

Conference Agenda

14th Conference on Industrial Computed Tomography (ICT 2025)

Session

P-01: Poster Session, light dinner & live music

Time:

Wednesday, 05/Feb/2025:

5:30pm - 7:30pm

Presentations

In-situ holotomography to study longitudinal debonding in glass fibre-reinforced composites

Yentl Swolfs, Thanasis Chatziathanasiou, Martin Diehl, Mahoor Mehdikhani, Christian Breite

KU Leuven, Belgium

Enhanced Geometrical Self-calibration of planar CT

Erfan Bagheri³, **Amirhossein Saedpanah**^{1,2}, **Abbas Mohammadkazemi**^{1,4}, **Seyed Roohollah Hosseini**^{1,5}

¹Arman Moj Fanavar co, Iran, Islamic Republic of; ²Department of Physics, Sharif university of technology, Tehran, Iran; ³Department of Survey Engineering and Spatial Information, University of Tehran, Tehran, Iran; ⁴Department of physics, University of Qom, Qom, Iran; ⁵Department of Physics, University of Tehran, Tehran, Iran

Optimization of Analytical Reconstruction Algorithms for Arbitrary CBCT Trajectory Using Deep Learning

Yuzhong Zhou¹, **Linda-Sophie Schneider**^{1,2}, **Yipeng Sun**^{1,2}, **Andreas Maier**^{1,2}

¹Fraunhofer EZRT, Germany; ²Friedrich-Alexander-Universität Erlangen-Nürnberg

Compensating CBCT Motion Artifacts with Any 2D Generative Model

Yipeng Sun^{1,2}, **Linda-Sophie Schneider**^{1,2}, **Mingxuan Gu**¹, **Siyuan Mei**¹, **Siming Bayer**¹, **Andreas Maier**^{1,2}

¹Pattern Recognition Lab, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; ²Fraunhofer EZRT, Flugplatzstraße 75, 90768 Fürth, Germany

Denosing and deconvolving CT images of unknown origin: comparing linear Wiener-deconvolution with deep convolutional neural network Noise2Inverse

Simon Zabler¹, **Antoine Klos**², **Luc Salvo**², **Mazyar Farahmandi**¹, **Simon Wittl**¹

¹Deggendorf Institute of Technology, Germany; ²Univ. Grenoble Alpes, CNRS, Grenoble INP, SIMAP, France

Influence of Optical Features on Image Reconstruction Quality in Lens-Coupled X-Ray Detectors

Hamidreza Safari^{1,2}, **Pouya Parvizian**¹, **Amirhossein Saedpanah**^{1,3}, **Abbas Mohammadkazemi**^{1,4}, **Seyed Roohollah Hosseini**^{1,5}

¹Arman Moj Fanavar co, Iran, Islamic Republic of; ²School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran; ³Department of physics, Sharif university of technology, Tehran, Iran; ⁴Department of physics, University of Qom, Qom, Iran; ⁵Department of Physics, University of Tehran, Tehran, Iran

Task-Based Optimization of CT Trajectories Using a Learned Defect Visibility Metric

Linda-Sophie Schneider^{1,2}, **Anshul Dhingra**^{1,2}, **Andreas Maier**^{1,2}

¹Friedrich-Alexander-Universität Erlangen-Nürnberg, FAU; ²Fraunhofer-Entwicklungszentrum Röntgentechnik EZRT

µCT system & reconstruction algorithms for large artwork pieces

Eusebio Solorzano¹, **Daniel Cuadra-Rodriguez**¹, **Michael Schwarzenberg**², **Marian Willner**²

¹Novadep NDT Systems, Calle Castaño 10, 47193 La Cisterniga (Valladolid), Spain; ²MITOS GmbH, Hohenzollernstr. 60, 80801 München, Germany

ANAXAM @ TOMCAT 2.0: easy access to cutting-edge tomographic microscopy for industry

Margie Olbinado^{1,2}, **Vladimir Novak**², **Christian Gruenzweig**², **Anne Bonnin**¹, **Federica Marone**¹, **Christian Matthias Schlepuetz**¹, **Goran Lovric**¹, **Marco Stampanoni**^{1,3}

¹Paul Scherrer Institut, Forschungsstrasse 111, 5232 PSI-Villigen, Switzerland; ²ANAXAM, Park Innovaare, Parkstrasse 1, 5234 Villigen, Switzerland; ³Institute for Biomedical Engineering, University and ETH Zürich, 8092 Zürich, Switzerland

The flavours of CT from a simulation perspective

Marius Costin, Victor Bussy, Julie Escoda, Hermine Lemaire, Jitendra-Rathore Singh, Adrien Stolidi, Anthony Tournon
Université Paris-Saclay, CEA List, France

Impact of JPEG compression on the metrological characteristics of industrial CT data

Steffen Kieß¹, Robin Trostorf², Markus Bartscher², Jainabalkya Guhathakurta¹, Sven Simon¹, Ulrich Neuschaefer-Rube²
¹CT Lab and University of Stuttgart, Germany; ²PTB Braunschweig

In-depth imaging of in-vitro tissue models using electrical impedance tomography

Jian Deng¹, Babu Linkoon P Meenaketan^{2,3}, Saeedeh Ebrahimi Takaloo², Dries Braeken², Jan De Beenhouwer¹, Jan Sijbers¹
¹Imec-Visionlab, University of Antwerp, Universiteitsplein 1, 2610 Antwerpen, Belgium; ²IMEC, IMEC, Remisebosweg 1, 3001 Leuven, Belgium; ³KU Leuven, Oude Markt 13, 3000 Leuven, Belgium

Accurate Reconstruction of Gas Turbine Blade Geometry Using 3D/2D Rigid-Registration and CT View Optimization

Hristo Valtchanov¹, Nicolas Piché², Vladimir Brailovski³, Justin Byers⁴, Catherine Désrosiers^{2,1}, François Guibault¹
¹Polytechnique de Montreal, QC, Canada; ²Object Research Systems Inc., Montréal, QC, Canada; ³École de technologie supérieure, Montréal, QC, Canada; ⁴Pratt & Whitney Canada, Montréal, QC, Canada

Deep learning for the processing of synchrotron-radiation tomography data

Julian Moosmann¹, Sarah Irvine¹, Tak Wong¹, Dawit Hailu¹, Thomas Jentschke¹, Vojtech Kulvait¹, Stefan Bruns¹, Berit Zeller-Plumhoff¹, Florian Wieland¹, Felix Beckmann¹, Jörg Hammel¹, Philipp Heuser², Bashir Kazimi³, Xiaogang Yang⁴
¹Helmholtz-Zentrum Hereon, Germany; ²Helmholtz Imaging, DESY IT, Germany; ³Forschungszentrum Jülich, Germany; ⁴Brookhaven National Laboratory, USA

Multiscale characterization of medical devices and pharmaceutical formulations with 3D X-ray microscopy and computed tomography

Herminso Villarraga-Gómez¹, Ria L. Mitchell²
¹Carl Zeiss Industrial Quality Solutions, LLC, USA; ²Carl Zeiss Microscopy Ltd., UK

RadalyX: Portable Multimodal Robotic Scanner

Josef Uher, Jana Boháčová, Richard Kadeřábek, Jakub Veselý
Radalytica a.s., Czech Republic

MicroCT-Based Methodology for Defect Detection and Analysis in GRFP Tube Joints

Davi Oliveira¹, Cintia Ferreira¹, Olga Maria Araújo¹, Alessandra Machado¹, Gabriela Pereira², Ricardo Lopes¹
¹Nuclear Instrumentation Laboratory, Federal University of Rio de Janeiro, Brazil; ²Laboratory of Nondestructive Testing, Corrosion and Welding, Federal University of Rio de Janeiro, Brazil

Temperature-Controlled in-situ Tensile Tests of Polymer Tape with differently shaped Single Particles

Sarah Heupl, Julia Maurer, Johann Kastner
Research Group Computed Tomography, University of Applied Sciences Upper Austria, Austria

Focal Spot Blur Reduction by Deconvolution on CT Projections

Lucas Determan, Kirk Busche, Pradeep Bhattad
North Star Imaging, United States of America

Simulating X-ray beam energy and detector signal processing of an industrial CT using implicit neural representations

Edwin Blum, Florian Stamer, Gisela Lanza
Karlsruhe Institute of Technology, Germany

A Generative Adversarial Neural Network Based Approach for Beam Hardening Reduction in Cone-Beam Industrial X-ray CT Images

Mahdi Ghafarzadeh, Mohammad Tavakoli Kejani, Pouya Sarvari Saravani, Amirreza Asadi
Amirkabir University of Technology, AISM Research Institute, Iran, Islamic Republic of

Application Assessment of OS-SART Reconstruction Algorithm with Limited Number of Projections in XCT Geometric Measurement

Kaojie Yue, Huan Shao, Stefano Petrò, Giovanni Moroni
Department of Mechanical Engineering, Politecnico di Milano, Italy

Accuracy of fast CT dimensional measurements: a case study on an additively manufactured metal part

Thiago Linhares Fernandes¹, Miroslav Yosifov², Maryam Bahrkazemi³, Filippo Zanini¹, Wim Dewulf⁴, Simone Carmignato¹
¹University of Padova, Italy; ²University of Applied Sciences Upper Austria, Austria; ³Volume Graphics GmbH, Germany; ⁴KU Leuven, Belgium

High resolution Nano-CT to detect and analyze counterfeit semiconductors across multiple size scales from package to contacts

Dominik Müller, Andreas Balles, Astrid Hölzing
Fraunhofer IIS, Germany

Conducting a comparative study of defect detection on additively manufactured AISi10Mg propeller using advanced Non-destructive Testing Methods.

siyanda Nkwanyana, Khathutshelo Shavhani
Vaal University of Technology, South Africa

A Framework for the AI-based visualization and analysis of massive amounts of 4D tomography data for end users of beamlines

Steffen Kieß¹, Thomas Lang², Tomas Sauer³, A. Michael Stock³, Andrei Chernov³, Yipeng Sun⁴, Andreas Maier⁴, Tomáš Faragó⁵, Alexey Ershov⁵, Tilo Baumbach⁵, Simon Zabler², Astrid Hölzing², Kilian Dremel², Ali Riza Durmaz⁶, Akhil Thomas⁶, Ingo Manke⁷, Nikolay Kardjilov⁷, Tobias Art⁷, Tak Ming Wong⁸, Regine Willumeit-Römer⁸, Julian Moosmann⁸, Berit Zeller-Plumhoff⁸, Dieter Froning⁹, Sven Simon¹
¹University of Stuttgart; ²Fraunhofer Institute of Integrated Circuits IIS; ³University of Passau; ⁴FAU Erlangen-Nürnberg; ⁵Karlsruhe Institute of Technology; ⁶Fraunhofer Institute for Mechanics of Materials IWM; ⁷Helmholtz-Zentrum Berlin; ⁸Helmholtz-Zentrum Hereon; ⁹Forschungszentrum Jülich

Influence of MicroCT Resolution and Segmentation Techniques on Porosity Analysis in Carbonate Rocks

Alessandra Machado, Olga Maria Araújo, Davi Oliveira, Ricardo Lopes
Federal University of Rio de Janeiro, Brazil

Dimensional X-ray CT accuracy improvement by using metrological scan geometry information for non-iterative reconstruction with flexible trajectories

Simon Burkhard, Alain Küng
Metas, Switzerland

Correlation of Image Quality Metrics with Expert Perception for industrial Computed Tomography

Patrick Weinberger, Lukas Behammer, Lukas Nepelius, Bernhard Fröhler, Miroslav Yosifov, Johann Kastner, Sascha Senck
University of Applied Sciences Upper Austria, Austria

Accelerated CT Sub-pixel Super Resolution

Lucas Determan, Kirk Busche, Pradeep Bhattad

North Star Imaging, United States of America

Towards 4D CT in Additive Manufacturing: Evaluating Algorithmic Limitations and Opportunities for Industrial Non-Destructive Testing

Nadine Mönter, Katharina Bliedtner, Frank Herold

VisiConsult X-ray Systems & Solutions GmbH, Germany

Pore structure characterization of porous building material by X-ray computed tomography (XCT) and X-ray microscopy (XRM)

Chengnan Shi¹, Jeroen Soete², Hans Janssen¹

¹KU Leuven, Department of Civil Engineering, Building Physics and Sustainable Design, Leuven, Belgium; ²KU Leuven, Department of Materials Engineering, Structural Composites and Alloys, Integrity and Nondestructive Testing, Leuven, Belgium

End-to-end Projection Optimization Net for Short Scan CBCT Reconstruction

Xuan Zhou^{1,2}, Yuedong Liu^{1,2}, Cunfeng Wei^{1,2,3}, Qiong Xu^{1,3}

¹Beijing Engineering Research Center of Radiographic Techniques and Equipment, Institute of High Energy Physics, Chinese Academy of Sciences; ²School of Nuclear Science and Technology, University of Chinese Academy of Sciences; ³Jinan Laboratory of Applied Nuclear Science

A Comparative Study of Supervised and Self-Supervised Denoising Techniques for Defect Segmentation in Industrial CT Imaging

Virginia Florian¹, Jiayang Shi², Willem Jan Palestijn², Daan M. Pelt², K. Joost Batenburg², Thomas Lang¹, Christoph Heinzl^{1,3}, Christian Kretzer¹, Stefan Kasperl¹, Dominik Wolfschläger⁴, Robert H. Schmitt^{4,5}

¹Fraunhofer IIS/EZRT, Germany; ²Leiden Institute of Advanced Computer Science, Leiden University, The Netherlands; ³University of Passau, Germany; ⁴WZL RWTH Aachen University, Germany; ⁵Fraunhofer IPT, Germany

A CT machine for inspection of Parmigiano Reggiano PDO

Alice Presenti¹, Cosimo Lorenzetto¹, Francesco Tortoli¹, Leonardo Manetti¹, Sandro Bettini², Giorgia Stocco³, Alessandro Ferragina³, Claudio Cipolat Gotet³, Andrea Summer³

¹Imaginalis srl, Italy; ²Ing Ferretti srl, Italy; ³Department of Veterinary Science, University of Parma, Italy

High resolution CT-scan for porous metallic pieces produced by additive manufacturing

Daniel Cuadra-Rodriguez, Eusebio Solorzano, Pablo Perez-Vasallo

Novadep NDT Systems, Spain

Advanced MicroCT Analysis of Lacustrine Carbonate Reservoirs for Fluid Flow Simulation

Olga Maria Araújo, Alessandra Machado, Davi Oliveira, Ricardo Lopes

Federal University of Rio de Janeiro, Brazil

Structure characterization for nitrogen content carbons by using hard X-ray dual-phase grating interferometry

Ruizhi Tang¹, Caori Organista^{1,2}, Victoria Flexer³, Marco Stampanoni², Matthieu N. Boone¹

¹Gent University, Belgium; ²ETH Zurich, Switzerland; ³CIDMEJu (CONICET-Universidad Nacional de Jujuy), Argentina

Mitigation of human factor in tomographic post processing of additive manufactured critical parts for aviation application

Stefano Benuzzi, Fabio Esposito, Davide Borghi, Maria Grazia Righi, Natanaele Galavotti

TEC Eurolab srl, Italy

RoboCT Trajectory Optimization - Practical Study on a Rubik's Cube

Wolfgang Holub^{1,2}

¹Augsburg University, Germany; ²Fraunhofer Development Center for X-ray Technology EZRT