

มหาวิทยาลัยสงขลานครินทร์

คณะวิศวกรรมศาสตร์ ภาควิชาวิศวกรรมคอมพิวเตอร์

การสอบ : กลางภาคการศึกษาที่ 1

ประจำปีการศึกษา 2551

วันที่ 27 กรกฎาคม 2551

เวลา 09.00-12.00

วิชา 240-510 GeoSpatial Information and Remote Sensing

ห้องสอบ A401

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คำสั่ง

- ข้อสอบมีทั้งหมด 2 ข้อ 100 คะแนน
- อนุญาตให้นำคอมพิวเตอร์ Notebook เข้าห้องสอบ
- ให้ตอบคำถามลงในสมุดคำตอบให้ตอบคำถามเป็นภาษาไทย

ชื่อ .....รหัสนักศึกษา .....

ทุจริตในการสอบ โทษขั้นต่ำคือ

ปรับตกในรายวิชาที่ทุจริต และพักการเรียน 1 ภาคการศึกษา

**From the given meta data in the appendix and the full papers given in class, answer the following questions:**

**Question 1 Choose 5 papers from the given meta data and explain each of them.**

**1.1**

**1.2**

**1.3**

**2 Explain the following technical terms (50 คะแนน)**

**2.1. Spot 5 Satellite Systems and images**

## **2.2. LiDAR Technologies for Spatial applications**

**2.3 Topographic data bases in the product generation of IRS\_P6 Liss-4 imager**

2.4 Urban-trees extraction from Quickbird imagery using multiscale spectex-filtering and non-parametric classification

**2.5 Remote sensing research issues of the National Land Use Change Program of China**

## Appendix

### Meta Data for Photogrammetric and Remote Sensing Journal

#### Volume 63, Issue 4, Pages 397-484 (July 2008)

A method for monitoring building construction in urban sprawl areas using object-based analysis of Spot 5 images and existing GIS data Pages 399-408 Laurent Durieux, Erwann Lagabrielle, Andrew Nelson PDF (1107 K)

LAI and chlorophyll estimation for a heterogeneous grassland using hyperspectral measurements Pages 409-426 Roshanak Darvishzadeh, Andrew Skidmore, Martin Schlerf, Clement Atzberger, Fabio Corsi, Moses Cho PDF (1335 K)

Accuracy assessment of high resolution satellite imagery orientation by leave-one-out method Pages 427-440 Maria Antonia Brovelli, Mattia Crespi, Francesca Fratarcangeli, Francesca Giannone, Eugenio Realini PDF (992 K)

Populating a building Multi Representation Data Base with photogrammetric tools: Recent progress Pages 441-460 Benoit Frédéricque, Sylvie Daniel, Yvan Bédard, Nicolas Paparoditis PDF (3614 K)

A framework of region-based spatial relations for non-overlapping features and its application in object based image analysis Pages 461-475 Yu Liu, Qinghua Guo, Maggi Kelly PDF (1557 K)

Land cover classification of the North China Plain using MODIS\_EVI time series Pages 476-484 Xia Zhang, Rui Sun, Bing Zhang, Qingxi Tong PDF (1498 K)

#### Volume 63, Issue 3, Pages 283-396 (May 2008)

Comparison of remotely sensed water stages from LiDAR, topographic contours and SRTM Pages 283-296 G. Schumann, P. Matgen, M.E.J. Cutler, A. Black, L. Hoffmann, L. Pfister PDF (1026 K)

Image-based 3D surface reconstruction by combination of photometric, geometric, and real-aperture methods Pages 297-321 Pablo d'Angelo, Christian Wöhler PDF (2851 K)

Topographic data bases in the product generation of IRS\_P6 Liss-4 imagery Pages 322-332 M.V. Jyothi, P.V. Radhadevi, S.S. Solanki PDF (1224 K)

Urban-trees extraction from Quickbird imagery using multiscale spectex-filtering and non-parametric classification Pages 333-351 Yashon O. Ouma, R. Tateishi PDF (4147 K)

Adjustability and error propagation for true replacement sensor models Pages 352-364 C. Puatanachokchai, E.M. Mikhail PDF (400 K)

Automatic building extraction from DEMs using an object approach and application to the 3D-city modeling Pages 365-381 Florent Lafarge, Xavier Descombes, Josiane Zerubia, Marc Pierrot-Deseilligny PDF (4651 K)

On-line boosting-based car detection from aerial images Pages 382-396 Helmut Grabner, Thuy Thi Nguyen, Barbara Gruber, Horst Bischof PDF (2886 K)

#### Volume 63, Issue 2, Pages 155-282 (March 2008)

Using colour, texture, and hierarchial segmentation for high-resolution remote sensing Pages 156-168 Roger Trias-Sanz, Georges Stamon, Jean Louchet PDF (980 K)

A method to test differences between additional parameter sets with a case study in terrestrial laser scanner self-calibration stability analysis Pages 169-180 Derek D. Lichti PDF (973 K)

Photogrammetric processing of rover imagery of the 2003 Mars Exploration Rover mission Pages 181-201 Kaichang Di, Fengliang Xu, Jue Wang, Sanchit Agarwal, Evgenia Brodyagina, Rongxing Li, Larry Matthies PDF (4978 K)

A genetic algorithm rule-based approach for land-cover classification Pages 202-212 Ming-Hseng Tseng, Sheng-Jhe Chen, Gwo-Haur Hwang, Ming-Yu Shen PDF (761 K)

Object extraction in photogrammetric computer vision Pages 213-222 Helmut Mayer PDF (218 K)

A comparison of illumination geometry-based methods for topographic correction of QuickBird images of an undulant area Pages 223-236 Jindong Wu, Marvin E. Bauer, Dong Wang, Steven M. Manson PDF (2904 K)

Object-based classification using Quickbird imagery for delineating forest vegetation polygons in a Mediterranean test site Pages 237-250 Georgios Mallinis, Nikos Koutsias, Maria Tsakiri-Strati, Michael Karteris PDF (1503 K)

Shape-based classification of spectrally identical objects Pages 251-258 H.M.A. van der Werff, F.D. van der Meer PDF (537 K)

Relationships between the mineralogical and chemical composition of tropical soils and topography from hyperspectral remote sensing data Pages 259-271 Lênio Soares Galvão, Antônio Roberto Formaggio, Eduardo Guimarães Couto, Dar A. Roberts PDF (1666 K)

Theory and reality of direct georeferencing in national coordinates Pages 272-282 Jan Skaloud, Klaus Legat PDF (1577 K)

**Volume 63, Issue 1, Pages 1-154 (January 2008)**

ISPRS Journal of Photogrammetry and Remote Sensing theme issue "Terrestrial Laser Scanning" Pages 1-3 Derek Lichti, Norbert Pfeifer, Hans-Gerd Maas PDF (96 K)

Coarse orientation of terrestrial laser scans in urban environments Pages 4-18 C. Brenner, C. Dold, N. Ripperda PDF (1558 K)

Keypoint based autonomous registration of terrestrial laser point-clouds Pages 19-35 Shahar Barnea, Sagi Filin PDF (3655 K)

A method for automated registration of unorganised point clouds Pages 36-54 Kwang-Ho Bae, Derek D. Lichti PDF (2373 K)

Controlled 3D Data Fusion using Error-bounds Pages 55-67 Gunnar Boström, João G.M. Gonçalves, Vítor Sequeira PDF (2927 K)

Multiview range-image registration for forested scenes using explicitly-matched tie points estimated from natural surfaces Pages 68-83 Jason G. Henning, Philip J. Radtke PDF (1340 K)

Unsupervised robust planar segmentation of terrestrial laser scanner point clouds based on fuzzy clustering methods Pages 84-98 Josep Miquel Biosca, José Luis Lerma PDF (3724 K)

Iterative processing of laser scanning data by full waveform analysis Pages 99-114 Michael Kirchhof, Boris Jutzi, Uwe Stilla PDF (2008 K)

CAMPINO — A skeletonization method for point cloud processing Pages 115-127 Alexander Bucksch, Roderik Lindenbergh PDF (1550 K)

Geometric validation of a ground-based mobile laser scanning system Pages 128-141 David Barber, Jon Mills, Sarah Smith-Voysey PDF (972 K)

Deformation measurement using terrestrial laser scanning data and least squares 3D surface matching Pages 142-154 O. Monserrat, M. Crosetto PDF (1353 K)

**Volume 62, Issue 1, Pages 1-76 (May 2007)**

Prediction of sweetness and amino acid content in soybean crops from hyperspectral imagery Pages 2-12 Sildomar Takahashi Monteiro, Yohei Minekawa, Yukio Kosugi, Tsuneya Akazawa, Kunio Oda PDF (892 K)

Discrimination of blackberry (*Rubus fruticosus* sp. agg.) using hyperspectral imagery in Kosciuszko National Park, NSW, Australia Pages 13-24 Remy Dehaan, John Louis, Andrea Wilson, Andrew Hall, Rod Rumbachs PDF (1247 K)

A comparative analysis of broadband and narrowband derived vegetation indices in predicting LAI and CCD of a cotton canopy Pages 25-33 Dehua Zhao, Liangmei Huang, Jianlong Li, Jianguo Qi PDF (612 K)

Red edge shift and biochemical content in grass canopies Pages 34-42 Onesimo Mutanga, Andrew K. Skidmore PDF (581 K)

Data fusion of high-resolution satellite imagery and LiDAR data for automatic building extraction Pages 43-63 Gunho Sohn, Ian Dowman PDF (3154 K)

An automatic approach for camera calibration from vanishing points Pages 64-76 Lazaros Grammatikopoulos, George Karras, Elli Petsa PDF (1505 K)

**Volume 62, Issue 2, Pages 77-164 (June 2007)**

Feature extraction of hyperspectral images using wavelet and matching pursuit Pages 78-92 Pai-Hui Hsu PDF(1692K)

The drainage network extraction from contour lines for contour line generalization Pages 93-103 Tinghua Ai PDF (2617 K)

Generalization of 3D building data based on a scale-space approach Pages 104-111 Andrea Forberg PDF (711 K)

Matching of 3D surfaces and their intensities Pages 112-121 Devrim Akca PDF (989 K)

A concept for feature based data registration by simultaneous consideration of laser scanner data and photogrammetric images Pages 122-134 Axel Wendt PDF (2839 K)

Building detection by fusion of airborne laser scanner data and multi-spectral images: Performance evaluation and sensitivity analysis Pages 135-149 Franz Rottensteiner, John Trinder, Simon Clode, Kurt Kubik PDF (1810 K)

Modified perpendicular drought index (MPDI): a real-time drought monitoring method Pages 150-164 Abduwasit Ghulam, Qiming Qin, Tashpolat Teyip, Zhao-Liang Li PDF (1104 K)

**Volume 62, Issue 3, Pages 165-248 (August 2007)**

Rule-based classification of multi-temporal satellite imagery for habitat and agricultural land cover mapping Pages 165-185 Richard Lucas, Aled Rowlands, Alan Brown, Steve Keyworth, Peter Bunting PDF (2506 K)

Multitemporal fuzzy classification model based on class transition possibilities Pages 186-200 Guilherme L.A.Mota, Raul Q. Feitosa, Heitor L.C.Coutinho, Claus-Eberhard Liedtke, Sönke Müller, Kian Pakzad, Margareth S.P.Meirelles PDF (369 K)

Scaling functions for landscape pattern metrics derived from remotely sensed data: Are their subpixel estimates really accurate? Pages 201-216 Santiago Saura, Sandra Castro PDF (1650 K)

An efficient 3D R-tree spatial index method for virtual geographic environments Pages 217-224 Qing Zhu, Jun Gong, Yeting Zhang PDF (664 K)

A hyperspectral band selector for plant species discrimination Pages 225-235 Chaichoke Vaiphasa, Andrew K. Skidmore, Willem F. de Boer, Tanasak Vaiphasa PDF (757 K)

Automatic recognition of man-made objects in high resolution optical remote sensing images by SVM classification of geometric image features Pages 236-248 Jordi Inglada PDF (1235 K)

**Volume 62, Issue 4, Pages 249-324 (September 2007)**

Detection and discrimination between oil spills and look-alike phenomena through neural networks Pages 264-270 K. Topouzelis, V. Karathanassi, P. Pavlakis, D. Rokos PDF (602 K)

Lithologic and mineral information extraction for gold exploration using ASTER data in the south Chocolate Mountains (California) Pages 271-282 Xianfeng Zhang, Micha Pazner, Norman Duke PDF (1960 K)

Filling the voids in the SRTM elevation model — A TIN-based delta surface approach Pages 283-294 Eike Luedeling, Stefan Siebert, Andreas Buerkert PDF (1586 K)

Propagation strategies for stereo image matching based on the dynamic triangle constraint Pages 295-308 Qing Zhu, Bo Wu, Yixiang Tian PDF (2233 K)

Estimation of vegetation parameter for modeling soil erosion using linear Spectral Mixture Analysis of Landsat ETM data Pages 309-324 Alejandro M. de Asis, Kenji Omasa PDF (1350 K)

**Volume 62, Issue 5, Pages 325-404 (October 2007)**



Integration of heterogeneous geospatial data in a federated database Pages 328-346 Matthias Butenuth, Guido v. Gösseln, Michael Tiedge, Christian Heipke, Udo Lipeck, Monika Sester PDF (1936 K)

Intelligent map agents — An ubiquitous personalized GIS Pages 347-365 Eric Gervais, Hongsheng Liu, Doron Nussbaum, Young-Soo Roh, Jörg-Rüdiger Sack, Jiehua Yi PDF (1647 K)

Time geography for ad-hoc shared-ride trip planning in mobile geosensor networks Pages 366-381 Martin Raubal, Stephan Winter, Sven Teßmann, Christian Gaisbauer PDF (656 K)

Materialized In-Network View for spatial aggregation queries in wireless sensor network Pages 382-402 Ken C.K. Lee, Baihua Zheng, Wang-Chien Lee, Julian Winter PDF (558 K)

**Volume 62, Issue 6, Pages 405-492 (December 2007)**

Can nutrient status of four woody plant species be predicted using field spectrometry? Pages 406-414 Jelle G. Ferwerda, Andrew K. Skidmore PDF (253 K)

Correction of laser scanning intensity data: Data and model-driven approaches Pages 415-433 Bernhard Höfle, Norbert Pfeifer PDF (3052 K)

Bidirectional reflectance spectrometry of gravel at the Sjökölla test field Pages 434-446 Jouni I. Peltoniemi, Jukka Piironen, Jyri Näränen, Juha Suomalainen, Risto Kuittinen, Lauri Markelin, Eija Honkavaara PDF (2772 K)

Testing satellite and ground thermal imaging of low-temperature fumarolic fields: The dormant Nisyros Volcano (Greece) Pages 447-460 E. Lagios, S. Vassilopoulou, V. Sakkas, V. Dietrich, B.N. Damiatou, A. Ganas PDF (2569 K)

Remote sensing research issues of the National Land Use Change Program of China Pages 461-472 Jixian Zhang, Yonghong Zhang PDF (1566 K)

Despeckle and geographical feature extraction in SAR images by wavelet transform Pages 473-484 Karunesh K. Gupta, Rajiv Gupta PDF (1090 K)

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