

STRATUS 2022 Conference May 23 – 25, 2022

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STRATUS 2022 Conference May 23 – 25, 2022: [stratus-conference.com](http://stratus-conference.com)

## Program Agenda in one view

	Day 1: Monday May 23	Day 2: Tuesday May 24	Day 3: Wednesday May 25
8:00-8:30	Registration & Breakfast	Registration & Breakfast	Registration & Breakfast
8:30-9:00	<b>Welcome, Opening Remarks</b> SUNY-ESF President: Joanie Mahoney Conference General Chairs: Dr. Bahram Salehi, SUNY-ESF; Dr. Emmett Ientilucci, RIT;	<b>Welcome, Opening</b> SUNY-ESF Provost: Dr. Sam Mukasa Conference General Chairs: Dr. Bahram Salehi, SUNY-ESF; Dr. Emmett Ientilucci, RIT;	<b>Welcome, Opening</b> Conference General Chairs: Dr. Bahram Salehi, SUNY-ESF; Dr. Emmett Ientilucci, RIT
9:00-9:45	<b>Keynote-1:</b> Ken Stewart, President and CEO, NUAIR: <b>Enabling Commercial Drone Operations: Progress in Drone Technology in New York</b>	<b>Keynote-2:</b> Dr. Steven J. Thomson, National Program Leader, USDA-NIFA: <b>UAS-Based Remote Sensing for Agriculture – New Directions at USDA-NIFA and Historical Perspective</b>	<b>Keynote-3:</b> TBA
9:45-10:45	<b>Technical Session A:</b> <i>UAV for Mapping and Surveying</i> Session Chair: Dr. Lindi Quackenbush, SUNY-ESF	<b>Technical Session E:</b> <i>UAV for Educational Programs</i> Session Chair: Buffy Quinn, Onondaga Community College	<b>Technical Session H:</b> <i>Poster Presentations</i> Session Chair: Dr. Peter Spacher, RIT
10:45-11:15	Coffee Break/Exhibit Hall	Coffee Break/Exhibit Hall	Coffee Break/Exhibit Hall
11:15-12:15	<b>Technical Session B:</b> <i>UAV for Agricultural Applications</i> ; Session Chair: Dr. Leila Hashemi-Beni, North Carolina A&T University	<b>UAV Flight Demo 2 by ARCADIS</b> <b>Topic:</b> <i>Demonstration of UAV Water Sampling Apparatus at ESF QUAD, Moderated by Dr. Peter Spacher, RIT</i>	<b>UAV Flight Demo 3 by Imagine Aerial</b> <b>Topic:</b> <i>UAV and Artificial Intelligence for Condition Analytics at ESF QUAD</i>
12:15-1:30	Lunch/Group Photo/Networking/ Exhibit Hall <b>UAV Flight Demo 1 by Headwall</b>	Lunch/Group Photo/Networking/ Exhibit Hall	Lunch/Group Photo/Networking/ Exhibit Hall

	<b>Topic: Hyperspectral UAVs</b> Moderator: Dr. Peter Spacher, RIT		
<b>1:30-2:15</b>	<b>Panel 1:</b> <i>UAV Policy, Public Perception, and Privacy Issues,</i> Moderated by Dr. Jamie Winders, Associate Provost, Syracuse University	<b>Panel 2:</b> <i>Research, Teaching, and Applications of UAV in Environmental and Forestry Monitoring: ESF Perspective</i> Moderator: Dr. Lindi Quackenbush	<b>UAV Trivia Game-2</b>
<b>2:15-3:15</b>	<b>Technical Session C:</b> <i>Design of Autonomous UAVs</i> Session Chair: TBA	<b>Technical Session F:</b> <i>UAV for Flood and Water Quality Monitoring;</i> Session Chair: Dr. Eddie Bevilacqua, SUNY-ESF	<b>Technical Session I:</b> <i>UAV Flight and Operation</i> Session Chair: Dr. Mohamad Razkenari, SUNY-ESF
<b>3:15-3:45</b>	Coffee Break/Exhibit Hall	Coffee Break/Exhibit Hall	Coffee Break/Exhibit Hall
<b>3:45-4:45</b>	<b>Technical Session D:</b> <i>UAV for Wildlife, Air Quality, and Post Earthquake Damage Monitoring</i> Session Chair: Dr. Chris Renschler, SUNY Buffalo	<b>Technical Session G:</b> <i>UAV Data Radiometric and Geometric Calibration</i> Session Chair: Dr. Chris Badurek, SUNY Cortland	<b>Awards and Closing Remarks</b> Conference General Chairs: Dr. Bahram Salehi, SUNY-ESF; Dr. Emmett Ientilucci, RIT <b>Student Poster and Presentations and UAV Trivia Winners</b>
<b>4:45-5:15</b>	<b>Wrap Up of the Day</b>	<b>UAV Trivia Game-1</b>	
<b>5:15-7:00</b>		<b>Happy Hours/Social</b> At Sheraton Syracuse University	

## Monday 23 May

**REGISTRATION & BREAKFAST: 8:00 AM to 8:30 AM**

**WELCOME: 8:30 AM TO 9:00 AM**

Dr. Bahram Salehi, ESF, Conference General Chair  
Joanne Mahoney, ESF President

**KEYNOTE: 9:00 AM TO 9:45 AM**

Moderator: Dr. Bahram Salehi, ESF  
**Ken Stewart**, President and CEO of NUAIR, [Enabling Commercial Drone Operations: Progress in Drone Technology in New York](#)

**SESSION A: 9:45 to 10:45**

[UAV for Mapping and Surveying](#)

Session Chair: Dr. Lindi Quackenbush, SUNY-ESF

9:45 **Autonomous Exploration and Mapping with UAS**, Eric Thorn, Southwest Research Ins.

10:00 **The Value of Direct Georeferencing to UAS Remote Sensing**, Brad Schmidt, Applanix Corporation (CANADA).

10:15 **Artificial Intelligence combined with remote sensing increases drafting efficiency for surveying and**

**mapping**, Nadine Natividad, AirWorks Solutions.

10:30 **Ground control points geometry distribution assessment on combined horizontal and vertical accuracies of UAV photogrammetric products**, Sina Jarahizadeh and Bahram Salehi, ESF.

**Coffee Break and Exhibit Hall: 10:45-11:15**

**SESSION B: 11:15 to 12:15**

[UAV for Agricultural Applications](#)

Session Chair: Dr. Leila Hashemi-Beni, North Carolina A&T University

11:15 **A Framework for Relating UAS Data to Soil Moisture and Health**, Cary McCraine, Raju Bheemanahalli, Volkan Senyurek and Jing Hu, Mississippi State University.

11:30 **Deep Learning Approaches to Corn Grain and Silage Yield Estimation from High-Resolution UAS Imagery S.** Sunoj, Benjamin Yeh and Quirine Ketterings, Cornell University.

11:45 **Snap bean plant count using UAS-based LiDAR point clouds**, Fei Zhang, Amirhossein Hassanzadeh, Jan van Aardt, Sean Murphy and Sarah Pethybridge, Rochester Ins. of Technology and Cornell University.

12:00 **UAV Data Labeling using Deep Learning**, Leila Hashemi-Beni and

Meghan Puthenparampil, North Carolina A&T University.

**GROUP PHOTO: 12:15 PM to 12:20 PM**

**NETWORKING and Exhibit**

**LUNCH: 12:20 PM to 1:30 PM**

Moderator: Emmett Ientilucci, RIT

**UAV Flight Demo 1 by Headwall 12:20-1:30**

**Topic: Hyperspectral UAVs**

Moderator: Dr. Peter Spacher, RIT

**Panel 1: 1:30 to 2:15**

**UAV Policy, Public Perception, and Privacy Issues**

Moderator: Dr. Jamie Winders, Syracuse University

**SESSION C: 2:15 to 3:15**

**UAV System Design**

Session Chair: TBD

2:15 **Design of Autonomous UAV**, Nue Thao, Wesley Larrabee, Cole Glassing, University of Wisconsin - Stout.

2:30 **Turning raw hyperspectral imagery into high-accuracy and interpretation-ready mapping products: Direct Georeferencing with HySpex UAV Systems**, Dennis Adamek, Loke Trond, Norsk Electro Optikk/HySpecx, Norway.

3:00 **Circle Optics (Part-1): Compound Eyes in the Skies**, Andrew

Kurtz, Zakariya Niazi and Ian Gauger, Circle Optics.

3:15 **Circle Optics (Part-2): Compound Eyes in the Skies**, Andrew

Kurtz, Zakariya Niazi and Ian Gauger, Circle Optics.

**Coffee Break and Exhibit Hall: 3:15 to 3:45**

**SESSION D: 3:45-4:45**

**UAV for Wildlife, Air Quality, and Earthquake (OUTSTEPS Special Session)**

Session Chair: Dr. Chris Renschler, University at Buffalo

3:45 **UAV-Based Monitoring to Track Deer Overpopulation in Upstate New York**, Peter Vailakis, Joseph Won, Melissa Torchio, Connor Townes and Caitlin Tucker, SUNY- Binghamton.

4:00 **UAV photogrammetry and remote sensing applications for whale biology**, "Valeria Perez, Julia Zeh, Elizabeth Josephson, Lisa Conger and Susan Parks, Syracuse University.

4:15 **Thinking Inside the Box and Beyond: Validating UAV-Based Air Quality Measurements**, Chandula Fernando and Matthew Adams, University of Toronto.

4:30 **A semi-supervised deep learning approach for detecting post-earthquake building damages using UAV data**, Narges Takhtkeshha, Ali

Mohammadzadeh and Bahram Salehi,  
SUNY-ESF.

**Wrap Up of the Day: 4:45 PM**

# Tuesday 24 May

**REGISTRATION & BREAKFAST: 8:00 AM to 8:30 AM**

**WELCOME: 8:30 AM TO 9:00 AM**

Dr. Bahram Salehi, ESF, Conference General Chair; Dr. Emmett Lentilucci, RIT, Conference Co-Chair  
Dr. Sam Mukasa, SUNY-ESF, Provost

**KEYNOTE: 9:00 AM TO 9:45 AM**

Moderator: Dr. Emmet Lentilucci, RIT  
**Dr. Steven Thomson**, National Program Leader, USDA-NIFA,  
**UAS-Based Remote Sensing for Agriculture – New Directions at USDA-NIFA and Historical Perspective**

**SESSION E: 9:45-10:45**

**UAV Education Program**

Session Chair: Buffy Quinn, Onondaga Community College

9:45 **Using UAV Imagery to Foster Civic Engagement in High School Students**, William Flood, Nathan Dubinin and Erika Ruhl, U Buffalo.

10:00 **What I wish I knew when starting a UAV mapping program**, Buffy Quinn, Onondaga Community College.

10:15 **Oswego City Launches Robust Drone program through theory, testing and trials**, Gavin Snyder, Imagine Aerial.

10:30 **How to Conduct UAS Remote Sensing Missions and Be FAA Part 107 Compliant**, Mike Harris and Ashley Cheek, Agrowdrone/FAA.

Coffee Break and Exhibit Hall: 10:45 to 11:15

**Workshop/UAV Flight Demo 2 by ARCADIS at ESF Quad Area 11:15-12:15**

**Topic:** *Demonstration of UAV Water Sampling Apparatus*

Moderator: Dr. Peter Spacher, RIT

**GROUP PHOTO: 12:15 PM TO 12:20 PM**

**NETWORKING and Exhibit**

**LUNCH: 12:20 PM TO 1:30 PM**

Moderator: Katherina Searing, ESF

**Panel 2: 1:30-2:15**

**Research, Teaching, and Applications of UAV in Environmental and Forestry Monitoring, ESF Perspective**

Moderator: Dr. Lindi Quackenbush, ESF

**SESSION F: 2:15-3:15**

**UAV for Flood and water quality monitoring**

Session Chair: Dr. Eddie Bevilacqua, SUNY-ESF

2:15 **Image Analysis for Detecting Harmful Algae Blooms in the Finger Lakes**, Julia Bellamy, Lea Mateo Medina, John Halfman and Ileana

Dumitriu, Hobart and William Smith Colleges.

**2:30 Spectral Imaging for the Detection of HABs in the Finger Lakes,** Lea Mateo Medina, Julia Bellamy, John Halfman and Ileana Dumitriu, Hobart and William Smith Colleges.

**3:00 Hyperspectral imaging and analysis of hydrothermal alteration mineralogy in Cuprite, Nevada,** Carson B. Roberts, Isabel Barton and Jingping He, Headwall/ U of Arizona.

**3:15 Mapping of Floodwater Extent under Vegetation Using SAR Imagery,** Abdella Salem and Leila Hashemi, North Carolina A&T U.

**Coffee Break and Exhibit Hall: 3:15 to 3:45**

**SESSION G: 3:45-4:45**

**UAV Data Radiometric and Geometric Calibration**

Session Chair: Dr. Chris Badurek, SUNY Cortland

**3:45 Assessment of geometric and radiometric artifacts in UAS hyperspectral imagery,** Chase Canas, John Kerekes, Emmett Ientilucci and Scott Brown, RIT.

**4:00 TeleSculptor: Free and Open Source Software for Aerial**

**Photogrammetry,** Matt Leotta, Kitware Inc.

**4:15 Underflight Validation of Landsat 9 Thermal Infrared Sensor,** Lucy Falcon and Ethan Poole, RIT.

**4:30 Infrared thermometers (radiometers), transfer standards and blackbodies. Use an IRT on a UAV to measure land temperature, urban landscapes, agriculture, water surface, ice or snow and/or to enhance radiometric accuracy of a thermal imaging camera,** Bud Foran, Heitronics Infrared.

**UAV Trivia Game-1 4:45- 5:15 PM**

Moderated by Dr. Marianne Sullivan, University at Buffalo

**Social Gathering and Happy Hours: 5:30 to 7:00**

Sheraton at Syracuse University, Citrus on the Hill

Finger foods and one free drink  
10 min walk from the venue



# Wednesday 25 May

**REGISTRATION & BREAKFAST: 8:00 AM to 8:30 AM**

**Opening: 8:30 AM TO 9:00 AM**

Dr. Bahram Salehi, ESF, Conference General Chair

Dr. Emmett Lentilucci, RIT, Conference Co-Chair

**KEYNOTE: 9:00 AM TO 9:45 AM**

Moderator: Dr. Bahram Salehi, ESF, TBD

**SESSION H: 9:45 to 10:45**

**Poster Presentations**

Session Chair: Dr. Peter Spacher, RIT

**Detecting and tracking an underground coal fire using thermal imagery**, Kate Sinsabaugh and William Stiteler, ARCADIS.

**Reflectance Spectroscopy in the Finger Lakes**, Ileana Dumitriu, Julia Bellamy, Lea Mateo Medina, Peter Spacher, John Halfman and Lisa Cleckner.

**Detection and Mapping of Forest Regeneration using Unmanned Aerial Vehicles**, Abhishek Poudel and Eddie Bevilacqua, ESF.

**Early detection of potato leafhopper damage using unmanned aerial systems**, Amber Agnew, Ana Legrand

and Chandi Witharana, U of Connecticut.

**Automated Building Inspection for Thermal Anomaly Detection and 3D Reconstruction Using a Drone-based Approach**, Shayan Mirzabeigi and Mohamad Razkenari, ESF.

**GIS Analysis using Archived UAS Data of Ice Jam Flooding in Plymouth, NH Approach**, Christopher Badurek and Liam Brush, SUNY- Cortland.

**Integrating UAS and Geotech Courses with STEM Entrepreneurship Training**, Christopher Badurek, SUNY- Cortland.

**Coffee Break and Exhibit Hall: 10:45 to 11:15**

**Workshop/UAV Flight Demo 3 by Imagine Aerial at ESF Quad Area 11:15-12:15**

**Topic:** *UAV and Artificial Intelligence (AI) for Condition & Predictive Analytics*

Moderator: Dr. Peter Spacher, RIT

**GROUP PHOTO: 12:15 PM TO 12:20 PM**

**NETWORKING and Exhibit LUNCH: 12:20 PM to 1:30 PM**

**UAV Trivia Game-2 1:30- 2:15 PM**

Moderated by Dr. Marianne Sullivan, University at Buffalo

**SESSION F: 2:15 to 3:15**

**UAV Flight and Operation**

Session Chair: Dr. Mohamad Razkenari,  
ESF

Dr. Bahram Salehi, ESF, Conference  
General Chair

Dr. Emmett Ientilucci, RIT, Conference  
Co-Chair

**2:15 UAS Imaging of sensitive projects on Airport Grounds and in Restricted, Military and Government Airspace,**  
Gavin Snyder, Imaging Aerial.

**2:30 A Multi-layer Anomaly Detection Framework for Networked Unmanned Aerial Vehicles,** Mohammad Bahrami and Hamidreza Jafarnejadsani, Stevens Institute of Technology.

**3:00 Micro-Weather Sensing and Analytics to Close Low Altitude Weather Gaps for Drone Operations,**  
Don Berchoff, James Eanes and Randolph Ware, TruWeather Solutins/ Daniel Wagner Associates/ Radiometrics Inc.

**Coffee Break and Exhibit Hall: 3:15 to 3:45**

**Awards: 3:45 to 4:15**

- **Student Oral Presentation**
- **Student Poster Presentation**
- **Trivia- 1winner**
- **Trivia-2 winner**

Dr. Emmett Ientilucci, RIT, Conference  
Co-Chair

**Closing Remarks: 4:15 to 4:45**

## Monday Keynote Speaker



**Ken Stewart**  
**President and CEO of NUAIR**

Ken Stewart serves as President and CEO of NUAIR, responsible for setting the overall vision and strategy for the uncrewed aircraft systems (UAS) organization. Stewart is an experienced industry expert in wireless telecommunications and cloud-based software, with a specialization in building Enterprise SaaS, Federated digital marketplaces, and platforms. Prior to joining NUAIR, Stewart served as the CEO of AiRXOS, a GE aviation company, where he led the innovation, development, and commercialization of Unmanned Traffic Management services. After beginning his career in engineering and management positions at IBM and GTE, Stewart served as an executive with several venture capital and private equity-backed companies commercializing and scaling pre-revenue start-ups and transforming organizations for growth. Stewart also serves as the President of the Commercial Drone Alliance, a non-profit organization that works with federal policymakers and industry stakeholders to help create relevant rules to scale commercial UAS operations.

## Tuesday Keynote Speaker



**Steven J. Thomson**  
**National Program Leader, USDA-NIFA**

Dr. Steven J. Thomson is National Program Leader (NPL) with the USDA National Institute Food and Agriculture (NIFA). He engages Universities, other federal agencies, and industry to provide national leadership in Capacity and Competitive Grant programs. The Research, Education, and Outreach programs he leads focus on engineering processes to improve systems relevant to agriculture. These include Engineering for Agricultural Production Systems and NSF-collaborative programs such as the National Robotics Initiative, Cyber-Physical Systems, and AI Institutes. Dr. Thomson received his Ph. D from the University of Florida in the Ag. And Bio. Engineering Dept. and has background in aerial application of crop protection materials, irrigation management, water balance and crop modeling, decision support systems for agricultural STRATUS 2022 Conference May 23 – 25, 2022: [stratus-conference.com](https://stratus-conference.com)

management, sensing systems and electronics, precision agriculture, applied statistics, and agricultural safety. Dr. Thomson was incoming Associate Professor at Virginia Tech in the College of Engineering and had received the Alpha Epsilon Award for his Research/Extension program and Outstanding Faculty Award in the Biological Systems Engineering (BSE) Department. He was a Lead Scientist with the USDA ARS before joining USDA-NIFA in early 2016. He has authored or co-authored over 100 publications, two book chapters, and several Extension publications and software.

## **Wednesday Keynote Speaker (TBD)**