PORTFOLIO OF TEACHING

January 3, 2024

PhD Markku Hauta-Kasari

Teaching and Supervising

1. Teaching Experience

I have done teaching in the following courses as fee-paid teacher, assistant, senior assistant and as professor.

- 1993 University of Kuopio, Finland, Education and Development Centre, fee-paid teacher
  Data Structures and Algorithms (exercises 20 hours)
- 1995 Lappeenranta University of Technology, Finland, spring term
  Introduction to Data Management (exercises 28 hours, practical assignments)
  Introduction to Workstation Usage (exercises 36 hours)
- 1995 Lappeenranta University of Technology, Finland, autumn term
  Introduction to Programming (practical assignments)
  Microcomputer Software (practical assignments)
  Unix- and System Programming (exercises 24 hours)
  Unix- and System Programming, fee-paid teacher (exercises 24 hours)
- 1996 Lappeenranta University of Technology, Finland, spring term
  Unix- and System Programming (practical assignments)
  Introduction to Workstation Usage (lectures 2 hours, exercises 147 hours)
- 1996 Lappeenranta University of Technology, Finland, Education and Development Centre
  Introduction to Data Management (lectures 12 hours)
- 1998 Lappeenranta University of Technology, Finland, autumn term
  Design of Algorithms (exercises 120 hours)
- 1999 Lappeenranta University of Technology, Finland, spring term
  Design of Algorithms (practical assignments)
  Pattern Recognition (exercises 52 hours, practical assignments, teaching in English)
- 1999 University of Joensuu, Finland, autumn term
  Programming for Teachers (lectures 16 hours, exercises 24 hours)
  Introduction to Signals (exercises 6 hours)
  Computer Networks in Teaching (lectures 24 hours, exercises 15 hours)
- 2000 University of Joensuu, Finland, spring term
  Computer Systems (lectures 40 hours, exercises 20 hours)
  Introduction to Word Processing (lectures 12 hours)
  Introduction to Spreadsheets (lectures 12 hours)
  Introduction to Data Bases (lectures 4 hours)
  Color and Color Image Analysis, Graduate school of Modern Optics and Photonics, University of Joensuu, Finland, (exercises 6.5 hours)
- 2001 University of Joensuu, Finland, spring term
  Color Image Analysis, (lectures 8 hours, teaching in English)

- 2001 University of Joensuu, Finland, autumn term
  Operating systems, (lectures 40 hours, exercises 40 hours, teaching in English)
- 2002 University of Joensuu, Finland, spring term
  Computer Systems (lectures 40 hours, exercises 40 hours)
- 2002 Spectral Color and Image Analysis, Intensive Program on Computer Vision-(IPCV) summer school, University of Koblenz, Germany (lectures 6 hours, exercises 3 hours, teaching in English)
- 2002 University of Joensuu, Finland, autumn term
  Elements of Programming, for professional upgrading program students (lectures 20 hours, exercises 10 hours)
  Elements of Programming (lectures 20 hours)
  Organizing the Research Seminar
- 2003 University of Joensuu, Finland, spring term
  Computer Systems (lectures 40 hours, exercises 20 hours)
  Organizing the Research Seminar
- 2004 Spectral imaging systems and applications, spectral analysis methods, Intensive Program on Computer Vision-(IPCV) summer school, University of Saint-Etienne, France (lectures 3 hours, teaching in English)
- 2005 University of Joensuu, Finland, autumn term
  Machine vision training for industry (lectures 6 hours)
- 2006 Spectral imaging systems and spectral analysis methods, Intensive Program on Computer Vision (IPCV)-summer school, Budabest Tech., Hungary (lectures 3 hours, teaching in English)
- 2008 Introduction to Spectral Color - applications, Intensive Program on Computer Vision (IPCV)-summer school, University of Joensuu, Finland (lectures 1 hour, teaching in English)
- 2010 University of Eastern Finland, spring term
  Data Structures and Algorithms I (lectures 32 hours, exercises 28 hours)
- 2010 University of Eastern Finland, autumn term
  Introduction to Programming (lectures 20 hours, exercises 46 hours)
- 2011 University of Eastern Finland, spring term
  Pattern Recognition (lectures 32 hours, teaching in English)
- 2011 University of Eastern Finland, autumn term
  Introduction to Programming (lectures 20 hours, exercises 40 hours)
- 2011 University of Eastern Finland, autumn term
  Special Course on Color Science (weekly seminars for Erasmus Mundus CIMET students)
- 2011 University of Eastern Finland, autumn term
  Seminars for International MSc-programs in Information Technology (IMPIT) and Cross-Border University (CBU) students
- 2012 University of Eastern Finland, spring term
  Seminars for International MSc-programs in Information Technology (IMPIT) and Cross-Border University (CBU) students
- 2012 University of Eastern Finland, autumn term
  Special Course on Color Science (weekly seminars for Erasmus Mundus CIMET students)
- 2008-2013 Project contest supervisor in Erasmus-Mundus master programme "Colour in Informatics and Media Technology CIMET"

- 2013 University of Eastern Finland, spring term
  Seminars for International MSc-programs in Information Technology (IMPIT) and Cross-Border University (CBU) students
- 2013 University of Eastern Finland, autumn term
  Seminars for International MSc-programs in Information Technology (IMPIT)
- 2013 University of Eastern Finland, autumn term
  Industrial Project supervisor in Erasmus-Mundus master programme "Colour in Informatics and Media Technology CIMET"
- 2013 University of Eastern Finland, autumn term
  Pattern Recognition (lectures 10 hours, teaching in English)
- 2014 University of Eastern Finland, spring term
  Seminars for International MSc-programs in Information Technology (IMPIT)
- 2014 University of Eastern Finland, autumn term
  Industrial Project supervisor in Erasmus-Mundus master programme "Colour in Informatics and Media Technology CIMET"
- 2014 University of Eastern Finland, autumn term
  Pattern Recognition (lectures 10 hours, teaching in English)
- 2015 University of Eastern Finland, spring term
  Non-dectructive Analysis of Wood Material (lectures 5 hours, teaching in English)
- 2015 University of Eastern Finland, autumn term
  Introduction to Computer Science (lectures 28 hours)
- 2016 University of Eastern Finland, autumn term
  Special Course on Color Science (for CIMET students)
- 2017 University of Eastern Finland, autumn term
  Organizing Color Science laboratory course for Erasmus Mundus Colour in Science and Industry (COSI)-students
- 2018 University of Eastern Finland, autumn term
  Organizing Color Science laboratory course for Erasmus Mundus Colour in Science and Industry (COSI)-students
  Organizing Industrial Project for Erasmus Mundus Colour in Science and Industry (COSI)-students
- 2019 University of Eastern Finland, autumn term
  Organizing Industrial Project course
  Organizing Seminar for Bachelor of Science-students
- 2020 University of Eastern Finland, autumn term
  Organizing Seminar for Bachelor of Science-students
- 2021 University of Eastern Finland, autumn term
  Organizing Industrial Project course
  Organizing Color Science laboratory course for Erasmus Mundus Colour in Science and Industry (COSI)-students
  Organizing Seminar for Bachelor of Science-students

2. Supervised Theses

Doctoral theses

- 2011, Ville Heikkinen, Kernel Methods for Estimation and Classification of Data from Spectral Imaging, co-supervised with Jukka Tuomela and Juha Alho.
- 2012, Jukka Antikainen, New Techniques for Spectral Image Acquisition and Analysis, co-supervised with Timo Jääskeläinen.
- 2012, Pauli Fält, Modern optical methods for retinal imaging, co-supervised with Timo Jääskeläinen.
- 2012, Jussi Kinnunen, Reflectance and fluorescence analysis of articular cartilage, co-supervised with Pasi Vahimaa and Jukka Jurvelin
- 2013, Pesal Koirala, Simulation and Measurement of Colored Surfaces, co-supervised with Jussi Parkkinen
- 2014, Yevgeniya Kobrina, Infrared Microspectroscopic Cluster Analysis of Bone and Cartilage, co-supervised with Hanna Isaksson and Jukka Jurvelin.
- 2014, Mika Flinkman, Computational spectral analysis for improved color discrimination and surface reflectance modeling, co-supervised with Hannu Laamanen and Pasi Vahimaa
- 2015, Tapani Hirvonen, A Wide Spectral Range Imaging System - Applications in Wood Industry, co-supervised with Kai-Erik Peiponen and Mika Sorjonen
- 2015, Paras Pant, Optimizing Spectral Bands of Airborne Imager for Tree Species Classification, co-supervised with Ville Heikkinen and Timo Tokola
- 2015, Nina Rogelj, Goniospectrometric analysis of optically complex samples - A study of diffraction gratings, optically variable devices, and coatings with special effect pigments, co-supervised with Marta Klanjšek Gunde
- 2016, Tomonori Tashiro, A User-Centered Design of Discomfort Glare Evaluation for White LED Light Sources, co-supervised with Miyoshi Ayama
- 2016, Piotr Bartczak, Spectrally Tunable Light Sources for Implementing Computationally Designed Illuminations, co-supervised with Jussi Parkkinen
- 2017, G M Atiqur Rahaman, Use of Reflectance Measurements to Study Turbid Media by Imaging, co-supervised by with Jussi Parkkinen
- 2017, Ana Gebejes, Spectral video : application in human eye analysis and tracking, co-supervised with Roman Bednarik
- 2020, Arash Mirhashemi, Hyperspectral image acquisition, estimation, and feature extraction of complex and textured surfaces, co-supervised with Ville Heikkinen
- 2021, Joni Hyttinen, Oral and Dental Spectral Imaging for Computational and Optical Visualization Enhancement, co-supervised with Pauli Fält

Master of Science theses

- 2001, Jussi Pietikäinen, J2EE-Software Architecture
- 2002, Pasi Karttunen, Clustering of Color Spectra using Pattern Recognition Methods
- 2003, Liisa Varmanen, Web-mining
- 2003, Kalle Ojala, Enabling MMS in PC suite
- 2004, Elina Räisänen, Color naming and classification
- 2004, Petri Piirainen, Digital realtime method for color calibration

- 2006, Dibakar Raj Pant, Determination of Optical Characteristics of Materials for Computer Colorant Analysis
- 2007, Dominik Wisniewski, Spectral Characterization of Paper and Print
- 2007, Antti Vatanen, Problems and Their Solutions in Color Matching
- 2008, Muskan Regmi, Spectral Imaging in Cultural Historical Artifacts
- 2008, Eyad Khader, 3D Spectral Imaging
- 2008, Tommi Pakarinen, Goniospectrometer - Measuring Device for Defining Angular Dependency of Spectrum
- 2008, Essi Tarma, Implementation of Color Harmony Test Using Display Device
- 2009, Yevgeniya Kobrina, The spatial analysis of optical spectral imaging of the articular cartilage surface (Co-supervised)
- 2009, Alessya Gorelova, Estimation of Human Fundus Spectral Reflectance from Multichannel Measurements (Co-supervised)
- 2010, Tapani Hirvonen, Developing Machine Vision for Pine Lumber analysis (Co-supervised)
- 2010, Petri Luukkonen, Software for Color Mixing (Co-supervised)
- 2010, Kusse Sukuta Bersha, Spectral Imaging and Analysis of Human Skin, (Co-supervised)
- 2011, Atiqur Rahaman, Retinal Spectral Image Analysis for Diabetic Retinopathy (Co-supervised)
- 2011, Abul Hasnat, Spectral Analysis of Neurosurgery RGB video, (Co-supervised)
- 2012, Kristina Naumovic ,RGB Fluorescence Imaging by Changing Illumination (Co-supervised)
- 2012, Vignesh Shanmugam, Evaluation of Mixed Lighting in Interiors (Co-supervised)
- 2012, Alexandru Gegiuc, Developing a New Strategy of Calibrating the Eye Tracker Systems with Low Vision Users (Co-supervised)
- 2013, Vadim Beglov, Object information based on marker recognition (Co-supervised)
- 2014, Catalin Matasaru, Mobile Phone Camera Possibilties for Spectral Imaging (Co-supervised)
- 2014, Yingfei Zhao, Spectral Estimation based on HDR Imaging (Co-supervised)
- 2017, Alireza Razin, Analysis of histological tooth samples and development of visualization methods (Co-supervised)
- 2017, Alina Beliakova, Pattern recognition and image analysis of spectral imaging of human teeth (Co-supervised)
- 2018, Setu Md Asif Khan, Machine Learning Approach to Identify Formaldehyde from Spectral Images of Fruits (Co-supervised)
- 2019, Oleksandr Boiko, Learning for Dental Spectral Image Analysis, (Co-supervised with Pauli Fält)
- 2019, Juho Puumalainen, Computational spectral imaging and band-pass filters for apple bruising degree assessment, (Co-supervised with Shigeki Nakauchi)
- 2020, Shi Cheng, Neural Networks-Based Biocolorand Artificial Color Classification Using Reflectance Spectra, (Co-supervised with Xiao-Shi Gao)
- 2020, Nihal Arman, Improvement of Photogrammetry by Hyperspectral Imaging, (Co-supervised with Dmitry Semenov)

Bachelor of Science theses

- 2002, Juha Lehtonen, Efficient Transmission of Spectral Images in Computer Network
- 2002, Jari Hintikka, Multiprimary Displays
- 2003, Antti Vatanen, Forecasting the Color using Color Appearance Models
- 2008, Tommi Pakarinen, Multiangle Measurements by Spectrogoniometer
- 2008, Pekka Stigell, Pattern Recognition for Face Image Databases
- 2013, Olli Hiltunen, Spectral Based Eye Fundus Imaging Methods
- 2019, Juho Puumalainen, Elintarvikkeiden spektrikuvantaminen ja kuva-analyysi
- 2020, Teemu Savorinen, Spektrikuvantamisen tiedostomuodot

IT-projects

- 2002, Risto Joki-Korpela, Thermal Imaging and Thermal Image Analysis
- 2003, Pasi Karttunen, Optical Implementation of Color Filters
- 2003, Tuija Kareinen, Graphical User Interfaces for Spectral Image Analysis
- 2003, Petri Piirainen, Realtime Digital Stereo Imaging and Color Calibration System
- 2003, Pekka Stigell, Reconstruction of Color Spectra using Wiener Estimation
- 2003, Antti Vatanen, Graphical User Intefaces for Color Research Programs
- 2004, Elina Räisänen, Color clustering by Self-Organizing Maps for Color categorization
- 2005, Dibakar Raj Pant, Measurement of spectral characteristics and application of Kubelka_Munk theory on industrial colorants
- 2007, Muskan Regmi, Mitwa Kaemba, Spectral imaging and analysis of icons
- 2008, Eyad Khader, 3D Spectral Imaging System
- 2008, Yasser Essiarab, Spectra Viewer with New Features
- 2009, Alessya Gorelova, Spectral image reconstruction and analysis from medical RGB video
- 2010-2020 several IT-projects supervised

Presently supervising

- Dr theses 2: Nihal Arman, Kenichi Ito

3. Review and Opponent of Theses

Doctor's theses

- Reviewer

- 2002, Birgitta Martinkauppi, University of Oulu, Dr. thesis, “Face Colour Under Varying Illumination - Analysis and Applications”
- 2006, Juha Karvonen, Helsinki University of Technology, Dr. thesis, “Compaction of C-band Synthetic Radar Data Based Sea Ice Information for Navigation in teh Baltic Sea”
- 2006, Igor Potucek, Brno University of Technology, Czech Republic, “Omni-directional image processing for human detection and tracking”
- 2009, Silja Holopainen, Helsinki University of Technology, ”Absolute Measurement Methods for Reflectance and Fluorescence”
- 2009, External reviewer of the Ph.D. Summary Dissertation, Clara Plata Rios, University of Granada, Spain, ”Characterization of Textured Objects Through Lighting-Invariant Properties”
- 2010, Albert Sadovnikov, Lappeenranta University of Technology, Dr. thesis, ”Computational Evaluation of Print Unevenness According to Human Vision”
- 2013, External reviewer of the Ph.D. Summary Dissertation, Raul Luzon Gonzalez, University of Granada, Spain, ”Recuperacion de informacion en imagenes en color deteriorada por la a tm osfera application a la mejora de la visibilidad”
- 2014, Raju Shestra, University of Oslo, Dr. thesis, ”Multispectral imaging: Fast acquisition, capability extension, and quality evaluation”
- 2015, Rajendra Dangol, Aalto University, Dr. thesis, “Subjective preference of light colour and LED lighting”
- 2016, Xingbo Wang, Norwegian University of Science and Technology NTNU, Dr. thesis, “Filter array based spectral imaging: demosaicking and design considerations”
- 2018, Haris Ahmad Khan, Norwegian University of Science and Technology NTNU, Dr. thesis ”Multispectral constancy for illuminant invariant representation of multispectral images”
- 2019, Matti Eskelinen, University of Jyväskylä, ”Computational methods for hyperspectral imaging using Fabry–Perot interferometers and colour cameras”
- 2021, Ruven Pillay, Norwegian University of Science and Technology NTNU, Dr. thesis, ”Multispectral and Hyperspectral Imaging of Art - Quality, Calibration and Visualization”
- 2023, Dipendra Mandal, Norwegian University of Science and Technology NTNU, Dr. thesis, ”Image Quality Assessment of Hyperspectral and Conventional Imaging for Cultural Heritage Artifacts”

- Opponent for
  - 2008, Toni Kuparinen, Lappeenranta University of Technology, Dr. thesis dissertation: Reconstruction and Analysis of Surface Variation using Photometric Stereo.
  - 2009, Daniel Nyström, Linköping University, Sweden, Dr. thesis dissertation: High Resolution Analysis of Halftone Prints.
  - 2009, Marta de Lasarte Rigueiro, Technical University of Catalonia, Spain, Dr. thesis dissertation: Thorough Characterization and Analysis of a Multispectral Imaging System Developed for Colour Measurement.
  - 2009, Diana Kalenova, Lappeenranta University of Technology, Finland, Dr. thesis dissertation: Color and Spectral Image Assessment using Novel Quality and Fidelity Techniques.
  - 2013, Ludovic Coppel, Mid-Sweden University, Sweden, Dr. thesis dissertation: Whiteness and Fluorescence in Paper and Board: Perception and Optical Modelling
  - 2013, Camille Simon Chane, University of Burgundy, France, Dr. thesis dissertation: Intégration de systèmes d’acquisition de données spatiales et spectrales haute résolution dans le cadre de la génération d’informations appliquées à la conservation du patrimoine
  - 2014, Raju Shestra, University of Oslo, Dr. thesis, ”Multispectral imaging: Fast acquisition, capability extension, and quality evaluation”

  - 2016, Xingbo Wang, Norwegian University of Science and Technology NTNU, Dr. thesis, “Filter array based spectral imaging: demosaicking and design considerations”
  - 2018, Haris Ahmad Khan, Norwegian University of Science and Technology NTNU, Dr. thesis, ”Multispectral constancy for illuminant invariant representation of multispectral images”
  - 2021, Ruven Pillay, Norwegian University of Science and Technology NTNU, Dr. thesis, ”Multispectral and Hyperspectral Imaging of Art - Quality, Calibration and Visualization”
  - 2023, Dipendra Mandal, Norwegian University of Science and Technology NTNU, Dr. thesis, ”Image Quality Assessment of Hyperspectral and Conventional Imaging for Cultural Heritage Artifacts”

Licenciate’s theses

- Reviewer
  - 2001, Olli Virmajoki, Development of Machine Vision in Kajaani Region
  - 2008, Kyösti Saarelainen, Machine Vision and Non-destructive Testing of Wood for Strength Classification
  - 2009, Heidi Piili, Lappeenranta University of Technology, Characterization of Interaction Phenomena of Laser Beam and Paper Materials in Cutting
- Opponent for
  - 2010, Ludovic Coppel, Mid-Sweden University, Whiteness and Fluorescence in Paper: Perception and Optical Modelling

Reviewer in Master of Science theses

- 2000, Erkki Vikeväinen, Computer based Evaluation of Learning Processes
- 2000, Pekka Manninen, Analysis of the Efficiency of Filtering in Pattern Matching
- 2000, Johannes Lehto, An Overview of Jini Technology and Its Affect on Distributed Computing
- 2001, Jari Turkia, Connected Mobile Information Systems
- 2001, Jussi Pietikäinen, J2EE-Software Architecture
- 2002, Jukka Veräjäntausta, Simulation of Parallel Computing
- 2002, Natalia Ivanen, The Wireless Short-Range Communications: Event of Bluetooth
- 2002, Pasi Karttunen, Clustering of Color Spectra using Pattern Recognition Methods
- 2003, Liisa Varmanen, Web-mining
- 2003, Janne Leinonen, Message Priorization in the Communication Network of Parallel Computer
- 2003, Teemu Paldanius, Architecture analysis of the transformation of base station channel DSP software to a dual core environment
- 2003, Kalle Oja, Enabling MMS in PC suite
- 2003, David Bohaty, Packet-Switched Hanover for Real-Time IP Multimedia Services in GERAN lu Mode
- 2003, Ilkka Laukkanen, Rough Sets and Redusing the Decision Tables

- 2004, Elina Räisänen, Color naming and clustering
- 2004, Petri Piirainen, Digital and realtime method for color calibration
- 2004, Jarkko Reittu, IP-multimedia-subsystem, services and applications
- 2004, Tuija Jetsu, Spektral image formats, first steps for standardization
- 2004, Odenna Saguizbaeva, Analysis of spectral images of skin for medical application
- 2006, Dibakar Raj Pant, Determination of Optical Characteristics of Materials for Computer Colorant Analysis
- 2006, Tatyana Skvortsova, Young Spruces Discrimination as a Problem of Image Segmentation
- 2007, Dominik Wisniewski, Spectral Characterization of Paper and Print
- 2007, Alina Gutnova, Technological Principles of Digital Museum
- 2007, Antti Vatanen, Problems and Their Solutions in Color Matching
- 2008, Muskan Regmi, Spectral Imaging in Cultural Historical Artifacts
- 2008, Eyad Khader, 3D Spectral Imaging
- 2008, Jani Sorsa, Fibre Direction of Wood by Trakeid-phenomena
- 2008, Tommi Pakarinen, Goniospectrometer - Measuring Device for Defining Angular Dependency of Spectrum
- 2008, Essi Tarma, Implementation of Color Harmony Test Using Display Device
- 2009, Alessya Gorelova, Estimation of Human Fundus Spectral Reflectance from Multichannel Measurements
- 2011, Atiqur Rahaman, Retinal Spectral Image Analysis for Diabetic Retinopathy
- 2011, Abul Hasnat, Spectral Analysis of Neurosurgery RGB video
- 2011, Sergey Stritzhov, Statistical Analysis of Color Spectra
- 2011, Sita Pun, Project Management in Very Small Scale Enterprises
- 2012, Andrey Kramarev, Estimation of pigment content in fish using spectral imaging
- 2013, Toni Tolvanen, Improvement of Technical documentation and communication
- 2013, Harri Karhu, Thin Optical Multi-Touch Sensing by Scanning Light Patterns using an LCD panel
- 2013, Vadim Beglov, Object information based on marker recognition
- 2013, Lars Koivukangas, Analyzing Dependency Injection and Domain Driven Design and their effects on Complex Applications
- 2014, Toni Sanio, Brain computers
- 2015, Daniyar Mukajiev, Visualizing large genealogies with timelines
- 2018, Setu Md Asif Khan, Machine Learning Approach to Identify Formaldehyde from Spectral Images of Fruits (Co-supervised)
- 2010-2018 in addition, official reviewer of several CIMET- and COSI MSc-theses.
- 2019, Juho Puumalainen, Computational spectral imaging and band-pass filters for apple bruising degree assessment

Reviewer in Bachelor of Science theses

- 2002, Juha Lehtonen, Efficient Transmission of Spectral Images in Computer Network
- 2002, Jari Hintikka, Multiprimary Displays
- 2003, Antti Vatanen, Forecasting the Color using Color Appearance Models
- 2008, Tommi Pakarinen, Multiangle Measurements by Spectrogoniometer
- 2008, Pekka Stigell, Pattern Recognition for Face Image Databases
- 2019, Juho Puumalainen, Elintarvikkeiden spektrikuvantaminen ja kuva-analyysi
- 2020, Teemu Savorinen, Spektrikuvantamisen tiedostomuodot

Reviewer in IT-projects

- 1999, Ismo Kärkkäinen, Cluster-software
- 2000, Artturi Alaharjula, VaSom
- 2002, Natalia Ivanen, The Wireless Short-Range Communications: Bluetooth Expectations
- 2002, Pirjo Karinen, Spectral Measurements of Cultural Historical Material
- 2002, Risto Joki-Korpela, Thermal Imaging and Thermal Image Analysis
- 2003, Ilkka Laukkanen, Redusing the Decision Tables
- 2003, Pasi Karttunen, Optical Implementation of Color Filters
- 2003, Tuija Kareinen, Graphical User Interfaces for Spectral Image Analysis
- 2003, Petri Piirainen, Realtime Digital Stereo Imaging and Color Calibration System
- 2003, Alexey Podlasov, User Interface for Image Processing Tools
- 2003, Pekka Stigell, Reconstruction of Color Spectra using Wiener Estimation
- 2003, Antti Vatanen, Graphical User Intefaces for Color Research Programs
- 2003, Andrew Skripkine, Human Color Vision Modelling Using Neural Networks
- 2003, Konstantin Krasavin, Digital watermarking
- 2004, Alexey Andriyashin, Spectral image compression using principal component analysis and k-means
- 2004, Elina Räisänen, Color clustering by Self-Organizing Maps for Color Categorization
- 2004, Odenna Saguizbaeva, Analysis of spectral images of skin for medical application
- 2005, Dibakar Raj Pant, Measurment of spectral characteristics and application of Kubelka_Munk theory on industrial colorants
- 2005, Yevgeniya Kalantayevskaya, Emulation of the “realtime application” work
- 2005, Pesal Koirala, 3D-rendering of spectral images
- 2006, Denis Komarov, Mobile Phones Cameras tests and Images Improvement
- 2007, Anahit Poghosova, Modelling of Human Color Vision System

- 2007, Muskan Regmi, Mitwa Kaemba, Spectral imaging and analysis of icons
- 2008, Eyad Khader, 3D Spectral Imaging System
- 2008, Yevgenia Shatilova, Color Image Technique in Fish Research
- 2008, Yasser Essiarab, Spectra Viewer with New Features
- 2008, Paras Pant, Spectral Imaging of Natural Scenes
- 2009, Pratigaya Khanal, Contrast sensitivity of eye and color displays
- 2009, Alessya Gorelova, Spectral image reconstruction and analysis from medical RGB video
- 2010-2020 several IT-projects reviewed

Planning and Development of Teaching

- Head of the student enrollment in signal processing at the University of Joensuu in spring 2000
- Member of the curricula development group at the Department of Computer Science, University of Joensuu
- Member of the self-analyzing group of teaching at the Department of Computer Science, University of Joensuu in 2001-2002
- Teacher tutor at the Department of Computer Science, University of Joensuu, Finland in 2001-2002
- Responsible teacher for distant teaching at the Department of Computer Science, University of Joensuu in 2002-2003
- Member of the Departmental Council of the Department of Computer Science 2002 - 2006
- Responsible leader of the strategic development of BSc-level education in the Faculty of Science and Forestry, since 2020
- As the Vice Dean, Responsible leader of the strategic development of BSc-level and MSc-education in the Faculty of Science and Forestry, since 2021

Feedback of Teaching

- I have received the following feedback from students at the University of Joensuu, Finland, concerning my expertise and teaching skills as lecturer on the following courses
  (grades 0 (low) - 3 (high)):
  - 1999 Programming for Teachers (7 students)
    Lecturer's expertise: 2.4
    Lecturer's teaching skills: 2.1
  - 1999 Computer Networks in Teaching (3 students)
    Lecturer's expertise: 2.3
    Lecturer's teaching skills: 1.7
  - 2000 Computer Systems (38 students)
    Lecturer's expertise: 2.4
    Lecturer's teaching skills: 2.1
  - 2001 Operating Systems (12 students)
    Lecturer's expertise: 2.6
    Lecturer's teaching skills: 2.4

  - 2002 Computer Systems (22 students)
    Lecturer's expertise: 2.4
    Lecturer's teaching skills: 1.9
  - 2002 Elements of Programming, for professional upgrading program students (9 students)
    Lecturer's expertise: 3.0
    Lecturer's teaching skills: 2.8
  - 2003 Computer Systems (14 students)
    Lecturer's expertise: 2.6
    Lecturer's teaching skills: 2.2
  - 2009 Data Structures and Algorithms I (12 students)
    Lecturer's expertise: 3.92 (grades 0 (low) - 5 (high)
    Lecturer's teaching skills: 3.5 (grades 0 (low) - 5 (high)
  - 2010 Introduction to Programming (33 students)
    Lecturer's expertise: 4.3 (grades 0 (low) - 5 (high)
    Lecturer's teaching skills: 4.21 (grades 0 (low) - 5 (high)
  - 2011 Pattern Recognition (4 students)
    Lecturer's expertise: 4.5 (grades 0 (low) - 5 (high)
    Lecturer's teaching skills: 3.75 (grades 0 (low) - 5 (high)
  - 2011 Introduction to Programming (28 students)
    Lecturer's expertise: 4.5 (grades 0 (low) - 5 (high)
    Lecturer's teaching skills: 4.14 (grades 0 (low) - 5 (high)

- **Teaching test** given at the Department of Computer Science, University of Joensuu, Finland, at the meeting of the Departmental Council, on August 9, 1999, on the topic "Introduction to Color Signals and Spectral Image Analysis". The Faculty of Science graded the teaching test as grade *good* for the senior assistant position on August 24, 1999.

Scientific Activities on Teaching

- The responsible teacher of the University of Joensuu in Science03- Natural Sciences and Technology - science fair of the Academy of Finland in 2003.

Proofed Competences for Professor positions ja Docentships

- In 2000, one reviewer proofed my competence for Professor position at the Department of Computer Science at the University of Joensuu, Finland (Minutes of the Faculty of Science, University of Joensuu, December 20, 2000)
- In 2003, one reviewer proofed my competence for Professor position at the Department of Computer Science at the University of Joensuu, Finland (Minutes of the Faculty of Science, University of Joensuu, October 13, 2004)
- Docent, spectral imaging and spectral image analysis, Computer Science, April 8, 2005