

## 2022

4<sup>th</sup>-8<sup>th</sup> July 2022

16th QIRT Conference in Paris, France

## Scope

The biannual Quantitative InfraRed Thermography (QIRT) Conference is a meeting of the scientific and industrial community interested and actively working in research, application and technology related to infrared thermography.

All conference topics are intended to quantitative results comprising temperature values as well as further parameters on the tested materials and structures. The latter ones are usually obtained through active thermography, e. g. by exploiting non-stationary heat transfer processes activated by additional heat sources or by considering wavelength dependent effects.

Passive and active thermography methods and technologies are spread now along a multitude of areas of applications, which all profit from each other

## Topics

"State-of-the-art and evolution in the field of infrared scanners and imaging systems allowing quantitative measurements, and related data acquisition and processing systems.

"Calibration and characterization of infrared cameras and related topics like certification, standardization, validation, emissivity determination, absorption in media, translucent media, spurious radiations, three dimensionality of observed objects.

"Characterization of optical and further heat sources for active thermography

"Analytical and numerical modeling, data reduction and image processing related to infrared thermography.

"Application of infrared thermography to radiometry, thermometry, and physical parameters identification and quantification, in all fields: fluid mechanics, solid mechanics, structures and material sciences, non-destructive evaluations, electromagnetism, medicine and biomedical sciences, remote sensing, environment monitoring, industrial processes and other.

## Awards

During the conference, the best scientific paper will be honored by the Grinzato Award. The nominees for the **Grinzato Award** will be announced by the steering committee according to the rating of the submitted abstracts.

During the conference, the best student paper will be honored by the Student Award. Application for the **Student Award** can be made through abstract submission.

After the conference, all papers will be evaluated by the QIRT Committees and the **best papers will be pre-selected for publication** in QIRT Journal after a normal review procedure. These papers should not already be published in any conference proceedings or journals and the work should be original and new. A peer review process by independent, anonymous expert referees is performed.

## Venue

FIAP Paris, an ideal location in the heart of Paris

"Metro station Glacière (line 6)

"Denfert-Rochereau RER B train station

"Direct line to Roissy-Charles de Gaulle airport

"Orly-Bus stop

## Fees

	Fees in-person (VAT included)	
	Early bird Until 31 <sup>st</sup> May 2022	Full From 1 <sup>st</sup> June 2022
<b>Regular</b>	700.00€	800.00€ *
<b>Students</b>	350.00€	400.00€ *
<b>QIRT Short Courses</b>	160.00€	180.00€

## Short Courses Program

Monday 4th July 2022 at FIAP Jean Monet

8:00 to 9:00 AM : Registration Desk

## Sessions Program

Session 1 - part2: 9:00 to 09:55 AM

Basic of infrared thermography - Part 1  
by Pr. Xavier Maldague

Session 1 - part2:10:00 to 10:55 AM

Basic of infrared thermography - Part 2  
by Pr. Xavier Maldague

Coffee Break : 10:55 AM to 11:15 AM

Session 2: 11:15 to 12:15 AM

Thermal Problems in Fluid Dynamics  
by Pr. Gennaro Cardone

Lunch Break : 12:15 AM to 1:15 PM

Session 3: 1:15 to 2:15 PM

Passive and Active Infrared Thermography applied to buildings and cultural heritage - by Dr. Paolo Bison

Session 4: 2:20 to 3:20 PM

Medical applications of infrared Thermography - by Pr Gunther Steenackers

Tea Break : 3:20 to 3:35 PM

Session 5: 3:35 to 5:05 PM

Joint estimation of Emissivity and Temperature - by Dr. Thibaud Toullier

End of Short Courses

Contact

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8<sup>th</sup> – 10<sup>th</sup> August 2022

16<sup>th</sup> International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT



2022) at the Anantara Grand Hotel Krasnapolsky, Amsterdam, Netherlands.

The Organizing Committee of the International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT) and the Editorial Board of Applied Thermal Engineering (ATE) are delighted to announce that we have established a partnership, since 2021. HEFAT will form the main forum for the board, authors, reviewers, and guests of ATE from all over the world, to meet and exchange ideas in overlapping research, innovation, and development areas. The HEFAT-ATE conference will form a regular opportunity for the Editorial Board of ATE to have its board meetings and allow authors and presenters the opportunity to meet both the board and representatives of the publisher, Elsevier.

From the HEFAT-ATE 2021 conference we have selected 103 papers to be considered to be published in a special is-

sue of the journal Applied Thermal Engineering. For this HEFAT-ATE 2022 conference good papers that fall within the scope of the journal will again be selected to be considered to be published within a special issue of ATE.

The conference is co-sponsored by the International Centre for Heat and Mass Transfer (ICHMT) and the American Society of Thermal and Fluids Engineering (ASTFE).

Global COVID-19 circumstances and related restrictions may necessitate the move to a purely virtual format at a later stage. We will communicate this in advance and accommodate registrations accordingly.

Conference Website: <https://hefat2022.org>

22<sup>nd</sup> September 2022, Singapore  
MICCAI AIIIMA Workshop

Description

There have been many advances in the use infrared imaging for medical applications in recent years. Infrared imaging comprises near-infrared, mid-wave infrared and long wave infrared spectrum. In the first ever AIIIMA workshop, more focus is given for long wave infrared imaging, in other words, thermal imaging. In the last two decades, infrared thermal imaging hardware devices have improved in thermal sensitivity by orders of magnitude (0.8 to 0.02 deg C) and recent research explorations have unearthed multiple clinical use cases and medical applications for thermal imaging. This non-contact, non-invasive radiation-free low-cost portable modality offers several advantages over other imaging modalities to patient monitoring applications in general. Furthermore, since thermal images have some unique imaging characteristics with inbuilt anonymity and opportunity to analyze in both thermal and imaging feature space, it has sparked considerable interest in several research communities. A simple pubmed search with the combination of words 'Thermal imaging' and 'Medical' results in over 5000 articles just in the last decade. This surge of applications is 10 times higher when compared to the publications on thermal imaging during 2000-2010. We are also starting to see innovative startups creating breakthrough solutions leveraging this emerging trend of advanced medical infrared thermology and use of novel machine learning algorithms over the captured thermal images. We believe it is time to create a forum to discuss this specific sub-topic at MICCAI and promote this novel area of research among the research community that has the potential to hugely impact our society.

Some specific clinical applications of Infrared Imaging are seen in screening, diagnosis and treatment of cancer, such as breast cancer, skin cancer, oral cancer and others. Utility in evaluating skeletomuscular issues such as rheumatoid arthritis, vascular complications such as detecting early onset of diabetic foot and river blindness (parasites under the skin) or even respiratory abnormalities such as pneumonia and COVID-19. The patient monitoring applications include treatment monitoring during neoadjuvant chemo-

therapy, acupuncture, cryotherapy and pain management. A focused discussion on the topic of machine analysis of medical Infrared Imaging can help create new radiomic biomarkers that can help in several such clinical use cases.

### Call for Papers

The research topics include but are not limited to novel machine learning and thermal image analysis algorithms for:

1. AIIMA for cancer screening and diagnosis
2. AIIMA for Treatment Monitoring
3. AIIMA for health monitoring in public places
4. AIIMA for patient monitoring with respiratory issues
5. AIIMA for COVID screening
6. AIIMA for pain management
7. AIIMA for veterinary medicine
8. AIIMA for biomarkers prediction
9. Thermal Surface Reconstruction / registration
10. Thermal Image Segmentation
11. 3D modeling
12. Image segmentation and cross-modality registration
13. And others

### Submission Guidelines

Submitted manuscripts must be in pdf format following formats available at Lecture Notes in Computer Science . Manuscripts should be at most 8 pages (content) + 2 pages (references and acknowledgements)

All accepted papers will be published as part of the MICCAI Satellite Events joint LNCS proceedings to be published by Springer Nature.

#### How to Submit?

The manuscripts should be submitted through our CMT paper submission site

### Important Dates

- 25 June 2022 Paper submissions due
- 16 July 2022 Notification of paper decisions
- 30 July 2022 Camera ready papers due
- 6 August 2022 Workshop proceedings due
- 22 September 2022 AIIMA conference date

### Preliminary Program

The conference will select the papers for oral and lightning talks. Each oral presentation duration would be 25 minutes (20 mins presentation + 5 minute QA) and lightning talk presentation would be 5 minutes. Along with the presentations, a one hour keynote session from eminent speakers will be conducted. This workshop will be planned for a half-day.

### Tentative Schedule

- 8:00 - 8:15 Welcome note
- 8:15 - 9:15 Keynote session
- 9:15 - 10:30 3 oral presentations (20 mins presentation + 5 minute QA)
- 10:30 - 10:45 Break
- 10:45 - 11:35 2 oral presentations (20 mins presentation + 5 minute QA)
- 11:35-12:00 5 lightning presentation (5 mins each)
- 12:00 - 12:30: Open Discussion

### List of Open Source Thermal Datasets Available Online

- Onchocerciasis Thermal Imaging Dataset from Niramai: [Dataset] [paper]
- COVID-19 Thermal Screening NTIC Dataset from Niramai: [Dataset] [paper]
- Breast Thermal Imaging Dataset from Visual Lab: [Dataset]
- Thyroid Thermal Image Dataset from Visual Lab: [Dataset]
- Plantar Thermogram Database For The Study Of Diabetic Foot Complications from INAOE [Dataset]
- Chronic Wounds Multimodal Image Database [Dataset]

\*The above datasets are listed for experimentation purposes only and we do not endorse the validity or veracity of the above datasets.

### Registration

Find more details about registration in MICCAI'22 conference website.

The 25<sup>th</sup> International Conference on Medical Image Computing and Computer Assisted Intervention, MICCAI 2022, will be held from September 18<sup>th</sup> to 22<sup>nd</sup> 2022 in Resort World Convention Centre Singapore. This will be the first MICCAI conference hosted in Southeast Asia.

### Organizing Team

Alejandro F Frangi ,  
School of Computing, University of Leeds, UK

Geetha Manjunath,  
NIRAMAI Health Analytix, Bangalore, India

Robert Schwartz;  
American Academy of Thermology, Greenville, SC, USA

Siva Teja Kakileti,  
NIRAMAI Health Analytix, Bangalore, India

### Questions?

Contact: [aiiima.miccai@gmail.com](mailto:aiiima.miccai@gmail.com) for any queries about the MICCAI AIIM Workshop

## 8<sup>th</sup>-9<sup>th</sup> October, Greenville, SC, USA AAT 2022 Annual Scientific Session

The 2022 Annual Scientific Session will be a Virtual Meeting consisting of both recorded presentations and live sessions. Those who register for the full meeting with next year's membership will be given 60 days post-meeting access to the recorded presentations.

Separate registration is required for the Pre-Meeting Physician's Thermography Interpretation Course (use the "Registration" link above). The course is on line, at your own pace, with a Virtual Live question and Answer session conducted between 9:00am and 12:00pm (Eastern Time) on Friday, October 7th, 2022.

### Preliminary 2022 Program:

#### 2022 Conference Schedule

- Day 1

Pre-Meeting Physician Member Interpretation Course (separate registration required):  
Friday, October 7th, 2022

9:00 am - 12:00 pm

Virtual Live Physician Interpretation Q & A Session  
By Robert Schwartz, MD AAT COB, Greenville, SC

Take the next step toward AAT Membership status elevation! Take an AAT Member Certification Course. This course is held the day before AAT's Annual Scientific Session and upon request for groups of three or more.

- Day 2

General Sessions: Saturday, October 8th, 2022

- 8:00 am  
Virtual Log In Opens

- 8:15 am - 10:30 am  
Inspirational Advances for Medical Thermology

8:15 am - 8:30 am  
The AAT Infrared Imaging Report Resource  
By Robert Schwartz, MD AAT COB, Greenville, SC

8:30 am - 8:45 am  
Thermofy Platform: Visionfy  
By Mayco Moreira, CTO AAT/ABRATERM Member

8:45 am - 9:00 am  
Niramai Platform: Thermalytx  
By Geetha Manjunath, PhD Bengaluru, India

9:00 am - 9:15 am  
PACS For Medical Thermology: PACS-IR  
By Javier Gonzalez PhD AAT Member, Orlando Florida

9:15 am - 9:30 am  
AI & Deep Learning For Beginners  
By Geetha Manjunath, PhD Bengaluru, India

9:30 am - 10:00 am  
Robot Assisted Medical Thermography: First Applications  
By Marcos Brioschi, MD, PhD Sao Paulo University, Brazil.  
AAT Member, ABRATERM President.

- "10:00 am - 10:30 pm  
Expert Panel 1 - Q & A

- "10:30 am - 12:15 pm  
Clinician's Corner: Breast Thermography

10:30 am - 10:50 am  
Critical Areas of Research Needed to Validate Breast Thermology  
By Robert Kane, DC AAT Member, San Francisco, CA

10:50 am - 11:10 am  
The Significance Of Alcohol Consumption And Thermal Mottling Patterns  
By Christine Horner, MD AAT Board, San Diego, CA

11:10 am - 11:30 am  
Patient Education On The Role Of Breast Thermal Findings  
By Jan Crawford, RN, BSN AAT Board, Scaly Mt, NC

11:30 am - 11:50 am  
An Integrative Approach For Breast Health Using Medical Thermology  
By Kenneth Hoffman, LAC Brookfield, CT

- 11:50 am - 12:15 pm  
Expert Panel 2 - Q & A

- 12:15 pm - 1:00 pm  
Lunch

- "1:00 pm - 3:30 pm  
Clinician's Corner:  
Neuro-Musculoskeletal Thermography

1:00 pm - 1:40 pm  
A Review Of Medical Thermology And Pain Medicine  
By Behnum Habibi, MD AAT Board, Philadelphia, PA

1:40 pm - 2:20 pm  
Medical Thermology Applied To Regenerative Medicine  
By Robert Schwartz, MD AAT COB, Greenville, SC

2:20 pm - 3:00 pm  
Use Of Medical Thermography In Fibromyalgia Care  
By Matthew Terzella, MD AAT Board, Greenville, SC

- 3:00 pm - 3:30 pm  
Expert Panel 3 - Q & A

- 3:30 pm - 5:00 pm  
Oral Systemic Presentations

3:30 pm - 3:55 pm  
Superficial Venous Disorders  
By Ariel Soffer, MD AAT Member

3:55 pm - 4:20 pm  
AAT Atlas of Abnormals: Case Presentations  
By Speaker Not Yet Named



4:20 pm - 4:40 pm

Thermography of the Eye and Orbit

By James Campbell, MD AAT Board, Clemmons, NC

4:40 pm - 5:00 pm

Update on Forensic Applications Of Thermal Imaging

By Brian Bennett Columbia, SC

- 5:00 pm - 5:30 pm

Expert Panel 4 - Q & A

- 5:30 pm

Saturday Session Ends

- 5:30 pm - 6:00 pm

Virtual Meet and Mingle Reception

- Day 3

General Sessions and Annual Business Meeting:  
Sunday, October 9th, 2022

- 8:00 am

Virtual Log In

- 8:00 am - 11:00 am

AAT UPDATES & OUTREACH EFFORTS

8:00 am - 8:15 am

Updates On The AAT Oral Systemic Guidelines

By Robert Schwartz, MD AAT COB, Greenville, SC

8:15 am - 8:30 am

AIRR Approved Protocols

By Robert Schwartz, MD AAT COB, Greenville, SC

8:30 am - 8:45 am

Why We Built A DICOM Ready Camera

By Jake Crandall Medford, OR

8:45 am - 9:00 am

Experts In Thermology Series: Show And Tell

By Robert Kane, DC AAT Member, San Francisco, CA

9:15 am - 9:30 am

The Introduction of IR Imaging Into Chiropractic

By Jaime Browning, DC AAT Member, Spartanburg, SC

- 9:30 am - 9:45 am

Expert Panel 5 - Q & A

- 9:45 am - 11:45 am

Veterinary Session: Thermology Presentations

9:45 am - 10:00 am

Update on the AAT Vet Guidelines

By Ken Marcella, DVM AAT Member, Canton, GA

10:00 am - 10:20 am

Clinical Implications of Asymmetrical Hypothermia

By John Godbold, Jr., DVM AAT Member, Jackson, TN,

Ronald Riegel, DVM AAT Member, Marysville, OH

10:20 am - 10:45 am

Veterinarian Thermal Imaging

By Natanya Nieman, DVM Versailles, KY

- 10:45 am - 11:00 am

Expert Panel 6 - Q & A

- 11:00 am

General Session Ends

- 11:00 am - 1:00 pm

Board of Directors Meeting

Board Members Only)