between the IT and health sectors.

of disciplines and professions. Through this master’s

and Electrical Engineering. The target groups are

Faculty of Information Technology, Mathematics

Dyna-CT during EVAR – A comparison with multidetector CT. Eur J Vasc

is applied to improve endovascular treatment of

in the use of electro-medical equipment. Live trans-

Medistim, Norway, is based on testing of equipment

2009. An innovation programme in collaboration with

medicine (endo- and transbronchial procedures) in

FRIMED) as well as the nanomedicine IP project:

2010: Enhanced Minimally Invasive Therapy

studies produced interesting results and many

milestone has been reached in this emerging field.

clean room infrastructure. With the opening of

of physics, chemistry, biology, electrical  engineering,

NTNU NanoLab aims to facilitate a collaborating

and distributed NOK 500 000 to researchers to

In 2009, Medical Technology received 21 applications

professor Hans Torp

function in emergency situations in ambulances and

Innovation highlight

non-traumatic pain.”

The main success story in medical imaging in 2009

Internationalisation

www.ntnu.no/medicalimaging

The Norwegian Research School in Medical Imaging (NORSIM) was launched in mid-2009 with the Faculty of

National Centre of Clinical MRI Spectroscopy

National Centre of Expertise in 3D Ultrasound

National Centre of Excellence in Human Motor Control

The Operating Room of the Future (ORF)

Awards

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Internationalisation

In 2009, Medical Technology received 21 applications

The Heart Prize for 2009 was given to Professor Bjørn Myskja, (bjorn.myskja

The Research Prize in Medical Technology 2009 was awarded to Leon Hopper and Stine Sigstad for their work on

The Impact Prize 2009 was presented to Professor Halvor Bøe. The Impact Prize is awarded to a researcher who in

The National Science and Technology Council awarded Medical Technology 2009

Annual Report – Strategic Area Medical Technology 2009

SINTEF Health Research

Svalbard, Professor of Molecular Biology, St. Olavs University Hospital.

Evaluating digital X-ray radiogrammetry as out-

1H-MRSI) was implemented in collaboration with

guided surgery, biomedical optics and bionanotech-

New Master’s Programmes in Health Informatics

New Master’s Programmes in Health Informatics

National Centre of Excellence in Human Motor Control

www.ntnu.no

The Royal Norwegian Order of St Olav was awarded Professor Bjørn Myskja for his outstanding re-

responsibilities. The centre is by definition to be focused on patients using imaging- and navigation-

Dyna-CT during EVAR – A comparison with multidetector CT. Eur J Vasc

Biomedical Optics and Biophotonics.

Tore Bjåstad, PhD 20 November 2009

Access control in healthcare information systems

DNA excision repair of uracil and 5-fluorouracil in

Development and characterization of bio-

confocal microscopy,

with cutaneous T cell lymphoma of graft-vs-host

segmentation of organs in CT and MR scans

High frame rate ultrasound imaging using

Tentative, PhD 08 May 2009

High frame rate ultrasound imaging using

Tentative, PhD 31 March 2009

High frame rate ultrasound imaging using

Tentative, PhD 30 October 2009

High frame rate ultrasound imaging using

Tentative, PhD 24 March 2009

High frame rate ultrasound imaging using

Tentative, PhD 16 October 2009

High frame rate ultrasound imaging using

Tentative, PhD 15 June 2009

High frame rate ultrasound imaging using

Tentative, PhD 13 August 2009

High frame rate ultrasound imaging using

Tentative, PhD 03 September 2009

High frame rate ultrasound imaging using

Tentative, PhD 01 July 2009

High frame rate ultrasound imaging using

Tentative, PhD 29 April 2009

High frame rate ultrasound imaging using

Tentative, PhD 08 January 2009

High frame rate ultrasound imaging using

Tentative, PhD 07 December 2008

High frame rate ultrasound imaging using

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Tentative, PhD 01 September 2008

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Tentative, PhD 21 June 2008

High frame rate ultrasound imaging using

Tentative, PhD 03 January 2008

High frame rate ultrasound imaging using

Tentative, PhD 05 November 2007

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Tentative, PhD 07 September 2007

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The Strategic Area of Medical Technology 2009

The Strategic Area of Medical Technology was founded by the Board of NTNU in 1999. The primary goal was to develop interdisciplinary collaboration between research groups within medical technology, to conduct medical research and innovation to improve patient outcome.

From 2004, the Strategic Area of Medical Technology was extended to include new research in bioinformatics (FUGE). This was an excellent move to take advantage of the strategic focus of nanotechnology has led to increasing activity in Bionanotechnology in 2009. Some of the ongoing projects:

- The bioinformatics network is part of FUGE and aims to improve prediction and analysis of gene regulation (K. Klepper, Priors Editor). The tool allows us to compare and integrate different types of knowledge in an optimal way for improved decision-making associated with genomic data. The tool allows us to compare and integrate different types of knowledge in an optimal way for improved decision-making associated with genomic data. The tool allows us to compare and integrate different types of knowledge in an optimal way for improved decision-making associated with genomic data. The tool allows us to compare and integrate different types of knowledge in an optimal way for improved decision-making associated with genomic data.

Bioinformatics

- Bioinformatics is the biomolecular tools and techniques used to handle, store, and manipulate data. The tools are used to analyze and interpret complex and vast amounts of data, which can be used to understand the relationship between the biomolecular data and the human diseases.

Molecular Imaging

- Molecular imaging and quantitative fluorescence microscopy: Fluorescence lifetime imaging microscopy, mechanical properties of tissue

- By combining mechanical actuation with non-linear harmonic generation. This creates a unique possibility for extracting descriptive and quantitative data for evaluating the structural and functional properties of biological macromolecules in living cells. By using the second harmonic generation, researchers can obtain high-resolution images of biological structures in their natural state.

Medical Imaging and Image-Guided Therapy

- Improved ultrasound of heart defects in newborns using high frame rate flow visualization

- New developments in technology for Color Doppler Imaging (CDI) and Blood Flow Imaging (BFI). BFI is a new technique that can be used for imaging blood flow in three dimensions. The technique utilizes cross-correlation to determine the instantaneaous blood flow vector and instantaneous velocit. This allows for the determination of blood flow velocity and direction in real-time.

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Medical Biotechnology

- Improved ultrasonic imaging in newborns, due to the high heart rates. In a MI Lab project, this has been solved by using plane wave imaging. Plane wave imaging is used to image the whole area of a probe, allowing for the visualization of large areas of the heart. The technique is particularly useful for imaging newborns, due to their high heart rates.

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