NTNU | Norwegian University of Science and Technology

Colourlab

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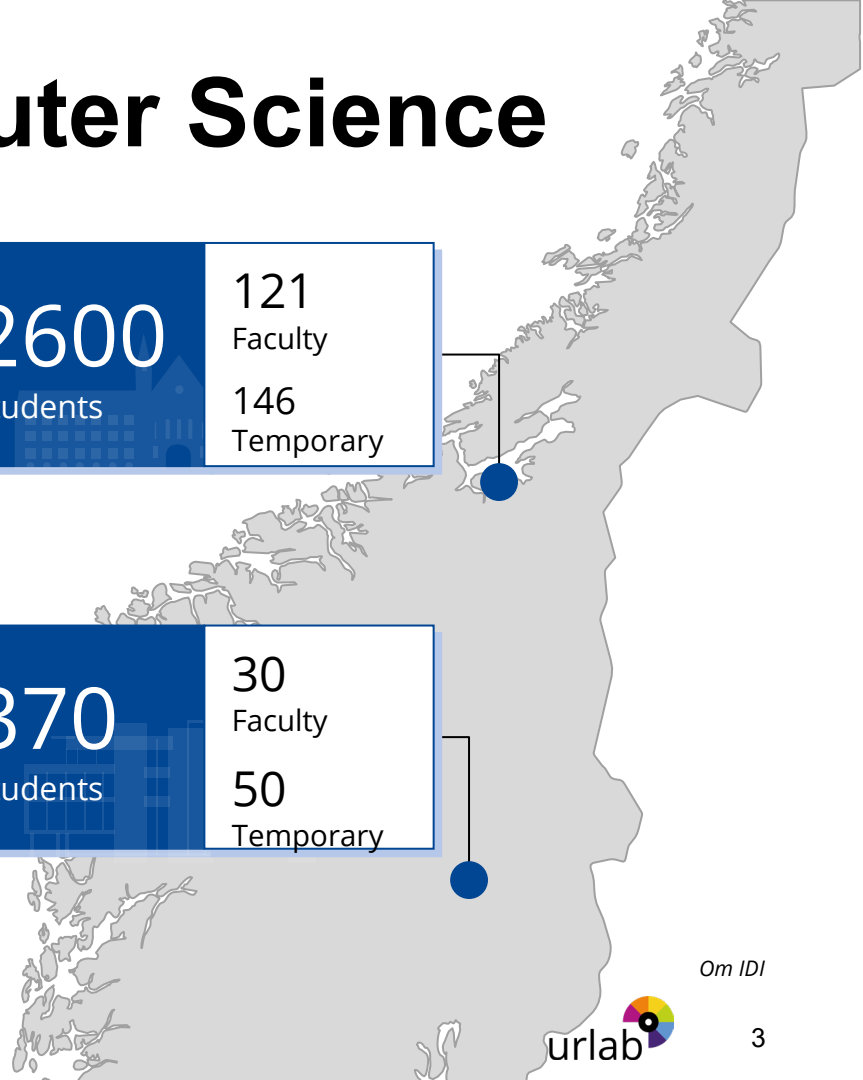
Colourlab

NTNU

- 3 campuses
- 42000 students
- 7760 person years in employees
- Specialization in technology and the natural sciences.
- More than 400 doctoral degrees awarded annually
- More than 100 laboratories.
- Horizon 2020: 218 signed projects (december 2020)

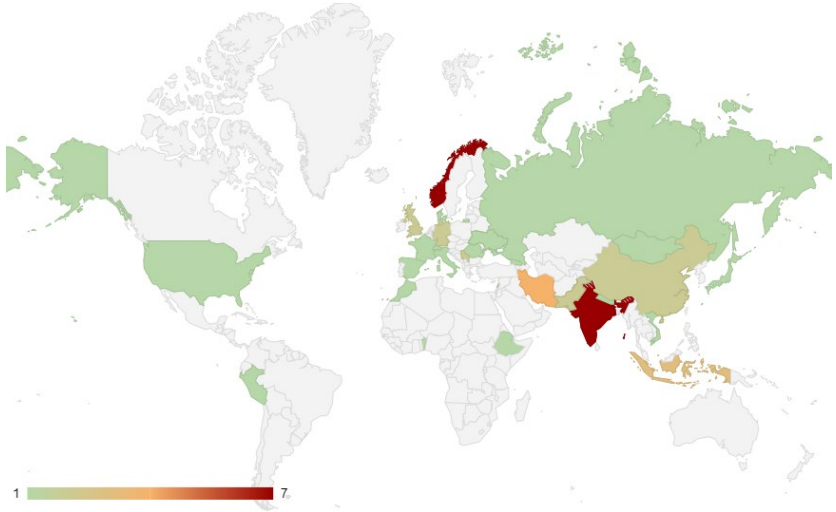
Department of Computer Science

- Located in **Trondheim** and **Gjøvik**
- Approx. **342** employees (including part-time)
- Approx. **40** nationalities
- Budget of more than **300mNOK**
- Reaching **3000 students**

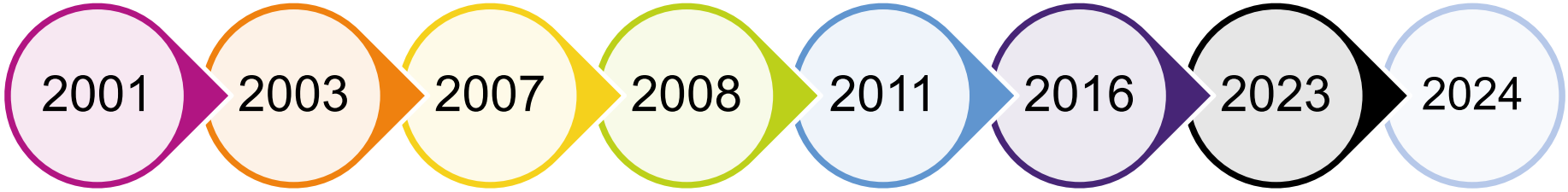


Colourlab

- Academic unit at the Department of Computer Science
- 55 staff members:
  - 17 permanent staff
    - 5 professors
    - 6 associate professors
    - 6 permanent researchers
  - 38 temporary staff and affiliated
- International: 32 nationalities



Short timeline with milestones



- 2001
  - Colourlab founded at Gjøvik University College. Objective to serve the graphic arts industry's need for colour management
- 2003
  - Gjøvik Color Imaging Symposium organized for the first time
  - First RCN project: "Multispectral Image Capture and Reproduction"
- 2007
  - First PhD in the Colourlab awarded – Jeremie Gerhard
  - First EU project involvement: EU Framework 6 Marie Curie Conferences & Training Courses: CREATE - Colourlab Partner
- 2008
  - ERASMUS MUNDUS master Color in Informatics and Media Technology (CIMET) started
- 2011
  - First EU project coordination. EU FP7 ITN: "Colour Printing 7.0: Next Generation Multi-Channel Printing (CP7.0)"
  - Budget: 2.5M €
- 2016
  - Merger with NTNU. Colourlab becomes part of department of Computer science
- 2023
  - Colourlab becomes an academic unit
- 2024
  - 40 PhD theses defended at the Colourlab

Study programs in Gjøvik

- Bachelor (3 years)
  - Engineering in Computer Science: specialization in Cyber Security and Programming
  - Programmering
- Master (2 years)
  - Applied Computer Science
  - Computational Colour and Spectral Imaging: Erasmus+
- PhD (3 years)
  - Computer science

Courses by the Colourlab

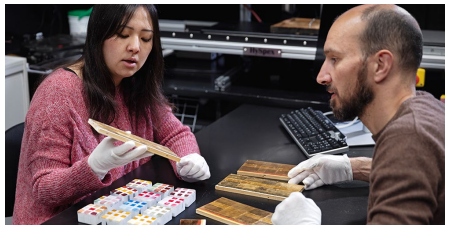
- Teaching bachelor, master and PhD courses

- Colour and image processing courses
  - Introduction to Color Image Processing
  - Cross-media Color Reproduction
  - Specialisation in Colour Imaging
  - Computer Graphics Fundamentals and Applications
  - Deep learning for visual computing
  - Introduction to Research on Colour and Visual Computing
  - Advanced Color Management
  - Appearance, Perception and Measurement
  - Computer Vision
  - Colour in interface design
  - Datasyn og applikasjoner
  - Farge i grensesnittdesign
  - Fargestyring
  - Eksperter i team - Visual Appearance reproduction using 3D printing techniques / Challenges and Opportunities

- Computer science and project work courses
  - Programmering 1
  - Programmering 2
  - Databases
  - Teambasert samhandling
  - Programmering, numerikk og sikkerhet
  - Advanced Project Work
  - Project Work for Exchange Master Students
  - Project Work for Exchange Bachelor Students
  - Project Work for Exchange Master Students

Our research areas

Appearance



Imaging for cultural heritage

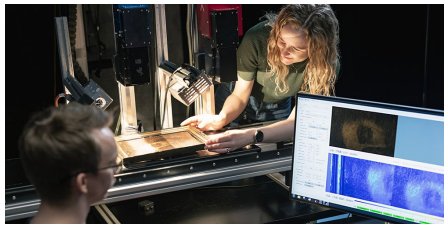
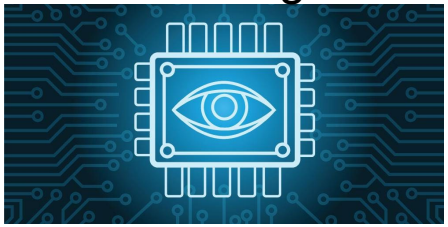


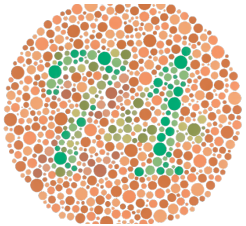
Image quality

Computer vision, image processing and machine learning



Medical imaging

Colour and perception



Educational projects

Colour management

Cultural Heritage

- Non-invasive measurements using imaging technology.
- assess and monitor any change to which CH artefacts are faced during their exposure to the atmosphere and their conservation treatments.

Medical Imaging

- Imaging for improved diagnosis, monitoring and treatment

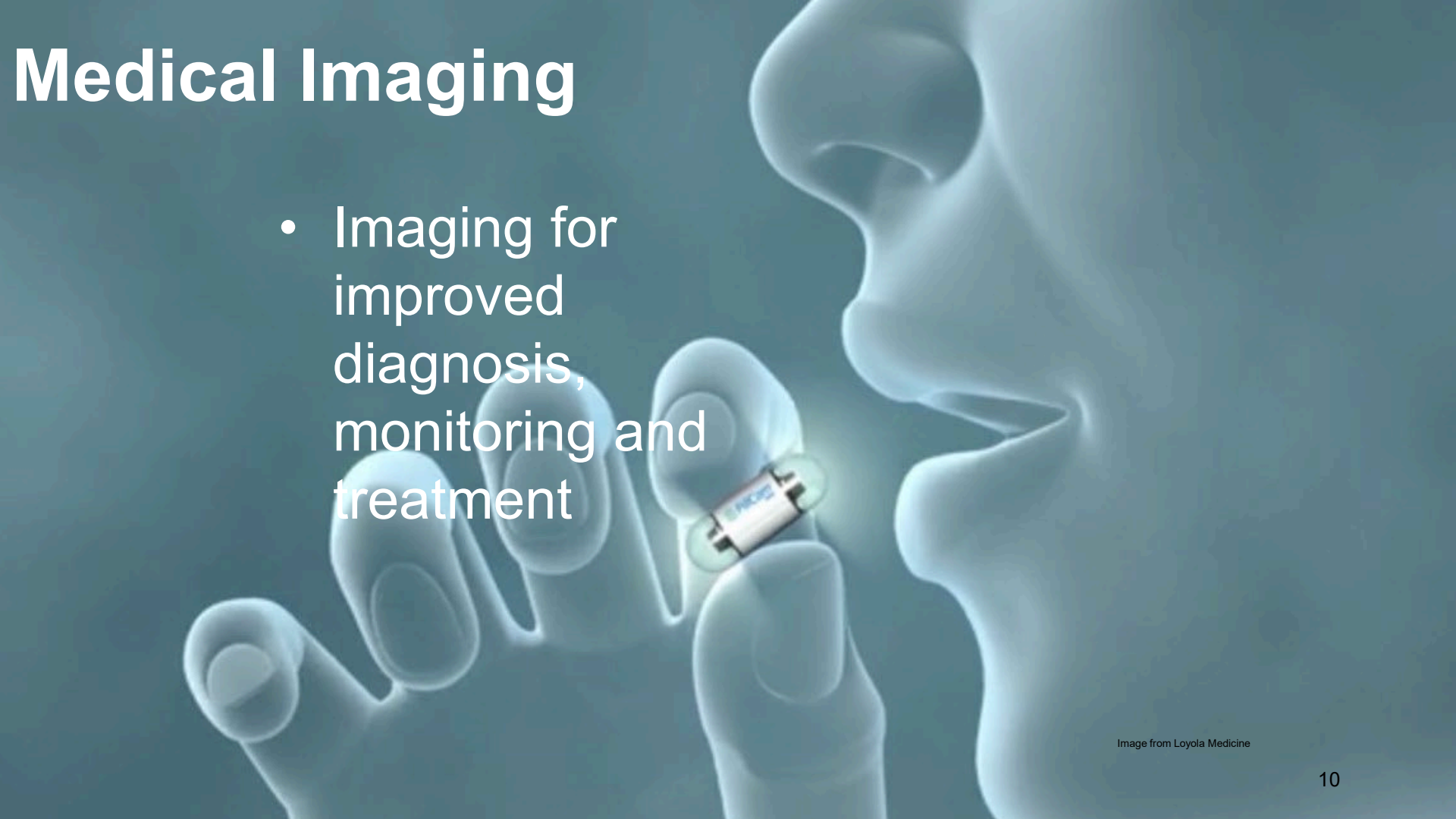


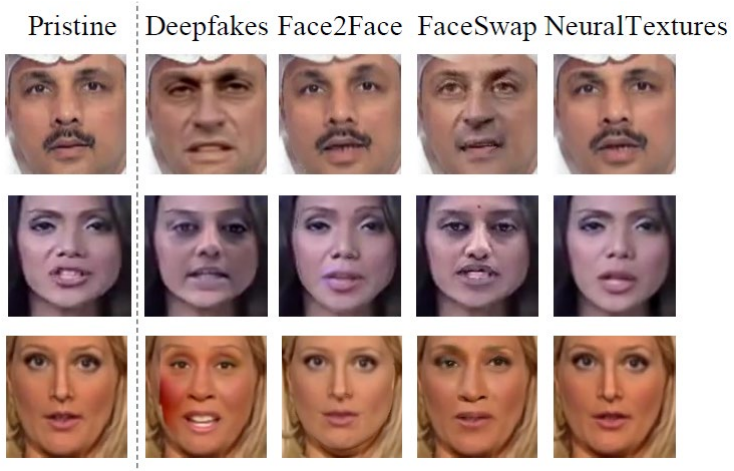
Image from Loyola Medicine

Graphic arts

- Using more than the conventional four colorants (CMYK) in printing and focusing particularly on the spectral properties.

Security

- Deep fake detection



- Water marking / data hiding

Quality

- How to measure print/image quality?

Collaboration partners

Recent publications

Journal of Imaging
MDPI

Article

Individual Contrast Preferences in Natural Images

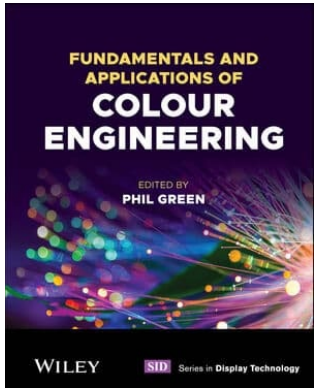
Olga Cherepkova *, Seyed Ali Amirshahi and Marius Pedersen

geosciences
MDPI

Article

Exploring Imaging Methods for In Situ Measurements of the Visual Appearance of Snow

Mathieu Nguyen [1,*], Jean-Baptiste Thomas [1,2] and Ivar Farup [1]



Babini et al. Heritage Science (2023) 11:74
https://doi.org/10.1186/s40494-023-00923-6
Heritage Science

RESEARCH Open Access

Acquisition strategies for in-situ hyperspectral imaging of stained-glass windows: case studies from the Swiss National Museum

Agnese Babini[1*], Tiziana Lombardo[2], Katharina Schmidt-Ott[2], Sony George[1] and Jon Yngve Hardeberg[1]

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Digital Object Identifier 10.1109/ACCESS.2024.3424931

Comprehensive Evaluation of ImageNet-Trained CNNs for Texture-Based Rock Classification

DIPENDRA J. MANDAL[1], HILDA DEBORAH[1], TABITA L. TOBING[2], MATEUSZ JANISZEWSKI[3], JAMES W. TANAKA[4], AND ANNA LAWRANCE[4]

Journal of Imaging Science and Technology® 67(5): 1–15, 2023.

Grey Balance in Cross Media Reproductions

Gregory High, Peter Nussbaum, and Phil Green