

Call for Participation

16th Annual Conference of the PHM Society

PHM 2024

November 10-15, 2024

Nashville, Tennessee, USA



Key Dates

Paper Submissions

Abstract Submission

- Friday Mar 8, 2024

Full Paper Submission

- Friday Jun 7, 2024

Doctoral Symposium

Applications Due

- Wed. May 29, 2024

Conference Management

Conference Chairs

Rhonda Walthall

Collins Aerospace

Scott Clements

Lockheed-Martin

Conference Advisors

Karl Reichard

Penn State University

Dave Larsen

Collins Aerospace

Local Chair

TBD

Sponsorship

Abhinav Saxena

Call for...

- Papers
- Tutorials
- Data Challenge
- Panel Sessions
- Special Technical Sessions
- Doctoral Symposium Applications
- Technology Demos / Product Showcases

This conference is organized under the banner of the [PHM Society](#) and delivers the quality engagement you are accustomed to. We bring together the global community of PHM experts from industry, academia, and government in diverse application areas, such as, but not limited to, *energy, aerospace, transportation, automotive, human health & performance, smart manufacturing, industrial data science, and AI.*

In addition to technical paper sessions, the conference features workshops, technical demonstrations, expert panel sessions on a plurality of critical issues and applications, a doctoral symposium, keynote and luminary speakers, and tutorials free to all registrants.

A PHM data analysis competition is organized in parallel; the results will be presented during the conference. Leading companies and research institutions exhibit their products and demonstrate their technologies during the event. Several social events round out the program by providing opportunities for participants to connect and network with colleagues, including a high-quality career fair and diversity outreach & networking event. The PHM Society will also offer separate, dedicated short courses focused on fundamental PHM concepts and techniques, as well as data analytics before the start of the main conference.

A major differentiator for the PHM Society is its unique

GE Research
Ahmad Alqawasmi
Villanova University

Keynotes/Luminaries

Andy Hess
Hess PHM Group

TPC Chairs

Chetan Kulkarni
KBR Inc., NASA Ames
Marcos Orchard
University of Chile

Panel Sessions

Sarah Lukens
LMI
Ariel Cano
GE Research
Alvaro Silva
GE Research

PHM Data Challenge

Jessie Williams
Global Technic
Neil Eklund
Oak Grove Analytics

Doctoral Symposium

Jamie Coble
University of Tennessee

Tutorials

Kai Goebel
PARC
Michael Snyder
Northrup Grumman

Short Course

Jeff Bird
TECnos
Neil Eklund
Oak Grove Analytics

Technology Demos/ Product Showcases TBD

Poster Session

Jamie Coble
University of Tennessee

Education & Professional Dev

Jeff Bird
TECnos
Karl Reichard
Penn State University

University Outreach TBD

approach toward intellectual property rights: Authors retain copyright in their work while allowing the PHM Society to distribute their work through a Creative Commons License. As a result, all articles published by the PHM Society are available to the global PHM community via the internet for free, without any restrictions before the conference starts.

CALL FOR PAPERS

Prospective authors are invited to contribute full length, original, high-quality papers through the [conference submissions portal](#). The topics suggested by the conference can be categorized as analysis methods, asset-specific algorithms, prototype implementations, fielded systems, and business case analysis. Both research and industry contributions are welcome under two tracks – **Technical Research Papers** and **Industry Experience Papers**. In addition to research advancements, industry experience papers describing applications, needs, requirements, metrics and assessments, and desired program goals and status are sought. Submitted papers will be reviewed by experts in the two tracks based on the criteria of content, significance, technical validity, innovation, writing style, accuracy, clarity, simplicity, and readability.

Topics of Interest:

- Advanced Sensing & Embedded Devices
 - Adaptive Control & Fault Accommodation
 - AI/ML in PHM Space
 - Automotive Systems
 - Autonomous / Robotic / Unmanned Systems
 - PHM in Aviation (Commercial and Defense) Systems
 - CBM Return on Investment & Business Case Analysis
 - Cloud Analytics
 - Corrosion
 - Cybersecurity PHM
 - Data Driven Approaches
 - Decision Support Systems
 - Detection, Diagnostics, and Prognostics Methods
 - Digital Twin and Digital Thread
 - Electronic Transaction and Blockchain
 - Energy (e.g., Nuclear, Smart Grid, and Wind)
 - Enterprise-wide PHM Applications
 - Human-centric PHM
 - PHM for Human Health and Performance
 - Marine, Mining, and Railway Applications
 - PHM for Precision Agriculture
 - Oil & Gas
 - Physics of Failure & Model Based Prediction
 - Predictive Analytics
 - Smart Grid
 - Smart Manufacturing
 - Smart Cities
 - Space Technologies and Systems
 - Standards, Metrics, and Verification & Validation
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PHMENTOR EVENT IN-PERSON IN NASHVILLE

The PHM Society will be hosting a new event for this year's US conference, to be held in Nashville. This will be a Mentoring event with an opportunity for Mentees (on-site, no virtual) to spend an hour during breakfast one morning rotating through 2-4 tables of Mentors in a one-to-many setting (perhaps 5-6 Mentees per Mentor). Mentors will either pre-select a preferred topic to discuss for 15 minutes, or can

Student Activities
TBD

PHMentor Chair
Derek Devries
Northrup Grumman

SAE Liaison
Rhonda Walthall
Collins Aerospace

Conference Materials
Scott Clements
Lockheed Martin

Conference Finances
Karl Reichard
Penn State University

Website Development
Indranil Roychoudhury
SLB

Publicity
Neil Eklund
Oak Grove Analytics
Scott Clements
Lockheed Martin
Kai Goebel
SRI

choose to conduct an ad hoc 30-minute session. It is anticipated that there will be 8-10 Mentor tables to choose from; Mentees will cycle through Mentor tables based on their interests. Potential Zoom-based follow-ups quarterly are possible and recommended. Mentees can sign up during the registration process, so register early to reserve a seat!

CALL FOR SPECIAL TECHNICAL SESSIONS

Proposals are sought for special sessions. These sessions are generally dedicated to a particular topic of interest. Session organizers will have the flexibility to solicit papers, organize panels, invited talks, or workshops on the topics of interest. Support with a review management system will be available for peer review activities and publishing.

For more information, please visit the website or contact the Technical Committee Chairs at tpc@phmconference.org.

CALL FOR TUTORIAL SPEAKERS

The PHM 2023 Conference is planning to offer a set of tutorials that are providing coverage of topics of interest to the PHM audience. The tutorials are meant to provide a learning experience to the audience by giving a comprehensive introduction to the particular topic. Proposed tutorials need to address the interests of a varied audience: beginners, developers, designers, researchers, practitioners, and decision makers who wish to learn a given aspect of prognostic health management. For more information or to volunteer as a speaker, please contact Kai Goebel at tutorials@phmconference.org.

Tutorial Topics of Interest include (but are not limited to):

- Asset Health Management
- CBM Policies
- Cost-Benefit Analysis
- Diagnosis and Prognosis
- Life Cycle and Risk Management Methodologies
- PHM System Design and Engineering
- Standards and Methodologies
- Deep Learning
- Large Language Models for PHM
- Maintenance Record Mining

and other advanced topics.

For reference check out [tutorials from PHM 2023](#)

CALL FOR TECH. DEMOS & PRODUCT SHOWCASE

The PHM Society invites sponsors to show off their monitoring, diagnostic, and/or prognostic engineering approaches through Technology Demonstrations and Product Showcase Presentations.

The concept of the Technology Demonstrations is to offer a true “hands-on” learning experience to conference attendees. Multiple demonstrations will be given as brief tutorials to small groups, scheduled over a two-day period. Each demo will last for 30 – 60 minutes, where attendees will be encouraged to actively participate.

The Product Showcase presentations offer the opportunity for

companies to advertise their products and/or services to conference attendees. Showcase presenters are provided a 10-minute timeslot to give marketing presentations via computer/table, projector, and microphone. Showcase presentations are not intended to be interactive, and participants are encouraged to network with audience members after their showcase.

Tech Demo & Product Showcase Topics of Interest:

- Certification and Validation Techniques for Health Management Applications
- Fielded Prognostic or Advanced Diagnostic Systems
- Innovative System Maintenance Approaches
- Monitoring, Diagnostic, and/or Prognostic Hardware/Software Technologies
- Rapid Aging Testing and Analysis Techniques
- Sensors and Sensor Integration for PHM
- System Identification Processes to Support PHM Goals

For more information on either the Technology Demonstrations or the Product Showcase presentations, please contact the chairs at techdemos@phmconference.org.

Please Note: Demonstration/presentation hardware, software, concepts, material, data, etc., must be cleared for public release prior to the conference.

CALL FOR PANELS

Panel discussions provide an opportunity to hear and interact with recognized industry leaders in relevant areas for our PHM work. These 90-minute panel sessions will consist of presentations and open discussion by 4-6 panelists directly engaging with the conference audience on the different topics. Panel topic ideas are solicited.

These sessions add an enriching dimension to the conference experience and a welcome networking alternative to traditional paper presentations. Balancing the conference time in this manner provides participants with a much more engaging experience and an opportunity to gain unique knowledge. To propose panel ideas or get more information please contact the panel chairs at panels@phmconference.org.

For reference check out [panel sessions from PHM 2022](#).

CALL FOR DOCTORAL SYMPOSIUM APPLICATIONS

The PHM Society Doctoral Symposium will be held as a workshop at the beginning of the conference. Full-time students are invited to submit their thesis ideas to the Doctoral Symposium. It provides an opportunity for graduate students to present their interests and plans at a formative stage in their research. The students will receive structured guidance from a panel of distinguished researchers as well as comments from conference participants and fellow students in a collegial setting. Applications, including a 4-page abstract, CV, and letter of recommendation, are due by May 29, 2024.

For more information, please contact the chairs at ds@phmconference.org.

CALL FOR DATA CHALLENGE

Challenge ideas and datasets are solicited for this year's PHM data challenge. Proposed problem must be PHM related, such as detection, diagnostics, or prognostics, and proposers should be able to specify clear goals and metrics to establish winning criteria. Participating teams will be scored on these metrics and final winners will be decided based on scores as well as their technical approaches to be presented at the conference. Apart from awards winners are also invited to publish papers in the society's premier journal IJPHM. Please contact data challenge chair at dc@phmconference.org.

For reference check out [PHM2023 challenge](#)

SHORT COURSES

The PHM Society offers two optional (separate fees) short courses on Saturday and Sunday before the conference, Nov. 9&10th, 2024. These two courses will run in parallel.

1. The **PHM Fundamentals and Case Studies** will cover topics from Monitoring/Sensing to Fault Diagnosis/Failure Prognosis and Case Studies, on PHM tools, methods, applications, and case studies in a lecture and workshop format. The proven course content and workshops will be taught by recognized international experts in the PHM field and will cover the current state of the art in PHM technologies, sensors and sensing strategies, data mining tools, CBM+ technologies, novel diagnostic and prognostic algorithms as well as a diverse array of application examples/case studies. It is addressed to engineers, scientists, operations managers, educators, small business principals, and system designers interested to learn how these emerging technologies can impact their work environment.
2. The **Analytics for PHM** course will be taught by recognized international experts in the PHM field. This advanced course is intended for engineers, scientists, and managers who are interested in data-driven methods for asset health management. You will learn how to identify potential data-driven projects, visualize data, screen data, construct and select appropriate features, build models of assets from data, evaluate and select models, and deploy asset monitoring systems. By the end of the course, you will have learned the essential skills of processing, manipulating, and analyzing data of various types, creating advanced visualizations, detecting anomalous behavior, diagnosing faults, and estimating remaining useful life. Note that this course is an advanced course with only a brief, high-level overview of PHM presented – participants are expected to know the basics of PHM already. New practitioners are encouraged to take a fundamentals course or contact the course leader to examine their background and skills.

... Bottom Line: Education is important to The PHM Society and our community

Taking a course first is an excellent preparation to benefit from the conference and to meet students, professors, and industry people from around the world and across diverse sectors.

Come for the entire conference and get reduced tuition. Special rates for full-time students.

The educational and training experience is even better at the conference- free tutorials, workshops, peer-reviewed technical papers, poster sessions, technology demonstrations, doctoral symposiums, data challenges, and panel sessions. And the social events are planned to help make networking easy and enjoyable.

For information contact shortcourse@phmconference.org

Sincerely,

Rhonda Walthall and Scott Clements

General Chairs

Annual Conference of the PHM Society 2024

chairs@phmconference.org



<http://www.phmsociety.org>
