/10-8/31/13. Sama: Co-Investigator.

8. Zandonadi, R.S., Stombaugh, T.S., **Sama**, **M**.**P**. 2009. Reduced Equipment Set for Multiple Vehicle Guidance. USDA-CSREES Special Grant[2,3]. **$49,992**. 9/1/09-8/31/12. Sama: Co-Investigator.

9. Luck, J.D., Pitla, S.K., **Sama**, **M**.**P**., Shearer, S.A. 2009. A Pneumatic Nozzle Control System for Variable-Rate Pesticide Application. USDA-CSREES Special Grant[2,3]. **$49,432**. 9/1/09-8/31/12. Sama: Co-Investigator.

10. **Sama**, **M**.**P**., Stombaugh, T.S. Shearer, S.A. 2008. A System for Implementing Dynamic Accuracy Standards for Machine Guidance Technology in Agriculture. USDA-CSREES Special Grant[2,3]. **$62,271**. 9/1/08-8/1/11. Sama: Principal Investigator.

Non-Competitive ($248,426)

Completed

1. **Sama**, **M**.**P**. 2017. Wildcat Pulling Team Equipment Donation. Danfoss Power Solutions[8,9]. **$4,226**. 1/1/24-6/30/24. Sama: Principal Investigator.

2. **Sama**, **M**.**P**. 2017. Wildcat Pulling Team Equipment Donation. Danfoss Power Solutions[8,9]. **$5,000**. 1/1/17-6/30/17. Sama: Principal Investigator.

3. **Sama**, **M**.**P**. 2016. Educational Laboratory Equipment Grant. UK College of Engineering[2]. **$8,200**. 1/1/16-12/31/16. Sama: Principal Investigator.

4. Montross, M.D., **Sama**, **M**.**P**., Dvorak, J.S. 2016. Evaluation of Crop Logistics. Case New Holland America LLC[1,8]. **$20,000**. 1/1/16-12/31/16. Sama: Co-Investigator.

5. **Sama**, **M**.**P**., Day, G.B. 2015. Fan Assessment Numeration Systems (FANS) for Agricultural Building Ventilation Measurement in Emissions Testing. Contract with University of Arkansas[1,7]. **$15,000**. 8/1/15-7/31/16. Sama: Co-Investigator.

6. **Sama**, **M**.**P**. 2015. 6 Seats of CANalyzer PRO V8.5. Vector CANtech, Inc[8,9]. **$27,000**. 1/1/15-12/31/15. Sama: Principal Investigator.

7. Taraba, J.L., **Sama**, **M**.**P**., Bewley, J.M. 2015. Computational Fluid Dynamics for Analysis of Compost Bedded Pack (CBP) Dairy Barns. KAES Research Activity Award[2]. **$5,000**. 1/1/15-6/30/15. Sama: Co-Investigator.

8. **Sama**, **M**.**P**. 2014. 1 CASE IH 8240 Combine Cab, CNH Industrial[8,9]. **$5,000**. 1/1/14-12/31/14. Sama: Principal Investigator.

9. **Sama**, **M**.**P**., Day, G.B. 2011. Fan Assessment Numeration Systems (FANS) for Agricultural Building Ventilation Measurement in Emissions Testing. Individual Contracts with UIUC (1), IASU (1), UGPH (1), UDEL (1)[1,7]. **$39,000**. 1/1/11-8/31/11. Sama: Principal Investigator.

10. Gates, R.S., **Sama**, **M**.**P**. 2007. Fan Assessment Numeration Systems (FANS) for Agricultural Building Ventilation Measurement in Emissions Testing. Contract with Purdue University[1,7]. **$60,000**. 3/1/07-11/30/07. Sama: Co-Investigator.

11. Gates, R.S., **Sama**, **M**.**P**. 2007. Fan Assessment Numeration Systems (FANS) for Agricultural Building Ventilation Measurement in Emissions Testing. Individual Contracts with ISU(2), SDSU(1), UMN(1), UAR(1), USDA-ARS-MS(1)[1,7]. **$60,000**. 1/1/07-8/31/07. Sama: Co-Investigator.

Multistate and Hatch Projects

Current

1. S1069. 2021. Research and Extension for Unmanned Aircraft Systems (UAS) Applications in U.S. Agriculture and Natural Resources. 10/1/21-9/30/25. Sama: Principal Investigator.

Completed

1. S1069. 2016. Research and Extension for Unmanned Aircraft Systems (UAS) Applications in U.S. Agriculture and Natural Resources. 10/1/16-9/30/21. Sama: Principal Investigator and member of the proposal development team.

2. NCERA180. 2016. Precision Agriculture Technologies for Food, Fiber, and Energy Production. 10/01/16-9/30/21. Sama: Co-Investigator.

3. **Sama**, **M**.**P**. 2014. Development of a Distributed Control and Data Acquisition System for Variable-Rate Applications in Precision Agriculture. KAES KY005038. 10/1/14-9/30/18. Sama: Principal Investigator.

4. Stombaugh, T.S., **Sama**, **M**.**P**., Shearer, S.A. 2009. Standardized Testing of Global Navigation Satellite System Technology. KAES KY005032. 6/1/09-5/31/13. Sama: Co-Investigator

PUBLICATIONS

Refereed (50 total)

Published

1. Ladino, K.S., **Sama**, **M**.**P**.* 2025. Optimizing matrix barcode ground control points for automated location detection in UAS-based remote sensing. *Computers and Electronics in Agriculture*. Vol 237, Part C, 110717. https://doi.org/10.1016/j.compag.2025.110717.

1 External, 2 Internal, 3 Federal, 4 State, 5 Commodity Group, 6 Professional Organization, 7 University, 8 Corporation, 9 Gift
* Corresponding author, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

2. Roy, K.R., Byrd, Z., **Sama**, **M**.**P**., Barzee, T.J. 2025. Valorization of Bourbon Stillage through Production of Tunable Pure Mycelium Materials. *Fungal Biology and Biotechnology*. 12(1), 1-11. https://doi.org/10.1186/s40694-025-00202-y

3. Ladino, K.S.†, **Sama**, **M**.**P**.* 2024. Short-Term Performance Evaluation of Real-Time Kinematic Global Navigation Satellite System Receivers in Unmanned Aircraft Systems. *Journal of the ASABE*. Vol 67(6):1433-1446. Impact Factor: N/A. https://doi.org/10.13031/ja.16030.

4. Ladino, K.S.†, **Sama**, **M**.**P**.* 2024. A Method for Evaluating Global Navigation Satellite System Position Accuracy in Small Unmanned Aircraft Systems. *Journal of the ASABE*. Vol 67(2): 153-167. Impact Factor: N/A. https://doi.org/10.13031/ja.15890.

5. Agioutanti, R., Ford, W.I.*, **Sama**, **M**.**P**., McGill, T. 2024. Impacts of aquatic vegetation dynamics on nitrate removal in karst agricultural streams: Insights from UAS imagery and in situ sensing. *Journal of the ASABE*. Vol. 67(2): 89-104. Impact Factor: N/A. https://doi.org/10.13031/ja.15791.

6. Adjuik, T., Nokes, S.E.*, Montross, M.D., **Sama**, **M**.**P**., Wendroth, O. 2023. Feature Selection and Machine Learning Regression Methods to Predict Saturated Hydraulic Conductivity from a Large Public Soil Database. *Journal of the ASABE*. Vol. 66(2): 285-296. Impact Factor: 1.4. https://doi.org/10.13031/ja.15068.

7. Bailey, S.C.*, Smith, S.W., **Sama**, **M**.**P**., Al-Ghussain Loiy, de Boer, G. 2023. Shallow Katabatic Flow in a Complex Valley: An Observational Case Study Leveraging Uncrewed Aircraft Systems. *Boundary-Layer Meteorology*. 186(2): 399-422. Impact Factor: 2.3. https://doi.org/10.1007/s10546-022-00783-w.

8. Pokharel, P.†, **Sama**, **M**.**P**.* 2022. The Effect of Nozzle Body Volume on Pressure Dynamics in a PWM Sprayer System. *Journal of the ASABE*. Vol. 65(6): 1355-1363. Impact Factor: 1.5. https://doi.org/10.13031/ja.15301.

9. Abdulai, G.A.†, **Sama**, **M**.**P**., Jackson, J.J.* 2022. Evaluating Two Low-Cost GPS Receivers for Accuracy and Eventual Use in Pasture Cattle Research. *Journal of the ASABE*. Vol. 65(3): 567-572. Impact Factor: 1.5. https://doi.org/10.13031/ja.14518.

10. Ladino, K.S.†, **Sama**, **M**.**P**.*, Stanton, V.L. 2022. Development and Calibration of Pressure-Temperature-Humidity (PTH) probes for Distributed Atmospheric Monitoring using Unmanned Aircraft Systems. *Sensors*, 22(9), 3261. Impact Factor: 3.9. https://doi.org/10.3390/s22093261.

11. Omodara, M.A., Montross, M.D.*, McNeill, S.G., **Sama**, **M**.**P**., Carr, D.E. 2022. Development of a Monitoring Systems to Assess the Internal Environment of Bagged Grain in Storage. *Applied Engineering in Agriculture*. 38(2): 387-394. Impact Factor: 0.973. https://doi.org/10.13031/aea.14528.

12. Turner, A.P.†*, Jackson, J.J., **Sama**, **M**.**P**., Montross, M.D. 2021. Impact of Delayed Harvest on Corn Yield and Harvest Loss. *Applied Engineering in Agriculture*. Vol. 37(4): 595-604. Impact Factor: 0.973. https://doi.org/10.13031/aea.14561.

1 External, 2 Internal, 3 Federal, 4 State, 5 Commodity Group, 6 Professional Organization, 7 University, 8 Corporation, 9 Gift
* Corresponding author, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

13. Abdulai, G.†, **Sama**, **M**.**P**., Jackson, J.J.* 2021. A Preliminary Study of the Physiological and Behavioral Response of Beef Cattle to Unmanned Aerial Vehicles (UAVs). *Applied Animal Behavioral Science*. Vol. 241, 105355. Impact Factor: 2.187. https://doi.org/10.1016/j.alanim.2021.105355.

14. Yang, Y., Tao, B., Liang, L., Huang, Y., Matocha, C., Lee, C.D., **Sama**, **M**.**P**., El Marsi, B., Ren, W P*. 2021. Detecting Recent Crop Phenology Dynamics in Corn and Soybean Croing Systems of Kentucky. *Remote Sensing*. 13(9), 1615. Impact Factor: 4.509. https://doi.org/10.3390/rs13091615.

15. Dvorak, J.S.*, Pampolini, L.F., Jackson, J.J., Seyyedhasani, H., **Sama**, **M**.**P**., Goff, B. 2021. Predicting Quality and Yield of Growing Alfalfa from a UAV. *Transactions of the ASABE*. Vol. 64(1): 63-72. Impact Factor: 1.156. https://doi.org/10.13031/trans.13769.

16. de Boer, G.*, Houston, A., Jacob, J., Chilson, P.B., Smith, S.W., Argrow, B. Lawrence, D., Elston, J., Brus, D., Keminen, O., Klein, P., Lundquist, J.K., Waugh, S., Bailey, S.C., Frazier, A., **Sama**, **M**.**P**., Crick, C., Schmale, D., Pinto, J., Pillar-Little, E.A., Natalie, V., Jensen, A. 2020. Data Generated During the 2018 LAPSE-RATE Campaign: An Introduction and Overview. *Earth Systems Science Data Discussions*, 12, 3357–3366. Impact Factor: 9.197. https://doi.org/10.5194/essd-12-3357-2020.

17. Pitla, S.*, Bajwa, S., Bhusa, S., Brown-Brandl, T., Brumm, T., Condotta, I., Fulton, J., Janzen, T., Karkee, M., Lopez, M., Moorhead, R., **Sama**, **M**.**P**., Shearer. S., Shumacher, L., Thomasson, A. 2020. Ground and Aerial Robots for Agricultural Production: Opportunities and Challenges. *The Council for Agricultural Science and Technology*. IP70. Impact Factor: N/A. https://digitalcommons.unl.edu/biosysengfacpub/727/

18. Yang, Y., Ren, W.*, Tao, B., Ji, L., Liang, L., Ruane, A., Fisher, J.B., Liu, J., **Sama**, **M**.**P**., Li, Z., Tian, Q. 2020. Characterizing Spatiotemporal Patterns in Crop Phenology Across North America During 2000-2016 Using Satellite Imagery and Agricultural Survey Data. *ISPRS Journal of Photogrammetry and Remote Sensing*. 170, 156-173. Impact Factor: 7.319. https://doi.org/10.1016/j.isprsjprs.2020.10.005.

19. Hamidisepehr, A.†, **Sama**, **M**.**P**.*, Dvorak, J.S., Wendroth, O.O., Montross, M.D. 2020. Classifying Reflectance Targets under Ambient Light Conditions using Passive Spectral Measurements. *Sensors*. 20(18), 5375. Impact Factor: 3.275. https://doi.org/10.3390/s20185375.

20. Bailey, S.C.*, **Sama**, **M**.**P**., Canter, C.A., Pampolini, L.F., Liay, Z.S., Schuyler, T.J., Hamilton, J.D., MacPhee, S.B., Rowe, I.S., Sanders, C.D., Smith, V.G., Vezzi, C.N., Wight, H.M., Hoagg, J.B., Guzman, M.I., Smith, S.W. 2020. University of Kentucky measurements of wind, temperature, pressure and humidity in suort of LAPSE-RATE using multi-site fixed-wing and rotorcraft UAS. *Earth System Science Data Discussions*, 12, 1758-1773. Impact Factor: 9.197. https://doi.org/10.5194/essd-12-1759-2020.

21. Egert-McLean, A.M., **Sama**, **M**.**P**., Klotz, J.L., McLeod, K.R., Kristensen, N.B, Harmon, D.L.* 2020. Effects of a moderate transition from 70 to 90% concentrate diet on early alterations in feeding behavior, rumen environment, reticulorumen motility, and blood acid-base status in beef heifers. *Canadian Journal of Animal Science*, 101(1), 85-95 Impact Factor: 0.982. https://doi.org/10.1139/CJAS-2019-0218.

1 External, 2 Internal, 3 Federal, 4 State, 5 Commodity Group, 6 Professional Organization, 7 University, 8 Corporation, 9 Gift
* Corresponding author, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

22. de Boer, G.*, Diehl, C., Jacob, J., Houston, A., Smith, S.W., Chilson, P., Schmale, D.G., Intrieri, J., Elston, J., Brus, D., Keminen, O., Clark, A., Lawrence, D., Bailey, S.C.C., **Sama**, **M**.**P**., Frazier, A., Natalie, V., Pillar-Little, E., Klein, P., Waugh, S., Lundquist, J.K., Barbieri, L., Kral, S.T., Jensen, A., Dixon, C., Borenstein, S., Hesselius, D., Human, K., Hall, P., Argrow, B., Thornberry, T., Gao, R., Wright, R., Kelly, J.T. 2019. Development of Community, Capabilities and Understanding Through Unmanned Aircraft-Based Atmospheric Research: The LAPSE-RATE Campaign. *Bulletin of the AMS*. Impact Factor: 8.166. https://doi.org/10.1175/BAMS-D-19-0050.1

23. Turner, A.P†, **Sama**, **M**.**P**., McNeill, S.G., Dvorak, J.S., Mark, T.B., Montross, M.D.* 2019. A Discrete Event Simulation Model for Analysis of Farm Scale Grain Transportation Systems. *Computer and Electronics in Agriculture*, Vol. 167, 105040. Impact Factor: 3.171. https://doi.org/10.1016/j.compag.2019.105040

24. Egert-McLean, A.M., **Sama**, **M**.**P**., Klotz, J.L., McLeod, K.R., Kristensen, N.B, Harmon, D.L.* 2019. Automated System for Characterizing Short-Term Feeding Behavior and Real-Time Forestomach Motility in Cattle. *Computers and Electronics in Agriculture*. Vol. 167, 105037. Impact Factor: 3.171. https://doi.org/10.1016/j.compag.2019.105037

25. Bailey, S.C.C.*, Canter, C.A., **Sama**, **M**.**P**., Houston, A.L., Smith, S.W. 2019. Unmanned Aerial Vehicles Reveal Impact of Total Solar Eclipse on Atmospheric Surface Layer. *Proceedings of the Royal Society A*. 475:20190212. Impact Factor: 4.304. https://doi.org/10.1098/rspa.2019.0212

26. Barbieri, L.*, Kral, S.T., Bailey, S.C.C., Frazier, A.E., Jacob, J.D., Reuder, J., Brus, D., Chilson, P.B., Crick, C., Detweiler, C., Doddi, A., Elston, J., Foroutan, H., Gonzalez-Rocha, J., Greene, B.R., Guzman, M.I., Houston, A.L., Islam, A., Keminen, O., Lawrence, D., Pillar-Little, E., Ross, S.D., **Sama**. **M**.**P**., Schmale, D.G., Schuyler, T.J., Shankar, A., Smith, S.W., Waugh, S., Dixon, C., Borenstein, S., de Boer, G. 2019. Intercomparison of Small Unmanned Aircraft System (sUAS) Measurements for Atmospheric Science during the LAPSE-RATE Campaign. *Sensors*. Vol. 19(9), 2179. Impact Factor: 3.031. https://doi.org/10.3390/s19092179

27. Luck, J.D.*, Shearer, S.A., **Sama**, **M**.**P**. 2019. Development and Preliminary Evaluation of an Integrated Individual Nozzle Direct Injection/Carrier Flow Rate Control System for Pesticide Applications. *Transactions of the ASABE*. Vol. 62(2): 505-514. Impact Factor: 1.153. https://doi.org/10.13031/trans.13170

28. Dasika, S.S.†, **Sama**, **M**.**P**.*, Pampolini, L.F.†, Good, C.B.† 2019. Performance Validation of a Multi-Channel LiDAR Sensor: Assessing the Effect of Target Height and Sensor Velocity on Measurement Error. *Transactions of the ASABE*. Vol. 62(1): 231-244. Impact Factor: 1.153. https://doi.org/10.13031/trans.12971

29. Hamidisepehr, A.†, **Sama**, **M**.**P**.* 2019. Moisture Content Classification of Soil and Stalk Residue Samples from Spectral Data using Machine Learning Algorithms. *Transactions of the ASABE*. Vol. 62(1): 1-8. Impact Factor: 1.153. https://doi.org/10.13031/trans.12744

30. Turner, A.P., **Sama**, **M**.**P**., Bryson, L.S., Montross, M.D.* 2018. Effect of Pre-Processing on the Bulk Compression Behaviour of Switchgrass and Miscanthus. *Biosystems Engineering*. Vol. 175: 52-62. Impact Factor: 2.132. https://doi.org/10.1016/j.biosystemseng.2018.08.007

1 External, 2 Internal, 3 Federal, 4 State, 5 Commodity Group, 6 Professional Organization, 7 University, 8 Corporation, 9 Gift
* Corresponding author, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

31. **Sama**, **M**.**P**.*, Weiss, A.M.‡, Benedict, E.K.‡ 2018. Validating Spray Coverage Rate Using Liquid Mass on a Spray Card. *Transactions of the ASABE*. Vol. 61(3): 887-895. Impact Factor: 1.118. https://doi.org/10.13031/trans.12565

32. Hamidisepehr, A.†, **Sama**, **M**.**P**.*, Turner, A.P.†, Wendroth, O.O. 2017. A Method for Reflectance Index Wavelength Selection from Moisture Controlled Soil and Crop Residue Samples. *Transactions of the ASABE*. Vol. 60(5): 1479-1487. Impact Factor: 1.118. https://doi.org/10.13031/trans.12172

33. Evans, J.T.†, **Sama**, **M**.**P**.*, Taraba, J.L., Day, G.B. 2017. Automated Calibration of Electrochemical Oxygen Sensors for use in Compost Bedded Pack Barns. *Transactions of the ASABE*. Vol. 60(3): 957-962. Impact Factor: 1.118. https://doi.org/10.13031/trans.12099

34. **Sama**, **M**.**P**.*, Day, G.B., Pele, L.M., Gates, R.S. 2017. Fourth-Generation Fan Assessment Numeration System (FANS) Design and Performance Specifications. *Transactions of the ASABE.* Vol. 60(2): 507-516. Impact Factor: 1.118. https://doi.org/10.13031/trans.12119

35. Mains, T.P., Payne, F.A.*, **Sama**, **M**.**P**. 2017. Monitoring Yogurt Culture Fermentation and Predicting Fermentation Endpoint with Fluorescence Spectroscopy. *Transactions of the ASABE*. Vol. 60(2). Impact Factor: 1.118. https://doi.org/10.13031/trans.10838

36. Seyyedhasani, H., Dvorak. J.S.*, **Sama**, **M**.**P**., Stombaugh, T.S. 2016. Mobile Device-Based Location Services Accuracy. *Applied Engineering in Agriculture*. Vol. 32(5): 539-547. Impact Factor: 0.505. https://doi.org/10.13031/aea.32.11351

37. Turner, A.P., Montross, M.D.*, McNeill, S.G., **Sama**, **M**.**P**., Casada, M.E., Boac, J.M., Bhadra, R., Maghirang, R.G., Thompson, S.A. 2016. Modeling the Compressibility Behavior of Hard Red Wheat Varieties. *Transactions of the ASABE*. Vol. 59(3): 1029-1038. Impact Factor: 0.975. https://doi.org/10.13031/trans.59.11432

38. **Sama**, **M**.**P**.*, Evans, J.T.†, Turner, A.P.†, Dasika, S.S.‡ 2016. As-Applied Estimation of Volumetric Flow Rate from a Single Sprayer Nozzle Series using Water Sensitive Spray Cards. *Transactions of the ASABE.* Vol. 59(3): 861-869. Impact Factor: 0.975. https://doi.org/10.13031/trans.59.11538

39. Luck, J.D.*, Shearer, S.A., Luck, B.D., **Sama**, **M**.**P**. 2016. Recalibration Methodology to Compensate for Changing Fluid Properties in an Individual Nozzle Direct Injection System. *Transactions of the ASABE*. Vol. 59(3) 847-859. Impact Factor: 0.975. https://doi.org/10.13031/trans.59.11521

40. Kesterson, M.A., Luck, J.D.*, **Sama**, **M**.**P**. 2015. Development and Preliminary Evaluation of a Spray Deposition Sensing System for Improved Pesticide Application. *Sensors*. Vol. 15(12): 31965-31972. Impact Factor: 2.033. https://doi.org/10.3390/s151229898

41. Luck, J.D.*, Shearer, S.A., **Sama**, **M**.**P**., Pitla, S.K. 2015. Control System Development and Response of an Electronically Actuated Variable-Orifice Nozzle for Agricultural Pesticide Applications. *Transactions of the ASABE*. Vol. 58(4): 997-1008. Impact Factor: 0.913. https://doi.org/10.13031/trans.58.10945

1 External, 2 Internal, 3 Federal, 4 State, 5 Commodity Group, 6 Professional Organization, 7 University, 8 Corporation, 9 Gift
* Corresponding author, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

42. **Sama**, **M**.**P**.*, Luck, J.D., Stombaugh, T.S. 2015. Scalable Control Architecture for Variable-Rate Turn Compensation. *Applied Engineering in Agriculture*. Vol. 31(3): 425-435. Impact Factor: 0.429. https://doi.org/10.13031/aea.31.10848

43. Luck, J.D.*, Pitla, S.K., **Sama**, **M**.**P**., Shearer, S.A. 2015. Flow, Spray Pattern and Droplet Spectra Characteristics of an Electronically Actuated Variable-Orifice Nozzle. *Transactions of the ASABE*. Vol. 58(2): 261-269. Impact Factor: 0.975. https://doi.org/10.13031/trans.58.10798

44. **Sama**, **M**.**P**.*, Stombaugh, T.S. 2014. Performance Evaluation of a Tracking Total Station as a Position Reference for Dynamic GNSS Accuracy Testing. *Applied Engineering in Agriculture*. Vol. 30(4): 557-563. Impact Factor: 0.405. https://doi.org/10.13031/aea.30.10596

45. **Sama**, **M**.**P**.*, Stombaugh, T.S., Lum, J.E. 2013. A Hardware Method for Time-Stamping Asynchronous Serial Data Streams Relative to GNSS Time. *Computers and Electronics in Agriculture*. Vol. 97: 56-60. Impact Factor: 1.486. https://doi.org/10.1016/j.compag.2013.07.003

46. Maupin, T.P., Agouridis, C.T.*, Edwards, D.R., Barton, C.D., Warner, R.C., **Sama**, **M**.**P**. 2013. Specific Conductivity Sensor Performance: II. Field Evaluation. *International Journal of Mining, Reclamation and Environment*. Vol. 27(5): 345-364. Impact Factor: 0.531. https://doi.org/10.1080/17480930.2013.764702

47. Zandonadi, R.S.*, Luck, J.D., Stombaugh, T.S., **Sama**, **M**.**P**., Shearer, S.A. 2011. A Computational Tool for Estimating Off-Target Application Areas in Agricultural Fields. *Transactions of the ASABE*. Vol. 54(1): 41-49. Impact Factor: 1.033. https://doi.org/10.13031/2013.36251

48. Luck, J.D.*, Pitla, S.K., Zandonadi, R.S., **Sama**, **M**.**P**., Shearer, S.A. 2011. Estimating Off-Rate Pesticide Application Errors Resulting from Agricultural Sprayer Turning Movements. *Precision Agriculture*. Vol. 0T0T12(4): 534-545. Impact Factor: 1.549. https://doi.org/10.1007/s11119-010-9199-9

49. Zandonadi, R.S.*, Stombaugh, T.S., Shearer, S.A., Queiroz, D.M., **Sama**, **M**.**P**. 2010. Laboratory Performance of a Mass Flow Sensor for Dry Edible Bean Harvesters. *Applied Engineering in Agriculture*. Vol. 26(1): 11-20. Impact Factor: 0.507. https://doi.org/10.13031/2013.29466

In-Press

50. Pokharel, P.†, Power, K.S., **Sama**, **M**.**P**.* 2025. Pressure Dynamics of a Spray Nozzle Under Pulse-Width Modulation Control. *Journal of the ASABE*. Accepted on 6/30/25.

In-Review (not included in total)

1. Scott, T., Gollihue, J., **Sama**, **M**.**P**., Shaffer, M., Berron, B. 2025. Measuring the transport of new make spirits through American white oak. *Journal of Institute of Brewing*. Submitted 5/29/25.

Data Sets

1. Bailey, S.C.*, Smith, S.W., **Sama**, **M**.**P**. 2020. University of Kentucky files from LAPSE-RATE (Version v2). Zenodo. http://doi.org/10.5281/zenodo.3732986

* Corresponding Author, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

Conference Papers

1. Ladino, K.S.†, **Sama**, **M**.**P**.* 2024. Automating Ground Control Point Detection in UAS Imagery Using Matrix Barcodes. SPIE: Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping IX. National Harbor, MD. Invited

2. Bailey, S.C.*, Canter, C., **Sama**, **M**.**P**., Smith, S.W. 2018. Atmospheric Surface Layer Processes Measured via Unmanned Aerial Vehicles During the Total Solar Eclipse of August 21 2017. ISARRA 2018. Boulder, CO.

3. Hamidisepehr, A.†, **Sama**, **M**.**P**.* 2018. A Low-Cost Method for Collecting Hyperspectral Measurements from a Small Unmanned Aircraft System. Proc. SPIE 10664, Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping III, 16640H. Orlando, FL.

4. **Sama**, **M**.**P**.*, Stombaugh, T.S. 2013. A Rotary Test Fixture for Stead-State Position Error Modeling. Paper Number 13-1620626, ASABE Annual Meeting. Kansas City, MO.

5. Sympson, W.S., **Sama**, **M**.**P**.* 2013. Cost Reduction of the Fan Assessment Numeration System through Data Analysis. Paper Number 13-1618881, ASABE Annual International Meeting. Kansas City, MO.

6. **Sama**, **M**.**P**.*, Pele, L.M., Day, G.B., Overhults, D.G., Morello, G.M., Lopes, I.M., Earnest, J., Casey, K.D., Gates, R.S. 2012. Calibration Drift Assessment and Upgrades to the Fan Assessment Numeration System (FANS). Paper Number 12-1337770, ASABE Annual International Meeting. Dallas, TX.

7. **Sama**, **M**.**P**.*, Morello, G.M., Lopes, I.M., Day, G.B., Overhults, D.G. 2012. Visualizing Airflow Using the Fan Assessment Numeration System (FANS). Paper Number 12-1337883, ASABE Annual International Meeting. Dallas, TX.

8. Luck, J.D.*, **Sama**, **M**.**P**., Pitla, S.K., Shearer, S.A. 2012. Droplet Spectra Characteristics from a Variable-Orifice Nozzle at Constant Pressures. Paper Number 12-1337472, ASABE Annual International Meeting. Dallas, TX.

9. **Sama**, **M**.**P**.*, Stombaugh, T.S., Zandonadi, R.S., Shearer, S.A. 2009. Dynamic GNSS Testing and Applications. Paper Number 09-6714, ASABE Annual International Meeting. Reno, NV.

10. **Sama**, **M**.**P**.*, Gates, R.S., Adams, W.C., Day, G.B., King, C.L. 2008. Fan Assessment Numeration System (FANS) Scaling and Upgrades. Paper Number 08-4723, ASABE Annual International Meeting. Providence, RI.

11. Stombaugh, T.S.*, **Sama**, **M**.**P**., Zandonadi, R.S., Shearer, S.A. 2008. Standardized Evaluation of Dynamic GPS Performance. Paper Number 08-4728, ASABE Annual International Meeting. Providence, RI.

12. Zandonadi, R.S.*, Stombaugh, T.S., Shearer, S.A., **Sama**, **M**.**P**. 2008. Laboratory Performance of a Low Cost Mass Flow Sensor for Combines. Paper Number 08-4167, ASABE Annual International Meeting. Providence, RI.

* Corresponding Author, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

13. **Sama**, **M**.**P**.*, Stombaugh, T.S., Koostra, B.K. 2006. Calibration and Verification of Low-Cost Image Tools for Remote Sensing. Paper Number 06-1166, ASABE Annual International Meeting. Portland, OR.

14. **Sama**, **M**.**P**.*, Stombaugh, T.S. 2005. Adaptation and Modification of Digital Imaging Systems for Remote Sensing. Paper Number 05-1016, ASAE Annual International Meeting. Tampa, FL.

Magazine Articles

1. **Sama**, **M**.**P**., Evans, J.T.† 2016. Seniors Design Solutions for Real Problems. *Resource Magazine*. 23(3): 8-8.

2. **Sama**, **M**.**P**., 2013. Bridging the Gap – From Agricultural Engineering to Electrical Engineering. *Resource Magazine*. 20(3): 8-9.

Patents

Granted

1. Posselius, J.H., Foster, C.A., Pitla, S.K., Shearer, S.A., Luck, J.D., **Sama**, **M**.**P**., Zandonadi, R.S., inventors; CNH Industrial America LLC, assignee. Control Architecture for Multi-Robot System. US patent 9,527,211. December 27, 2016.

Disclosed

1. **Sama**, **M**.**P**., Ladino, K.S. 2024. Automating Ground Control Point Detection in UAS Imagery Using Matrix Barcodes.

2. Montross, M.D., **Sama**, **M**.**P**., Farmer, B., Hawley, E., Hildebrand, W.K., Rogers, A., Turner, A.P., Dyck, G. 2023. Triaxial Pressure Measurement in Granular Materials.

3. **Sama**, **M**.**P**., Ladino, K.S. 2021. Systems and Methods for UAS-Based Distributed Atmospheric Monitoring.

4. Hildebrand, D., **Sama**, **M**.**P**., Lau, D., Hamidisepehr, A. 2020. Cannabinoid Analysis by Hyperspectral Imaging.

PRESENTATIONS

Invited Speaker Presentations

1. Dixon, M., Sama, M.P., Jiang, Y. Panel Discussion on the Scope of ASABE MS-58: Agricultural Equipment Automation. ASABE Annual International Meeting. Anaheim, CA. Presented on 7/29/24.

2. **Sama**, **M**.**P**.* 2024. From Soil to Sky: Advancing Environmental and Agricultural Sustainability with GIS and UAVs. Berea Collage. Berea, KY. Presented on 2/27/24.

3. **Sama**, **M**.**P**.* 2022. UAS Applications in Precision Agriculture and Atmospheric Monitoring. AVN 460: Aviation Legislation, Eastern Kentucky University. Richmond, KY. Presented on 11/14/22.

4. **Sama**, **M**.**P**.* 2021. Applications of Sensors and Controls for Precision Agriculture, Livestock Management, and Meteorology. UK Plant and Soil Sciences Department Seminar. Lexington, KY. Presented on 10/29/21.

* Presenter, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

5. Pitla, S.[*], Buckmaster, D.[*], Brown-Brandl, T.[*], Janzen, T.[*], **Sama**. **M**.**P**.[*], Shearer. S[*]. 2020. CAST Webinar: Ground and Aerial Robots for Agricultural Production – Opportunities and Challenges. Presented on 11/17/20.

6. **Sama**, **M**.**P**.[*] 2020. Applications of Electrical and Computer Engineering in Agriculture. UK ECE Colloquia. Lexington, KY. Presented on 10/2/20.

7. **Sama**, **M**.**P**.[*] 2018. Guide to Professional Licensure. Panel Discussion at the 2018 ASABE Annual International Meeting. Detroit, MI.

8. **Sama**, **M**.**P**.[*] 2017. Data-Driven Autonomous Systems. Emerging Technologies and Sustainability: Interactions Between Science and Society. Lexington, KY.

9. **Sama**, **M**.**P**.[*], Jacob, J.[*] 2014. UAS for Agricultural Research. InfoAg Conference. St. Louis, MO.

10. Smith, S.W.[*], **Sama**, **M**.**P**.[*] 2014. Farm Industry News Seminar: Eyes in the Sky – Putting Unmanned Aerial Vehicles to Work for Your Farm. National Farm Machinery Show. Louisville, KY.

Conferences Presentations

1. Ladino, K.S.[*], **Sama**, **M**.**P**. 2024. Optimizing Matrix Barcode Encoding for Ground Control Points in UAS-Based Remote Sensing. ASABE Annual International Meeting. Anaheim, CA.

2. Ladino, K.S.[*], **Sama**, **M**.**P**. 2024. Improving Detection of Matrix Barcode Ground Control Points for UAS-Based Remote Sensing. ASABE Annual International Meeting. Anaheim, CA.

3. Pokharel, P.[*†], **Sama**, **M**.**P**. 2024. Machine Vision Based Nozzle Control System to Optimize Chemical Use Efficacy for Vertical Spray Applications. ASABE Annual International Meeting. Anaheim, CA.

4. Bradley, M.O.[*†], **Sama**, **M**.**P**. 2024. Development of an Intelligent Power Distribution Module for Supervisory Safety in Small Off-Road Vehicles. ASABE Annual International Meeting. Anaheim, CA.

5. Adjuik, T.A.[*], Nokes, S.E., Montross, M.D., **Sama**, **M**.**P**., Wendroth, O.O. 2024. Comparative Performance of Machine Learning Models in Predicting Saturated Hydraulic Conductivity Using Soil Characteristics. ASABE Annual International Meeting. Anaheim, CA.

6. Ladino, K.S.[*†], **Sama**, **M**.**P**. 2024. Automating Ground Control Point Detection in UAS Imagery Using Matrix Barcodes. SPIE: Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping IX. National Harbor, MD. Invited

7. Pokharel, P.[*†], Osborne, A.[‡], **Sama**, **M**.**P**. 2024. The Effect of Scanning Resolution on Droplet Spectra from Water-Sensitive Spray Cards. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

8. Bradley, M.O.[*†], **Sama**, **M**.**P**. 2024. A System for Supervised Safety Interlocks on Small Off-Road Vehicles. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

* Presenter, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

9. Wesche, J.A.[*†], Pampolini, L.F.[†], **Sama**, **M**.**P**. 2023. Validating Drone-Based 3D Models Using a LiDAR 3D Scanner. ASABE Annual International Meeting. Omaha, NE.

10. Ladino, K.S.[*†], **Sama**, **M**.**P**. 2023. Evaluating Static and Dynamic Position Measurement Accuracy on an Unmanned Aircraft System (UAS). ASABE Annual International Meeting. Omaha, NE.

11. Pokharel, P.[*†], Osborne, A.[‡], Wesche, J.A.[†], **Sama**, **M**.**P**. 2023. Spray Coverage and Droplet Spectra Variability when Operating a Spray Nozzle under PWM Control. ASABE Annual International Meeting. Omaha, NE.

12. Ladino, K.S.[*†], **Sama**, **M**.**P**., Stanton, V.L. 2022. Development and Calibration of Pressure-Temperature-Humidity (PTH) Probes for Distributed Atmospheric Monitoring. ASABE Annual International Meeting. Houston, TX.

13. Pokharel, P.[*†], **Sama**, **M**.**P**. 2022. The Effect of Input Parameters on Nozzle Pressure Dynamics when Operating a Spray Nozzle Under Pulse-Width Modulation Control. ASABE Annual International Meeting. Houston, TX.

14. Aslhey, J.A.[*†], Xie, B., **Sama**, **M**.**P**. 2022. Designing and Alying Sensor-Driven Flight Systems for Multi-UAV Environment Exploration. IEEE International Conference on Robotics and Automation. Philadelphia, PA.

15. Pokharel, P.[*†], **Sama**, **M**.**P**. 2022. The Effect of Nozzle Body Volume on Pressure Dynamics in PWM Sprayer Systems. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

16. Burgues V., Salmeron M., Chiluwal A., Haramoto E., Naeve S., Poffenbarger H., Purcell L. C., **Sama M**.**P**. 2021. Aerial Imaging can Detect Differences in Canopy Greenness that Affect Soybean Yield and Seed Composition Annual Meeting, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Salt Lake City, UT.

17. Abdulai, G.A.[*†], **Sama**, **M**.**P**., Jackson, J.J. 2021. A Preliminary Study of the Effect of Temperament on Beef Cattle Response to Unmanned Aerial Vehicle (UAV) Flights. ASABE Annual International Meeting. Virtual.

18. Bababode, K.A.[*], Montross, M.D., **Sama**, **M**.**P**., McNeill, S.G. 2021. Monitoring Dimensional and Pigmental Changes in Different Wheat Varieties Stored at Different Moisture Levels. ASABE Annual International Meeting. Virtual.

19. Pampolini, L.F.[†], **Sama**, **M**.**P**.[*], Jackson, J.J. Yang, R., Hoagg, J.B. 2020. Estimating Cattle Size Using Unmanned Aircraft Systems and Photogrammetry. ASABE Annual International Meeting. Virtual.

20. Abdulai, G.A.[*†], Li, J., Herrin, D., Hoagg, J.B., Montross, M.D., **Sama**, **M**.**P**., Jackson, J.J. 2020. Physiological Response of Beef Cattle to Noise from Unmanned Aerial Vehicles (UAVs). ASABE Annual International Meeting. Virtual.

21. Ladino, K.S.[*†], **Sama**, **M**.**P**., Abdulai, G.A., Jackson, J.J. 2020. Static GNSS Accuracy Testing on an Unmanned Aircraft System. ASABE Annual International Meeting. Virtual.

* Presenter, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

22. O'Neal, S.T. *†, **Sama**, **M**.**P**., Montross, M.D., Wendroth, O.O. 2020. Preliminary Testing of a High-Throughput Soil Sampling System. ASABE Annual International Meeting. Virtual.

23. Adjuik, T.*, Wendroth, O.O., **Sama**, **M**.**P**. 2020. The Effect of Different Moisture Content Super Absorbent Polymer on Water Retention of Silt Loam Soil. ASABE Annual International Meeting. Virtual.

24. **Sama**, **M**.**P**. 2020. Development and Preliminary Testing of a Meteorological Instrument for UAS Deployment. Lower Atmospheric Process Studies at Elevation – a Remotely-piloted Aircraft Team Experiment (LAPSE-RATE) Workshop. Lincoln, NE.

25. O'Neal, S.T., **Sama**, **M**.**P**., Montross, M.D., Wendroth, O.O. 2020. Development of a High-Throughput Soil Sampling System. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

26. Abdulai, G.A.*†, Yang, R., Hoagg, J.B, **Sama**, **M**.**P**., Jackson, J.J.. 2019. Low Cost GPS Receiver Accuracy for Cattle. ASABE Annual International Meeting. Boston, MA.

27. Dvorak, J.S., Pampolini, L.F., Seyyedhasani, H., Jackson, J.J., Goff, B., **Sama**, **M**.**P**. 2019. Predicting Quality and Yield of Growing Alfalfa from a UAV. ASABE Annual International Meeting. Boston, MA.

28. Omodara, M., Montross, M.D., McNeill, S.G., **Sama**, **M**.**P**., Carr, D. 2019. Development of Monitoring Systems to Access Internal Environment of Bagged-Grain. ASABE Annual International Meeting. Boston, MA.

29. Turner, A.P.*†, Montross, M.D., **Sama**, **M**.**P**., O'Neal, S.T., Jackson, J.J. 2019. Variability in Yield Losses in Kentucky. ASABE Annual International Meeting. Boston, MA.

30. Hamidisepehr, A.*†, **Sama**, **M**.**P**. 2019. Classification of Soil Moisture Content Under Ambient Light Conditions Using a Passive Spectral Remote Sensing System. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

31. Turner, A.P. *†, **Sama**, **M**.**P**., Montross, M.D., Dvorak, J.S, McNeill, S., Martin, B., Mark, T. 2018. Discrete Event Simulation of Farm Scale Grain Transportation Systems. ASABE Annual International Meeting. Detroit, MI.

32. Dasika, S.S.*†, **Sama**, **M**.**P**., Pampolini, L.F.†, Good, C.B.†, Dvorak, J.S. 2018. Assessing the Spatial Accuracy and Precision of LiDAR and Photogrammetry for Remote Sensing in Agriculture. ASABE Annual International Meeting. Detroit, MI.

33. Payne, F.A.*, **Sama**, **M**.**P**. 2018. Smart Sensor for Determining Endpoint of Milk Coagulation. ASABE Annual International Meeting. Detroit, MI.

34. Hamidisepehr, A.*†, **Sama**, **M**.**P**. 2018. Classifying Reflectance Targets from Hyperspectral Data Collected Under Ambient Light Conditions using a Passive Low-Cost Remote Sensing System. ASABE Annual International Meeting. Detroit, MI.

35. Egert-McLean, A.M., Harmon, D.L., **Sama**, **M**.**P**., Klotz, J.L., Kristensen, N.B. 2018. Characterization of Feeding Behavior, Ruminal Motility, and Rumen Environment of Beef

Heifers During a Moderate Transition to a 90% Concentrate Diet. ASAS Annual Meeting. Vancouver, Canada.

36. Turner, A.P.[*†], Martin, B., Dvorak, J.S., Montross, M.D. **Sama**, **M**.**P**. 2018. Variability in Yield and Corn Harvest Losses Versus Moisture Content in Kentucky. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

37. Hamidisepehr, A.[*†], **Sama**, **M**.**P**. 2018. A Low-Cost Method for Collecting Hyperspectral Measurements. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

38. Dasika, S.S.[*†], **Sama**, **M**.**P**., Pampolini, L.F.[†], Good, C.B.[†], Dvorak, J.S. 2018. Performance Validation of a LiDAR Test Fixture for Remote Sensing in Agriculture. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

39. Seyyedhasani, H.[*], Dvorak, J.S., **Sama**, **M**.**P**. 2017. Aerial Validation of a Logistics Model for Area Coverage in Agriculture. ASABE Annual International Meeting. Spokane, WA.

40. Turner, A.P.[†], Montross, M.D.[*], **Sama**, **M**.**P**., Dvorak, J.S., Mark, T.B., Martin, B. 2017. Grain Harvest Cycle Analysis Based on Precision Agriculture Data. ASABE Annual International Meeting. Spokane, WA.

41. Hamidisepehr, A.[*†], **Sama**, **M**.**P**., Turner, A.P.[†], Wendroth, O.O. 2017. A Comparison Between Reflectance Index and Machine Learning Algorithms for Moisture Estimation from Spectral Data. ASABE Annual International Meeting. Spokane, WA.

42. Payne, F.A.[*], **Sama**, **M**.**P**. 2017. Development of a Tryptophan Fluorescence Sensor for Process Control in the Dairy Industry. ASABE Annual International Meeting. Spokane, WA.

43. Good, C.B.[*†], **Sama**, **M**.**P**., Dasika S.S.[†], Hamidisepehr, A.[†], Mason, R.L. 2017. A Low-Cost Method for Instrumenting LiDAR on an Unmanned Aircraft System. ASABE Annual International Meeting. Spokane, WA.

44. Dasika, S.S.[*†], **Sama**, **M**.**P**., Pampolini, L.F.[†], Good, C.B.[†], Dvorak, J.S. 2017. Design and Performance Evaluation of a Linear Motion System for Remote Sensing Instrument Testing. ASABE Annual International Meeting. Spokane, WA.

45. Wolf, K.M.[*,†], **Sama**, **M**.**P**., Taraba, J.L., Coyne, M.S., Bewley, J.M. 2017. A Portable Sensor for Measuring Gas Emissions from Dairy Compost Bedded Pack Barns. ASABE Annual International Meeting. Spokane, WA.

46. **Sama**, **M**.**P**.[*] 2017. Overview of UAS Activities at the University of Kentucky. S1069 Multistate Project Annual Meeting. Raleigh, NC.

47. Turner, A.P.[*†], **Sama**, **M**.**P**., Montross, M.D. 2017. Analysis of Grain Transportation Records to Determine Equipment Performance. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

48. Hamidisepehr, A.[*†], **Sama**, **M**.**P**., Turner, A.P.[†], Wendroth, O.O. 2017. Preliminary Results of a Reflectance Index for Measuring Soil and Crop Residue Moisture Content. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

* Presenter, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

49. Benedict, E.K.[*‡], **Sama**, **M**.**P**., Turner, A.P.[†] 2016. As-Applied Estimation of Volumetric Flow Rate from a Spray Nozzle using Liquid Mass on a Target. ASABE Annual International Meeting. Orlando, FL.

50. Luck, J.D.[*], **Sama**, **M**.**P**., Shearer, S.A. 2016. Development and Testing of an Individual Nozzle Direct Injection Pesticide Delivery System. ASABE Annual International Meeting, Orlando, FL.

51. **Sama**, **M**.**P**.[*] 2016. Teaching Instrumentation for Engineering Research and Control of Off-Road Vehicles at the University of Kentucky. ASABE Annual International Meeting, Orlando, FL.

52. Turner, A.P.[*†], Montross, M.D., Dvorak, J.S., **Sama**, **M**.**P**. 2016. Tracking Grain Trucks using a Fleet Management System. ASABE Annual International Meeting, Orlando, FL.

53. Payne, F.A.[*], **Sama**, **M**.**P**. 2016. Temperature Correction Methodology for Fluorescence Measurement of Proteins. ASABE Annual International Meeting. Orlando, FL.

54. **Sama**, **M**.**P**.[*] 2016. Policy and Regulations. S1069 Multistate Project Planning Meeting. Atlanta, GA.

55. **Sama**, **M**.**P**.[*], Evans, J.T.[†], Turner, A.P.[†], Dasika, S.S.[‡] 2015. As-Applied Estimation of Volumetric Flow Rate from a Single Sprayer Nozzle Series using Water Sensitive Spray Cards. ASABE Annual International Meeting. New Orleans, LA.

56. Evans, J.T.[*†], **Sama**, **M**.**P**., Taraba, J.L., Day, G.B. 2015. Effect of Tillage Methods on Oxygen Concentrations in Compost Bedded Pack Barns. ASABE Annual International Meeting. New Orleans, LA.

57. Payne, F.A.[*], **Sama**, **M**.**P**. 2015. Fluorescence Sensor for Online Measurement of Protein in Whey Permeate. 12th International Congress on Engineering and Food (ICEF12), Quebec City, Canada, June 14-18, 2015.

58. **Sama**, **M**.**P**.[*], Luck, J.D., Stombaugh, T.S. 2014. Scalable Control Architecture for Variable-Rate Turn Compensation. ASABE Annual International Meeting. Montreal, Quebec, Canada.

59. **Sama**, **M**.**P**.[*], 2014. Using Instrumentation Amplifiers as a Recurring Theme for Teaching Instrumentation. ASABE Annual International Meeting. Montreal, Quebec, Canada.

60. Evans, J.T.[*†], **Sama**, **M**.**P**. 2014. Calibration of Oxygen Sensors for use in Compost Bedded Pack Barns. ASABE Annual International Meeting. Montreal, Quebec, Canada.

61. Luck, J.D.[*†], **Sama**, **M**.**P**. 2014. Evaluation of a Wireless Resistance Based Sensor for Monitoring Spray Deposition. ASABE Annual International Meeting. Montreal, Quebec, Canada.

62. Evans, J.T.[*†], **Sama**, **M**.**P**. 2014. Calibration of Oxygen Sensors for use in Compost Bedded Pack Barns. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

63. **Sama**, **M**.**P**.[*], Stombaugh, T.S. 2013. A Rotary Test Fixture for Stead-State Position Error Modeling. ASABE Annual International Meeting. Kansas City, MO.

* Presenter, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

64. Sympson, W.S.*†, **Sama**, **M**.**P**. 2013. Cost Reduction of the Fan Assessment Numeration System through Data Analysis. ASABE Annual International Meeting. Kansas City, MO.

65. Agouridis, C.T.*, Maupin, T., Barton, C., Edwards, D.R., Warner, R.C., **Sama**, **M**.**P**. 2012. Assessing Conductivity Sensor Performance: A Laboratory and Field Study. Southeast Regional Stream Restoration Conference. Wilmington, NC.

66. **Sama**, **M**.**P**.*, Pele, L.M., Day, G.B., Overhults, D.G., Morello, G.M., Lopes, I.M., Earnest, J., Casey, K.D., Gates, R.S. 2012. Calibration Drift Assessment and Upgrades to the Fan Assessment Numeration System (FANS). ASABE Annual International Meeting. Dallas, TX.

67. **Sama**, **M**.**P**.[1], Morello, G.M., Lopes, I.M., Day, G.B., Overhults, D.G. 2012. Visualizing Airflow Using the Fan Assessment Numeration System (FANS). ASABE Annual International Meeting. Dallas, TX.

68. Luck, J.D.*, **Sama**, **M**.**P**., Pitla, S.K., Shearer, S.A. 2012. Droplet Spectra Characteristics from a Variable-Orifice Nozzle at Constant Pressures. ASABE Annual International Meeting. Dallas, TX.

69. Lopes, I.M.*, Damasceno, F.A., Day, G.B., **Sama**, **M**.**P**., Overhults, D.G. 2012. WINTAC: A Wind Tunnel Transition Assessment Chamber at the Biosystems and Agricultural Engineering Department at University of Kentucky. ASABE Annual International Meeting. Dallas, TX.

70. Luck, J.D.*, **Sama**, **M**.**P**., Shearer, S.A. 2012. Spray Pattern and Droplet Spectra Characteristics from an Actively Controlled Variable-Orifice Nozzle. International Conference on Precision Agriculture. Indianapolis, IN.

71. Black, R.A.*, Stombaugh, T.S., Luciani, S.R., **Sama**, **M**.**P**., Klingefus, R.L., Klingefus, A.B., Bewley, J.M. 2012. Potential for a Real-Time Location System for Dynamic Tracking of Dairy Cow Location within Dairy Facilities. American Dairy Science Annual Meeting. Phoenix, AZ.

72. **Sama**, **M**.**P**.*, Zandonadi, R.S., Luck, J.D., Stombaugh, T.S., Shearer, S.A. 2011. A Static Evaluation of Continuously Operating Reference Stations. ASABE Annual International Meeting. Louisville, KY.

73. Montross, M.D.*, Adams, W.C., Mathis, L., McNeill, S.G., **Sama**, **M**.**P**., Thompson, S., Boac, J., Casada, M. 2011. Laboratory Data with Hard Red Winter Wheat to Support New Grain Packing Factors. ASABE Annual International Meeting. Louisville, KY.

74. Zandonadi, R.S.*, Stombaugh, T.S., **Sama**, **M**.**P**., Pitla, S.K., Baldo, R. 2011. Evaluation of a Reduced Equipment Set for Multiple Vehicle Guidance Using Distance Sensors to Determine Relative Position between Vehicles. ASABE Annual International Meeting. Louisville, KY.

75. **Sama**, **M**.**P**.*, Zandonadi, R.S., Luck, J.D., Stombaugh, T.S., Shearer, S.A. 2010. Development of a Scalable Control System for Variable-Rate Applications. ASABE Annual International Meeting. Pittsburgh, PA.

76. Luck, J.D.*, **Sama**, **M**.**P**., Pitla, S.K., Shearer, S.A. 2010. Pneumatic Control of a Variable Orifice Nozzle. ASABE Annual International Meeting. Pittsburgh, PA.

* Presenter, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

77. **Sama**, **M**.**P**.*, Stombaugh, T.S., Zandonadi, R.S., Shearer, S.A. 2009. Dynamic GNSS Testing and Applications. ASABE Annual International Meeting. Reno, NV.

78. **Sama**, **M**.**P**.*, Stombaugh, T.S., Zandonadi, R.S., Shearer, S.A., Adams, W.C. 2009. A Mechanism for Evaluating Dynamic GNSS Accuracy on a Test Fixture. ASABE Agricultural Equipment Technology Conference. Louisville, KY.

79. **Sama**, **M**.**P**.*, Gates, R.S., Adams, W.C., Day, G.B., King, C.L. 2008. Fan Assessment Numeration System (FANS) Scaling and Upgrades. ASABE Annual International Meeting. Providence, RI.

80. Stombaugh, T.S.*, **Sama**, **M**.**P**., Zandonadi, R.S., Shearer, S.A. 2008. Standardized Evaluation of Dynamic GPS Performance. ASABE Annual International Meeting. Providence, RI.

81. Zandonadi, R.S.*, Stombaugh, T.S., Shearer, S.A., **Sama**, **M**.**P**., 2008. Laboratory Performance of a Low-Cost Mass Flow Sensor for Combines. ASABE Annual International Meeting. Providence, RI.

82. **Sama**, **M**.**P**.*, Stombaugh, T.S. 2007. Using Low-Cost Imaging Tools to Measure Spatial Variations in Pastures. ASABE Annual International Meeting. Minneapolis, MN.

83. **Sama**, **M**.**P**.*, Stombaugh, T.S., Koostra, B.K. 2006. Calibration and Verification of Low-Cost Image Tools for Remote Sensing. ASABE Annual International Meeting. Portland, OR.

84. Brown, D.*, Arrowsmith, T.*, Mylin, A.*, Koontz, R.*, Fox, A.*, Phelps, N.*, Thomas, D.*, Rowe, J.*, Jones, R.*, Jackson, D.*, Groves, A.*, **Sama**, **M**.**P**.* 2005. AIRCAT: Airborne Intelligent Research Craft for Autonomous Technology. AUVSI Unmanned Systems Meeting. Baltimore, MD.

85. **Sama**, **M**.**P**.*, Hershman, D.E., Stombaugh, T.S., McNeill, S.G., Needham, P. 2005. An Analysis of Sprayer Droplets Using MATLAB. National Soybean Rust Symposium. Nashville, TN.

86. **Sama**, **M**.**P**.*, T.S. Stombaugh. 2005. Adaptation and Modification of Digital Imaging Systems for Remote Sensing. ASAE Annual International Meeting. Tampa, FL

Seminars

1. **Sama**, **M**.**P**. 2024. Sensors and Controls in Agriculture. Presented at the BAE Department Seminar on 2/16/24.

2. **Sama**, **M**.**P**. 2023. Graduate Orientation Refresher and Performance Assessments. Presented at the BAE Department Seminar on 1/13/23.

3. **Sama**, **M**.**P**. 2015. Unmanned Aerial Systems (UAS) and Remote Sensing in Agriculture. Presented at the UK Unmanned Systems Research Consortium Shotgun Seminar on 2/18/15.

4. **Sama**, **M**.**P**. 2015. Machine Systems Automation Engineering. Presented at the BAE Graduate Student Recruitment Seminar on 2/6/15.

5. **Sama**, **M**.**P**. 2014. USDA AFRI Proposal Review. Presented at the BAE Departmental Seminar on 10/31/14.

6. **Sama**, **M**.**P**. 2014. Precision Ag Research. Presented at the UK Aerospace Engineering Advisory Board Meeting on 10/24/14.

7. **Sama**, **M**.**P**. 2014. Machine Systems Automation Engineering. Presented at the BAE Graduate Student Recruitment Seminar on 1/14/14.

Extension Presentations

1. **Sama**, **M**.**P**. 2016. UAV Applications in Agriculture. Presented at the Precision Ag Data Management Workshop in Owensboro, KY on 12/15/16.

2. **Sama**, **M**.**P**. 2015. Unmanned Aerial Systems (UAS) and Remote Sensing. Presented at the KY Precision Agriculture Workshop in Princeton, KY on 8/25/14.

3. **Sama**, **M**.**P**. 2015. GPS Research and Applications. Presented at the KY Precision Agriculture Workshop in Princeton, KY on 8/24/14.

4. **Sama**, **M**.**P**. 2015. Unmanned Aerial Systems and Remote Sensing in Agriculture. Presented four times at the UK Corn, Soybean & Tobacco Field Day. Princeton, KY.

5. **Sama**, **M**.**P**. 2015. Unmanned Aerial Systems and Remote Sensing in Agriculture. Presented three times at the UK Wheat Field Day. Princeton, KY.

6. **Sama**, **M**.**P**. 2014. GPS Research at the University of Kentucky. Presented at the Kentucky Corn Growers CORE Farmer Program (Class III) in Louisville, KY.

TEACHING AND ADVISING

Regular Courses Taught

BAE 205: Computer Aided Design for Biosystems Engineering[1]

Semester	Number of Students	Course Quality (College Mean)	Teaching Quality (College Mean)
Spring 2025	12	4.8 (4.2)	4.9 (4.2)
Spring 2025	13	5.0 (4.2)	5.0 (4.2)
Spring 2024	14	4.7 (4.2)	4.7 (4.3)
Spring 2024	18	4.6 (4.2)	4.8 (4.3)

1: Developed course

BAE 400: Senior Seminar[1]

Semester	Number of Students	Course Quality (College Mean)	Teaching Quality (College Mean)
Fall 2016	25	3.93 (3.79)[2]	4.73 (4.07)[2]
Fall 2015	33	3.48 (3.29)[3]	3.76 (3.40)[3]
Fall 2014	23	3.40 (3.37)[3]	3.60 (3.42)[3]

1: Existing course, partially developed new course content in 2014
2: Scale 1 to 5
3: Scale 1 to 4

BAE 502: Modeling of Biological Systems[1]

Semester	Number of Students	Course Quality (College Mean)	Teaching Quality (College Mean)
Spring 2025	18	4.5 (4.2)	4.8 (4.2)
Spring 2024	14	4.9 (4.2)	4.9 (4.3)
Spring 2023	19	N/A[4]	N/A[4]
Spring 2022	20	4.5 (4.2)[2]	4.7 (4.3)[2]
Spring 2021	25	4.1 (4.0)[2]	4.4 (4.3)[2]
Spring 2020	29	4.5 (4.1)[2]	4.4 (4.2)[2]
Spring 2013	15	3.70 (3.50)[3]	3.90 (3.50)[3]

1: Existing course, partially developed new course content in 2013
2: Scale 1 to 5
3: Scale 1 to 4
4 Not evaluated

BAE 514: Component Design[1]

Semester	Number of Students	Course Quality (College Mean)	Teaching Quality (College Mean)
Spring 2022	8	N/A[4]	N/A[4]
Spring 2020	5	N/A[4]	N/A[4]
Spring 2018	11	5.00 (4.00)[2]	5.00 (4.20)[2]
Spring 2016	9	4.00 (3.35)[3]	4.00 (3.48)[3]
Spring 2014	7	3.70 (3.31)[3]	4.00 (3.39)[3]

1: Developed course, taught as BAE 599-002 in 2014 and 2016
2: Scale 1 to 5
3: Scale 1 to 4
4: Not evaluated

BAE 516: Control of Off-Road Vehicles[1]

Semester	Number of Students	Course Quality (College Mean)	Teaching Quality (College Mean)
Spring 2021	6	3.70 (4.00)[2]	4.50 (4.30)[2]
Spring 2017	7	4.71 (3.99)[2]	5.00 (4.21)[2]
Spring 2015	15	3.60 (3.35)[3]	3.73 (3.45)[3]

1: Developed course, taught as BAE 599-002 in 2015 and 2017
2: Scale 1 to 5
3: Scale 1 to 4

BAE 658: Instrumentation for Engineering Research[1]

Semester	Number of Students	Course Quality (College Mean)	Teaching Quality (College Mean)
Fall 2023	10	4.90 (4.30)[2]	4.90 (4.20)[2]
Fall 2022	4	N/A[4]	N/A[4]
Fall 2019	11	4.60 (4.10)[2]	4.60 (4.20)[2]
Fall 2018	12	4.90 (3.90)[2]	5.00 (4.20)[2]
Fall 2017	9	4.90 (3.90)[2]	4.70 (4.20)[2]
Fall 2016	8	4.86 (3.79)[2]	4.86 (4.07)[2]
Fall 2015	7	3.71 (3.29)[3]	4.00 (3.40)[3]
Fall 2013	3	N/A[4]	N/A[4]
Fall 2012	10	3.80 (3.40)[3]	3.80 (3.40)[3]
Fall 2011	7	N/A[4]	N/A[4]

Fall 2010	7	3.70 (3.40)[3]	3.70 (3.50)[3]
Fall 2009	9	3.50 (3.30)[3]	3.60 (3.40)[3]

1: Existing course, developed all new course content in 2009
2: Scale 1 to 5
3: Scale 1 to 4
4: Not evaluated

Guest Lectures

1. BAE 775: Seminar. Expectations and Requirements for Graduate Students at the University of Kentucky. Instructor: Akinbode Adedeji. Presented on 8/28/24.

2. IPS 625: Trans-disciplinary Research in Integrated Plant and Soil Sciences. High Volume Data Capture in Agricultural Research Endeavors. Instructor: Bruce Downie. Presented on 11/8/2023.

3. BAE 775: Expectations and Requirements for Graduate Students at the University of Kentucky. Instructor: Akinbode Adedeji. Presented on 8/23/23.

4. AES 320: Unmanned Aircraft Systems (UAS) Flight Demonstration and Applications in Precision Agriculture. Instructor: David McNear. Presented on 8/9/2023.

5. AES 320: Unmanned Aircraft Systems (UAS) Flight Demonstration. Instructor: David McNear. Presented on 8/10/2021.

6. AES 101: Introduction to Agricultural Ecosystems Science. Engineering and Technology in Agriculture. Instructor: David McNear. Presented on 10/17/2019.

7. GEN 300-002: Climate Change and Agriculture. Drone Applications in Agrometeorology and Remote Sensing. Instructors: Wei Ren, George Wagner. Presented on 4/2/2019.

8. IPS 625: Emerging Technologies in Agriculture. Unmanned Aircraft Systems (UAS) and Remote Sensing in Agriculture. Instructors: David Van Sanford, Mark Coyne, Jason Unrine. 8 Students. Presented on 9/24/2014.

Post-Doctoral Supervision

1. Karla S. Ladino. Improving the Spatial and Spectral Calibration of Remote Sensing Imagery from Unmanned Aircraft Systems. July 2023 to July 2024.

Graduate Student Major Advising

Full Member of the Graduate Faculty since 9/23/15.
Associate Member of the Graduate Faculty from 8/26/13 to 9/22/15.

Completed

1. Karla S. Ladino, Ph.D. BAE. 2023. Unmanned Aircraft Systems for Precision Meteorology: An Analysis of GNSS Position Measurement Error and Embedded Sensor Development. August 2019 to May 2023. Advisor. Current Position: Engineer Associate IV at the University of Kentucky under my supervision.

2. Joshua A. Ashley, M.S., ECE. 2022. Developing Reactive Distributed Aerial Robotics Platforms for Real-Time Contaminant Maing. January 2021 to September 2022. Co-Advisor (Advisor: Biyun Xie). Current Position: Engineer at Blue Origin.

3. Gabriel A. Abdulai, Ph.D. BAE. 2021. The Response of Beef Cattle to Disturbances from Unmanned Aerial Vehicles (UAVs). July 2018 to December 2021. Co-Advisor (Advisor: Joshua Jackson). Current Position: Agricultural Engineer at Benson Hill.

4. L. Felipe Pampolini, M.S., BAE. 2020. An Assessment of 2D and 3D Spatial Accuracy of Photogrammetry for Livestock Health Monitoring. August 2017 to May 2020. Advisor. Current Position: Application Engineer at Volvo Group.

5. Austin M. Weiss, M.S., BAE. 2019. Nozzle Droplet Control for Drift Mitigation using Real-Time Weather Data. August 2017 to June 2019. Advisor. Current Position: Engineer at Syngenta.

6. Aaron P. Turner, Ph.D., BAE. 2018. Development of a Support System for Capacity Planning from Grain Harvest to Storage. January 2014 to September 2018. Co-Advisor (Advisor: Michael Montross). Current Position: Assistant Professor in the Agricultural Sciences Department at Clemson University

7. Ali Hamidisepehr, Ph.D., BAE. 2018. Classifying Soil Moisture Content using Reflectance-Based Remote Sensing. August 2015 to August 2018. Advisor. Current Position: Research Scientist at Bayer CropScience.

8. S. Saket Dasika, M.S., BAE. 2018. Assessing the Spatial Accuracy and Precision of LiDAR for Remote Sensing in Agriculture. August 2016 to July 2018. Advisor. Current Position: Software Controls Engineer at KLA Corporation.

9. Katharine M. Wolf, M.S., BAE. 2017. A Portable Sensor for Measuring Gas Emission from Dairy Compost Bedded Pack Barns. August 2015 to July 2017. Advisor (Co-Advisor: Joseph Taraba). Current Position: Large Animal Associate Veterinarian at Town and Country Animal Services.

10. John T. Evans, M.S., BAE. 2015. Effect of Tillage Methods on Oxygen Concentrations in Compost Bedded Pack Barns. August 2013 to May 2015. Advisor. Current Position: Assistant Professor in the Department of Agricultural and Biological Systems at Purdue University.

In-Progress

1. Mason Bradley, (M.S.), BAE 2025. Development of a Vehicle Safety Module for Small Off-Road Vehicles. August 2023 to present. Advisor.

2. John Wesche, (M.S.), BAE. 2024. Highly Distributed Sensor Networks in Agricultural Vehicles. August 2022 to December 2023. Advisor.

3. Prashanta Pokharel, (Ph.D. Candidate, ABD), BAE. 2024. PWM Spray System Performance and Development of a Novel Systems to Optimize Spray Use Efficacy. August 2021 to present. Advisor.

4. Shawn T. O'Neal, (M.S.), BAE. 2021. High-Throughput Soil Sampling and Spectroscopy. August 2018 to May 2020. Advisor.

Graduate Student Advisory Committee Member

Completed

1. Sujit Sinha (Ph.D. Candidate), M.E., 2023. Adaptive WRF and KATS Modeling for Data-Driven Adaptive Real-Time Flow-Field Estimation using Deployable UAVs. 11/28/23. Advisor: Alexandre Martin.

2. Loiy Al-Ghussain, (Ph.D. Candidate), M.E., 2023. Real Time Measurements of Atmospheric Properties Using Unmanned Aerial Systems. 3/22/23 Advisor: Sean C. C. Bailey.

3. Connor Greenwell, Ph.D., C.S., 2022. Probabilistic Cross-Domain Representation Learning. 6/15/22. Advisor: Nathan Jacobs.

4. Toby Adjuik, Ph.D., BAE, 2022. Exploration of Lignin-Based Superabsorbent Polymers (Hydrogels) for Soil Water Management and as a Carrier for Delivering Rhizobium. 6/15/22. Advisors: Sue E. Nokes and Michael D. Montross.

5. Christopher Heintz, Ph.D., M.E. 2022. Formation Control in a Leader-Fixed Frame: Theory and Applications to Fixed-Wing UAVs. 4/20/22. Advisor: Jesse B. Hoagg.

6. Zachary S. Liay, Ph.D., M.E. 2022. Formation Control with Bounded Controls and Collision Avoidance: Theory and Application to Quadrotor Autonomous Unmanned Air Vehicles. 4/15/22. Advisor: Jesse B. Hoagg.

7. Yanjun Yang, Ph.D., IPSS, 2022. Quantifying Crop Phenology for Food Sustainability Under Climate Change at Multiple Scales: Integration of Remote Sensing, Machine Learning, and Ecosystems Modeling. 4/7/22. Advisors: Wei Ren and Christopher Matocha.

8. Braydi McPherson-Hathaway, M.S., BAE. 2021. Comparing BEOPT (EnergyPlus) Energy Predictions to Measured Circuit Level Energy Consumption of 12 Similar Small Energy-Efficient Single-Family Residences. 6/13/21. Advisor: Donald G. Colliver.

9. Michael Omodara, Ph.D., BAE. 2020. Ecosystem of Bagged Grain Stored Under Naturally Ventilated Warehouse: Analysis and Modeling. 11/13/20. Advisor: Michael D. Montross.

10. Abuchi Okeke, M.S., BAE. 2020. Fourier Transform Infrared Spectroscopy (As a Rapid Method) Coupled with Machine Learning Approaches for Detection of Gluten Contaminations in Grain-Based Foods. 7/22/20. Advisor: Akinbode Adedeji.

11. Amanda M. McLean, Ph.D., Animal and Food Sciences. 2019. Preliminary Characterization of Feeding Behavior, Ruminal pH, and Motility for Cattle During Transition to High-Grain Diets Based on Dry-Rolled High-Moisture Corn. 4/25/19. Advisor: David L. Harmon.

12. Bradford Greenwell, M.S., BAE. 2016. Continuous Flow-Proportional Flocculation Dosage System. 7/21/16. Advisor: Richard S. Warner.

13. Drew Schiavone, Ph.D., BAE. 2016. Temperature and Moisture Simulation in Bales during Storage and Bioconversion. 4/18/16. Advisor: Michael D. Montross.

14. Joseph Jackson, M.S., BAE. 2015. Testing the Efficiency of a Series Hybrid Drivetrain for Agricultural Applications. 7/1/15. Advisor: Joseph S. Dvorak.

15. Aaron P. Turner, M.S., BAE. 2014. Laboratory Scale Concept Validation and Evaluation of Compromising Plant Nodal Integrity as a Means to Increase Bale Density. 3/14/14. Advisor: Michael D. Montross.

16. Timothy P. Mains, M.S., BAE. 2014. Using a Fluorescence Sensor Technology to Monitor Yogurt Culture Fermentation and Predict Endpoint. 7/25/14. Advisor: Frederick A. Payne.

In-Progress

1. Landon Clark (Ph.D. Candidate), ECE, 2024. Fault-Tolerant Operation of Redundant Robots Experiencing Locked Joint Failure. Advisor: Biyun Xie

2. Benton Clark (Ph.D. Candidate), M.E., 2024. A Self-Supervised Aroach to Learning Robot Dynamics Models. Advisor Hasan Poonawala

Outside Examiner

1. Robert Ellis, Ph.D., Agricultural Economics. 2023. Managing Used Farm Machinery and Accessing the Sustainability of Tile Drainage Installation. 5/24/23. Advisor: Tyler Mark.

2. Majid Mahmoodabadi, Ph.D., Civil Engineering. 2020. Effects of Hydrological Variations on Hydraulic and Deformational Characteristics of Unsaturated Soils. 7/20/20. Advisor: L. Sebastian Bryson.

3. Tawfiq M.A. Salem, Ph.D., Computer Science. 2019. Learning to Map the Visual and Auditory World. 7/15/19 Advisor: Nathan Jacobs.

4. Zhen Fang, Ph.D., Chemistry. 2018. Oxidative Degradation of Lignin and Utilization of Lignin-Derived Monomers as Building Blocks for Epoxy Resins. 1/15/19. Advisor: Mark Meier.

5. Hamid S. Hamraz, Ph.D., Computer Science. 2018. Automated, Remote Tree-Level Forest Quantification using Airborne LiDAR. 4/9/18. Advisor: Nathan Jacobs.

6. Brandon J. Wellman, Ph.D., Mechanical Engineering. 2017. Advances in Multi-Agent Flocking: Continuous-Time and Discrete-Time Algorithms. 7/11/17. Advisor: Jesse B. Hoagg.

Undergraduate Student Advising

Undergraduate Research Assistants

1. Victoria Lamarche. Pre-Engineering. Summer 2025 to present.

2. Madison P. Gibson. Biosystems and Agricultural Engineering. Summer 2025 to present.

3. Owen R. Galligan. Electrical and Computer Engineering. Spring 2025 to present.

4. Tara Bose. Electrical and Computer Engineering. Spring 2025 to Summer 2025.

5. Eli Barrow. Biosystems and Agricultural Engineering. Fall 2024 to Spring 2025.

6. Lauren M. Lanham. Biosystems and Agricultural Engineering. Fall 2024 to present.

7. William Faulkner. Biosystems and Agricultural Engineering. Fall 2024 to present.

8. Emma Harmon. Biosystems and Agricultural Engineering. Summer 2024 to Spring 2025. Advisor.

9. Isaac Hamlin. Biosystems and Agricultural Engineering. Spring 2022 to Summer 2022. Advisor.

10. Abbey Osborne. Remote Sensing and Photogrammetry. Spring 2021 to Fall 2021. Advisor.

11. John A. Wesche. Biosystems and Agricultural Engineering. Spring 2020 to Summer 2022. Advisor.

12. Kiley S. Power. Biosystems and Agricultural Engineering. Summer 2019 to Fall 2019. Advisor.

13. Collin J. O'Donnell. Biosystems and Agricultural Engineering. Summer 2019. Advisor.

14. Taylour Butler. Veterinary Science. Unmanned Aircraft Systems. Summer 2019. Advisor.

15. Tyler Browning. Biosystems and Agricultural Engineering. Fall 2018 to Spring 2019. Advisor.

16. Matthew Miller. Electrical and Computer Engineering. Fall 2017 to Spring 2018. Advisor.

17. Shawn T. O'Neal. Biosystems and Agricultural Engineering. Fall 2017 to Spring 2018. Co-Advisor (Advisor: Aaron P. Turner).

18. Austin M. Weiss. Biosystems and Agricultural Engineering. Spring 2017. Advisor.

19. Emma K. Benedict. Biosystems and Agricultural Engineering. Fall 2015 and Spring 2016. Advisor.

20. C. Aaron Shearer. Biosystems and Agricultural Engineering. Summer 2015. Advisor.

21. A. Jacob Crouch. Biosystems and Agricultural Engineering. Summer 2014. Advisor.

22. Christopher M. Wade. Biosystems and Agricultural Engineering. Summer 2014. Advisor.

23. Katherine M. Wolf. Biosystems and Agricultural Engineering. Summer 2013 to Summer 2014. Co-Advisor (Advisor: Joseph L. Taraba).

24. John T. Evans. Biosystems and Agricultural Engineering. C. Spring 2013 to Summer 2013. Advisor.

International Interns

1. Rafael Mariano dos Santos. University of São Paulo, Brazil. Image Processing using Photogrammetry. Spring 2015.

2. S. Saket Dasika. Indian Institute of Technology, Kharagpur. Non-Contact Spray Assessment and Soil Moisture Determination through Spectroscopy. Summer 2015.

Senior Design

1. BAE 402/403: Machine Systems Senior Design Team. Drivetrain System. Fall 2022 and Spring 2023. 3 Students. Advisor.

2. EE/CPE 490/491: ECE Capstone Design I & II. Wire Harness Design for a Distributed Control and Data Acquisition System. Fall 2021 and Spring 2022. 5 Students. Advisor.

3. BAE 402/403: Machine Systems Senior Design Team. Electronically-Controlled Multi-State Clutch System. Fall 2019 and Spring 2020. 3 Students. Advisor.

4. BAE 402/403: Pre-Biomedical Engineering Senior Design Team. Driver Isolation System. Fall 2019 and Spring 2020. 3 Students. Advisor.

5. BAE 402/403: Machine Systems Senior Design Team. Trans-axle Sequential Shifter. Fall 2017 and Spring 2018. 3 Students. Advisor.

6. BAE 402/403: Machine Systems Senior Design Team. Tractor Throttle. Fall 2017 and Spring 2018. 3 Students. Advisor.

7. BAE 402/403 Machine Systems Senior Design Team. Front Loader Weighing System. Spring 2015. 4 Students. Advisor and Sponsor.

8. BAE 402/403: Machine Systems Senior Design Team. Dynamic Tractor Cab Simulator. Fall 2014 and Spring 2015. 4 Students. Advisor and Sponsor.

9. EE 490/491: Electrical Engineering Capstone Design. Computer Aided Tractor Simulator. Fall 2013 and Spring 2014. 6 Students. Co-Advisor (Advisor: James E. Lum).

Student Design Competitions

1. University of Kentucky Wildcat Pulling Team, 2011-present. ASABE International ¼-Scale Tractor Student Design Competition. 2012, 2014 & 2015 Competition Champions. 25 students in 2023, 20 students in 2022, 12 students in 2021, 6 students in 2020, 14 in 2019, 18 in 2018, 15 in 2017, 12 in 2016, 24 in 2015, 10 in 2014, 12 in 2013, 14 in 2012, 9 in 2011. Faculty Advisor.

2. University of Kentucky Blufasa Team, 2013-2015. Wildlife Challenge Unmanned Aerial Vehicle Competition. 9 Students. Co-Advisor (Advisor: Sean C. Bailey).

Academic Curriculum

1. BAE Machine Systems Automation Engineering Concentration. Fall 2013 to present. 40 Students. Technical Elective Advisor.

High School Student Advising

Fayette County Public Schools

1. Victoria Lamarche. Testbench for Evaluating Robotic Propulsion Through Grain. Fall 2024 to Spring 2025.

2. Eric Chen. Scanning Matrix Barcodes with Unmanned Aircraft Systems. Fall 2020 to Spring 2022. 1st Place in KY State Science Fair: Environmental Engineering Category.

PROFESSIONAL ORGANIZATION MEMBERSHIP

1. Academy of Model Aeronautics. 2013-2016.
2. Association for Unmanned Vehicle Systems International. 2005-2006.

3. American Society of Agricultural and Biological Engineers. 2004-present.

PROFESSIONAL DEVELOPMENT

Coursework

1. AUTONAVx: Autonomous Navigation for Flying Robots. Technische Universität München. 2015.

Continuing Professional Development

Participant

1. Faculty Fellows. 2017. Multimodal Communication.

Organizer/Presenter

1. **Sama**, **M**.**P**. 2016. PC-Based Data Acquisition. Presented as a CPD at the 2016 ASABE Agricultural Equipment Technology Conference. Louisville, KY.
2. Smith, S.W., Bailey, S.C., **Sama**, **M**.**P**., Rister, B., Jacob, J.D., Graves, C., Ditto, D.S. Fortune, W. 2015. Drones: What do you know? What do you need to know? Presented as a Kentucky Transportation Cabinet CPD. Lexington, KY.
3. Cambron, T., **Sama**, **M**.**P**., Wedig, H. 2015. Additive Manufacturing 101. Presented as a CPD at the 2015 ASABE Agricultural Equipment Technology Conference. Louisville, KY.

Professional Meetings Attended

1. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2024.
2. ASABE Annual International Meeting. Omaha, NE. 2023.
3. ASABE Agricultural Equipment Technology Conference. Fresno, CA. 2023.
4. ASABE Annual International Meeting. Houston, TX. 2022.
5. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2022.
6. ASABE Annual International Meeting. Virtual. 2021.
7. ASABE Annual International Meeting. Virtual. 2020.
8. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2020.
9. Lower Atmospheric Process Studies at Elevation – a Remotely-piloted Aircraft Team Experiment (LAPSE-RATE) Workshop. Lincoln, NE.
10. ASABE Annual International Meeting. Boston, MA. 2019.
11. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2019.
12. ASABE Annual International Meeting. Detroit, MI. 2018.
13. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2018.
14. ASABE Annual International Meeting. Spokane, WA. 2017.
15. Southern Soybean Research Program. Tifton, GA. 2017.
16. S1069 Unmanned Aircraft Systems in Agriculture Multistate Meeting. Raleigh, NC. 2017.
17. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2017.
18. ASABE Annual International Meeting. Orlando, FL. 2016.
19. S1069 Unmanned Aircraft Systems in Agriculture Multistate Meeting. Atlanta, GA. 2016.
20. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2016.
21. Kentucky Transportation Cabinet Drone Workshop. Lexington, KY. 2015.
22. VDI Wissenforum 73. International Landtechnik. Hannover, Germany. 2015.
23. KY Precision Agriculture Workshop. Princeton, KY. 2015
24. ASABE Annual International Meeting. New Orleans, LA. 2015
25. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2015.
26. The InfoAg Conference. St. Louis, MO. 2014.
27. ASABE Annual International Meeting. Montreal. Quebec, Canada. 2014.
28. Kentucky Corn Growers Association CORE Farmer Program. Louisville, KY. 2014.

29. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2014.
30. Kentucky Summit – Unmanned Aerial Systems. Lexington, KY. 2013.
31. VDI Wissenforum 71. International Landtechnik. Hannover, Germany. 2013.
32. ASABE Annual International Meeting. Kansas City, MO. 2013.
33. Precision Agriculture Workshop at the Hardin County Extension Office. 2013.
34. ASABE Annual International Meeting. Dallas, TX. 2012.
35. ASABE Annual International Meeting. Louisville, KY. 2011.
36. ASABE Annual International Meeting. Pittsburgh, PA. 2010.
37. NCERA-180 Site Specific Management Multistate Meeting. Lexington, KY. 2010.
38. ASABE Annual International Meeting. Reno, NV. 2009.
39. ASABE Agricultural Equipment Technology Conference. Louisville, KY. 2009.
40. ASABE Annual International Meeting. Providence, RI. 2008.
41. ASABE Annual International Meeting. Minneapolis, MN. 2007.
42. ASABE Annual International Meeting. Portland, OR. 2006.
43. National Soybean Rust Symposium. Nashville, TN. 2005.
44. ASAE Annual International Meeting. Tampa, FL. 2005.

In-Service Training

1. CAFE Fostering Community and Belonging. 2020.
2. VPR Lunch & Learn Series: Junior Faculty Panel. 2020.
3. CAFE Understanding Diversity and the Dynamics of Community. 2020.
4. VPR Lunch & Learn Series: Basic Grantsmanship: A Framework for Success. 2020.
5. CAFE Promotion and Tenure Workshop. 2018.
6. UK Unconscious Bias (Search Committee Emphasis). 2018.
7. UK Unconscious Bias (Faculty Emphasis). 2017.
8. UK Responsible Conduct in Research Training. 2016.
9. CAFE Promotion and Tenure Workshop. 2015.
10. COE New Faculty Orientation. 2014.
11. CAFE New Faculty Orientation. 2014.
12. UK Promotions and Tenure Beginnings Workshop. 2014.
13. CAFE Promotion and Tenure Workshop. 2014.
14. Rotorcraft Safety Training. 2014.
15. 3D Printer Training. 2013.
16. CAFE New Faculty Orientation. 2013.
17. UK New Faculty Orientation. 2013.

SERVICE

Manuscript Editorship

1. Journal of the ASABE. Machine Systems Division. Associate Editor. 2017-present.
2. Applied Engineering in Agriculture. Machine Systems Division. Associate Editor. 2017-present.

Manuscript Review

1. Measurement. 2022.
2. Sensors. 2020, 2022.
3. Remote Sensing. 2020, 2022.
4. Geoderma. 2017.
5. Computers and Electronics in Agriculture. 2016, 2017, 2023.
6. Journal of the ASABE. 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024.
7. Soil & Tillage Research. 2014, 2020.
8. Spanish Journal of Agricultural Research. 2010.

9. Applied Engineering in Agriculture. 2007, 2010, 2015, 2020, 2021, 2022, 2023

Proposal Review
1. USDA AFRI Engineering Systems. 2018.
2. USDA SBIR Phase I. 2016.
3. USDA AFRI Exploratory Research. 2015.
4. NASA KY Space Grant Consortium RIDG. 2014.

Departmental
1. Safety Faculty Position Search Committee. Chair, 2023-present.
2. BAE Shop Planning Committee. Chair, 2021-2023.
3. Research and Graduate Studies Committee. 2019-present. Chair, 2019-2021.
4. Shop Supervisor Search Committee. Chair, 2018.
5. Awards Committee. 2017-present.
6. Livestock Systems Faculty Position Search Committee. 2015-2016.
7. Alumni and Development Committee, Chair, 2015-2018.
8. Faculty Secretary. 2013-2015.
9. Student Recruitment and Outreach Committee. Chair, 2014-2015.
10. Social Committee. 2014-2015.
11. Building, Maintenance and Safety Committee. Chair, 2013-2014.
12. Undergraduate Curriculum Committee. 2013-present.
13. Electronics Engineer Staff Position Search Committee. 2013.
14. Faculty Advisor, Wildcat Pulling Team. 2011-present.
15. Computer Committee. 2005-2011.

College
1. Graduate Preview Night, 2025.
2. FOR Forest Ecosystems Ecology Faculty Search Committee, 2025.
3. HORT AI & Computational Biology Faculty Search Committee, 2024.
4. BAE Faculty APR Review. 2022-present.
5. M-G CAFE Appointment, Promotion and Tenure Committee. 2023-present.
6. PSS Extension Soil Specialist Faculty Search Committee, 2023-2025.
7. M-G CAFE Graduate Curriculum Committee. 2023-present.
8. Pigman COE Graduate Studies Committee. 2023-present.
9. COE Mining Engineering Distinguished Professorship Committee. 2023.
10. COE Titled Chairs Professorship Selection Committee. 2020-2021.
11. CAFE Mentor Program. 2020-2024.
12. CAFE Annual Performance Review (APR) Appeals Committee. 2020-2022.
13. BAE Department Periodic Review Committee. 2017-2018.
14. BAE Chair Search Committee. 2017.
15. CAFE Strategic Planning Listening Session Participant. 2015.
16. Ag Systems Modeling Faculty Position Search Committee, Plant and Soil Sciences. 2014.
17. CAFE New Faculty Workshop Panel Speaker. 2014.
18. CAFE Alumni Plaza Dedication Exhibitor. 2014.
19. National Farm Machinery Show CAFE Exhibitor. 2014.
20. Ag Roundup Alumni Breakfast and Staff Appreciation Lunch Volunteer. 2013.

University
1. Graduate Council. 2024.
2. Graduate School Strategic Planning Workgroup #4. 2024.
3. COE Dean Summative Review Committee. 2023.

4. COE Dean Search Committee. 2017-2018.

Regional and National

1. USDA NIFA AFRI Agricultural Engineering Program Area Priority. Panelist. 2018.
2. ASABE KY Section. 2014-present. Co-Chair, 2015-2017. Vice-Chair, 2017-2018.
3. KyCGA CORE Farmer Program Session Organizer. 2014.
4. ASABE Agricultural Equipment Technology Conference Planning Committee. 2014-present. Vice Chair, 2022-2023. Chair, 2023-2024. Past-Chair, 2024-present.
5. ASABE Executive-05 External Marketing Committee. 2016-2018.
6. ASABE Executive-05/2 FFA Coordinating Committee. 2013-present. Vice-Chair, 2015-2016. Chair, 2016-2018. Past-Chair, 2018-2019.
7. ASABE Executive-05/3 Digital Communications Committee. 2018-present.
8. ASABE MS-54 Precision Agriculture. 2013-present. Secretary, 2018-2020. Vice-Chair, 2020-present.
9. ASABE MS-58 Agricultural Equipment Automation. 2013-2019.
10. ASABE MS-60 Unmanned Aircraft Systems. 2015-present. Secretary, 2018-2020. Vice-Chair, 2020-2023. Past-Chair, 2023-current.

Technical Session Moderator

1. ASABE Annual International Meeting. UAS Applications in Precision Agriculture, Natural Resources, and Vector Control. 2024.
2. ASABE Agricultural Equipment Technology Conference. Emerging Applications of Drones in Agricultural. 2024
3. ASABE Agricultural Equipment Technology Conference. Student Poster Competition. 2024.
4. ASABE Agricultural Equipment Technology Conference. Student Poster Competition. 2023.
5. ASABE Agricultural Equipment Technology Conference. Research and Education Collaborations between Academia and Industry. 2022
6. ASABE Agricultural Equipment Technology Conference. Student Poster Competition. 2022.
7. ASABE Annual International Meeting. UAS Applications and Precision Agricultural Utilization in Agriculture II. 2021.
8. ASABE Agricultural Equipment Technology Conference. Student Poster Competition. 2020.
9. ASABE Agricultural Equipment Technology Conference. Research and Education in Precision Agriculture and Data Management. 2018.
10. ASABE Agricultural Equipment Technology Conference. Student Poster Session. 2017-2020.
11. ASABE Annual International Meeting. Instrumentation and Controls for Precision Agriculture. 2014.

Other Service

1. Exhibitor/Recruiter. Student Technology Leadership Program (STLP) Showcase. Lexington, KY. 2016-2017.
2. Exhibitor/Recruiter. National FFA Convention. Louisville, KY. 2013-2015.
3. Exhibitor/Recruiter. University of Kentucky Engineering Day. Lexington, KY. 2012-2019, 2022-present.
4. Exhibitor/Recruiter. National FFA Convention. Indianapolis, IN. 2012.

MEDIA COVERAGE

1. RFD-TV. University of Kentucky Wildcat Pulling Team. Live interview on 7/15/24.
2. BBC. The drones watching over cattle where cowboys cannot reach. Published 2/2/21.
3. WKYT. UK researchers using drones to solve billion dollar cattle industry problem. Published 1/29/20.

4. CNET.com. Drones on the farm: Using facial recognition to keep cows healthy. Published 8/22/19.
5. PrecisionAg.com. 25 Best Colleges for Precision Agriculture. 2018.
6. sUAS News. Universities off to a Flying Start with Large Drone Research. 2016.
7. WKYT 5:30 PM News. 1 interview in 2018. 1 interview in 2016. 1 interview in 2015
8. Featured in Kentucky Engineering Journal Research Edition. 2015.
9. Across Kentucky. Kentucky Farm Bureau Newsroom. 3 interviews in 2016. 2 interviews in 2015. 3 interviews in 2014.
10. BAE Down-Low Podcast. BAE Department. 1 interview in 2014.
11. Featured in the May/June 2013 issue of ASABE's Resource Magazine titled, "People Who Make a Difference." 2013.
12. Featured in the November/December 2012 special issue of ASABE's Resource Magazine titled, "Careers in Agricultural and Biological Engineering." 2012.
13. Featured in USA Today on 2/21/12 and 2/24/12 as an Engineers Week New Face of Engineering. 2012.