

## *Application Of Remote Sensing In Civil Engineering Ppt*

**Radar Remote Sensing: Applications and Challenges** advances the scientific understanding, development, and application of radar remote sensing using monostatic, bistatic and multi-static radar geometry. This multidisciplinary reference pulls together a collection of the recent developments and applications of radar remote sensing using different radar geometry and platforms at local, regional and global levels. Radar Remote Sensing is for researchers and practitioners with earth and environmental and meteorological sciences, who are interested in radar remote sensing in ground based scatterometer and SAR systems; air borne scatterometer and SAR systems; space borne scatterometer and SAR systems. Covers monostatic, bistatic and multi-static radar geometry Features case studies, including experimental investigations, for practical application Includes geophysical, oceanographical, and meteorological Synthetic Aperture Radar data The Special Issue is focused on recent and upcoming advances in the combined application of remote sensing and applied geophysics. Applied geophysics analyzes the distribution of physical properties in the subsurface for a wide range of geological, engineering, and environmental applications at different scales. Seismic, electrical, magnetic, and electromagnetic methods are among the most applied and well-established geophysical techniques. These methods share the advantages of being non-invasive and exploring wide areas of investigation with respect to conventional methods (e.g., drilling). Geophysical surveys are usually carried out deploying or moving the appropriate instrumentation directly on the ground surface. However, recent technological advances have resulting in the development of innovative acquisition systems becoming more typical of the remote sensing community (e.g., airborne surveys). While applied geophysics mainly focuses on the subsurface, typical remote sensing techniques have the ability to accurately image the Earth's surface with high-resolution investigations carried out by means of terrestrial, airborne, or satellite-based platforms. The integration of surface and subsurface information is often crucial for several purposes, including the processing of geophysical data, the characterization and time-lapse monitoring of surface and near-surface targets, and the reconstruction of highly detailed and comprehensive 3D models of the investigated areas. Recent contributions showing the added value of surface reconstruction and/or monitoring in the processing, interpretation, and cross-comparison of geophysical techniques for archaeological, environmental, and engineering studies are collected in this book. Pioneering geophysical acquisitions by means of innovative remote systems are also presented.

**LiDAR (Light Detection and Ranging)** is a remote sensing technology that measures distance by illuminating a target with a laser and analyzing the reflected light. This book introduces the fundamentals of LiDAR remote sensing, LiDAR data processing and analysis methods and applications of LiDAR in forestry and vegetation mapping, urban environments, and geosciences. It includes 11 hands-on projects with step-by-step instructions and many up-to-date studies, and can be used as a textbook or reference in fields related to those listed above

**Introduction to Satellite Remote Sensing: Atmosphere, Ocean and Land Applications** is the first reference book to cover ocean applications, atmospheric applications, and land applications of remote sensing. Applications of remote sensing data are finding increasing application in fields as diverse as wildlife ecology and coastal recreation management. The technology engages electromagnetic sensors to measure and monitor changes in the earth's surface and atmosphere. The book opens with an introduction to the history of remote sensing, starting from when the phrase was first coined. It goes on to discuss the basic concepts of the various systems, including atmospheric and ocean, then closes with a detailed section on land applications. Due to the cross disciplinary nature of the authors' experience and the content covered, this is a must have reference book for all practitioners and students requiring an introduction to the field of remote sensing. Provides study questions at the end of each chapter to aid learning Covers all satellite remote sensing technologies, allowing readers to use the text as instructional material Includes the most recent technologies and their applications, allowing the reader to stay up-to-date Delves into laser sensing (LIDAR) and commercial satellites (DigitalGlobe) Presents examples of specific satellite missions, including those in which new technology has been introduced

**Advances in Mapping from Remote Sensor Imagery**

**Remote Sensing of Forest Environments**

**Applications of Remote Sensing to Agrometeorology**

**Remote Sensing**

**Remote Sensing of Wetlands**

**Application of GIS and remote sensing in exploration and environmental management of Námafjall geothermal area, N-Iceland**

*It collects the review papers of the 9th International Symposium on Physical Measurements and Signatures in Remote Sensing (ISPMSRS). It systematically summarizes the past achievements and identifies the frontier issues as the research agenda for the near future. It covers all aspects of land remote sensing, from sensor systems, physical modeling, inversion algorithms, to various applications.*

*Driven by advances in technology and societal needs, the next frontier in remote sensing is urban areas. With the advent of high-resolution imagery and more capable techniques, the*

**question has become "Now that we have the technology, how do we use it?" The need for a definitive resource that explores the technology of remote sensing and the issues it can resolve in an urban setting has never been more acute. Containing contributions from world renowned experts, Urban Remote Sensing provides a review of basic concepts, methodologies, and case studies. Each chapter demonstrates how to apply up-to-date techniques to the problems identified and how to analyze research results. Organized into five sections, this book: Focuses on data, sensors, and systems considerations as well as algorithms for urban feature extraction Analyzes urban landscapes in terms of composition and structure, especially using sub-pixel analysis techniques Presents methods for monitoring, analyzing, and modeling urban growth Illustrates various approaches to urban planning and socio-economic applications of urban remote sensing Assesses the progress made to date, identifies the existing problems and challenges, and demonstrates new developments and trends in urban remote sensing This book is ideal for upper division undergraduate and graduate students, however it can also serve as a reference for researchers or those individuals interested in the remote sensing of cities in academia, and governmental and commercial sectors. Urban Remote Sensing examines how to apply remote sensing technology to urban and suburban areas.**

**Advances in Mapping from Remote Sensor Imagery: Techniques and Applications reviews some of the latest developments in remote sensing and information extraction techniques applicable to topographic and thematic mapping. Providing an interdisciplinary perspective, leading experts from around the world have contributed chapters examining state-of-the-art techniques as well as widely used methods. The book covers a broad range of topics including photogrammetric mapping and LiDAR remote sensing for generating high quality topographic products, global digital elevation models, current methods for shoreline mapping, and the identification and classification of residential buildings. Contributors also showcase cutting-edge developments for environmental and ecological mapping, including assessment of urbanization patterns, mapping vegetation cover, monitoring invasive species, and mapping marine oil spills--crucial for monitoring this significant environmental hazard. The authors exemplify the information presented in this text with case studies from around the world. Examples include: Envisat/ERS-2 images used to generate digital elevation models over northern Alaska In situ radiometric observations and MERIS images employed to retrieve chlorophyll a concentration in inland waters in Australia ERS-1/2 SAR images utilized to map spatiotemporal deformation in the southwestern United States Aerospace sensors and related information extraction techniques that support various mapping applications have recently garnered more attention due to the advances in remote sensing theories and technologies. This book brings together top researchers in the field, providing a state-of-the-art review of some of the latest advancements in remote sensing and mapping technologies.**

**The aim of this book is to demonstrate the use of SAR data in three application domains, i.e. land cover (Part II), topography (Part III), and land motion (Part IV). These are preceded by Part I, where an extensive and complete review on speckle and adaptive filtering is provided, essential for the understanding of SAR images. Part II is dedicated to land cover mapping. Part III is devoted to the generation of Digital Elevation Models based on radargrammetry and on a wise fusion (by considering sensor characteristic and acquisition geometry) of interferometric and photogrammetric elevation data. Part IV provides a contribution to three applications related to land motion.**

**System, Modeling, Inversion and Application**

**Information for Management and Decision Making**

**Theory and Applications**

**Introduction to Satellite Remote Sensing**

**Hyperspectral Remote Sensing**

**Using Remote Sensing in State and Local Government**

Using Remote Sensing in State and Local Government Information for Management and Decision Making National Academies Press

Oceanographic Applications of Remote Sensing describes how remotely sensed data fields can be applied to help solve problems in ocean-related studies. This timely reference, written by and for oceanographers, emphasizes the application of data to particular physical, chemical, and biological processes related to the ocean and the ocean-atmosphere system. The organization of the book reflects this emphasis, with chapters arranged by process rather than by sensor characteristics. Oceanographic Applications of Remote Sensing contains comprehensive information on the application of such relevant data sets as sea surface temperature and topography, ocean circulation, sea level variability, wind speed and stress, wave height, solar radiation flux at ocean surfaces, and sea-ice characteristics and ice motion. It also discusses the reliability of remotely sensed data and provides information about the applicability of the various data sets to particular process studies. Its completeness and relevance makes Oceanographic Applications of Remote Sensing an important reference for modern studies of ocean and

coupled ocean-atmosphere processes. Its unique coverage of the physics that govern satellite processes and their applications to oceanography ensures that it will remain an important reference as new satellites are introduced.

An accessible yet rigorous introduction to remote sensing and its application to the study of vegetation for advanced undergraduate and graduate students. The underlying physical and mathematical principles of the techniques discussed are explained in a way readily understood by those without a strong mathematical background.

Contributed papers presented at the National Seminar on "Hyperspectral Remote Sensing and Spectral Signature Database Management System," held on February 14-15, 2008 at Annamalai University.

Principles of Remote Sensing

Advances in Environmental Remote Sensing

The application of remote sensing in South America

An Introductory Textbook

Remote Sensing in Applied Geophysics

Application of Remote Sensing in Hydrography and Navigation

Highlighting new technologies, Remote Sensing of Natural Resources explores advanced remote sensing systems and algorithms for image processing, enhancement, feature extraction, data fusion, image classification, image-based modeling, image-based sampling design, map accuracy assessment and quality control. It also discusses their applications for

Remote sensing was the primary data source since the launch of the first environmental monitoring satellite back in 1972. In the past five decades, remote sensing technology has come a long way and evolved into a mature science. Even so, new technologies, new theories, new methodologies, and new applications continue to emerge. With the rapid pace of technological advancement, it is essential to share experiences especially between different disciplines, either on breakthroughs in new theory or understanding, or applications of remote sensing on real world issues. Disciplines or fields covered in this book include geography, geology, agriculture, forestry, botany, and oceanography. Though remote sensing may be used differently in various disciplines, the principles are similar, if not the same. This book will be valuable to scientists, scholars, working professionals, or students who use remote sensing in their work, and are interested in learning how others use remote sensing in different ways.

Space-based sensors are giving us an ever-closer and more comprehensive look at the earth's surface; they also have the potential to tell us about human activity. This volume examines the possibilities for using remote sensing technology to improve understanding of social processes and human-environment interactions. Examples include deforestation and regrowth in Brazil, population-environment interactions in Thailand, ancient and modern rural development in Guatemala, and urbanization in the United States, as well as early warnings of famine and disease outbreaks. The book also provides information on current sources of remotely sensed data and metadata and discusses what is involved in establishing effective collaborative efforts between scientists working with remote sensing technology and those working on social and environmental issues.

Applications of Remote Sensing in Agriculture contains the proceedings of the 48th Easter School in Agricultural Science, held at the University of Nottingham on April 3-7, 1989. The meeting invites 146 delegates from over 22 countries and contributions to this book come from nine countries. This book generally presents a review of the achievements of remote sensing in agriculture, establishes the state of the art, and gives pointers to developments. This text is organized into seven parts, wherein Parts I-III cover the principles of remote sensing, climate, soil, land classification, and crop inventories. Productivity; stress; techniques for agricultural applications; and opportunities, progress, and prospects in the field of remote sensing in agriculture are also discussed.

Joint Report

Atmosphere, Ocean, Land and Cryosphere Applications

Hyperspectral Remote Sensing and Spectral Signature Applications

Oceanographic Applications of Remote Sensing

Terrestrial Information Extraction and Applications

*Land Surface Remote Sensing: Environment and Risks explores the use of remote sensing in applications concerning the environment, including desertification and monitoring deforestation and forest fires. The first chapter covers the characterization of aerosols and gases by passive remote sensing. The next chapter presents the correlation of optical images for quantifying the deformation of the Earth's surface and geomorphological processes. The third chapter examines remote sensing applications in the mining environment. The fourth chapter depicts the strong potential of radar imagery for volcanology and urban and mining subsidence studies. The next two chapters deal respectively with the use of remote sensing in locust control and the contribution of remote sensing to the epidemiology of infectious diseases. In the last ten years, spatial observation of the Earth—particularly continental surfaces—has expanded considerably with the launch of increasing numbers of satellites covering various applications (hydrology, biosphere, flow of surface, snow, ice, landslide, floods). This has paved the way for an explosion in the use of remote sensing data. This book offers essential coverage of space-based observation techniques for continental surfaces. The authors explore major applications and provide a corresponding detailed chapter for the physical principles, physics of measurement, and data processing requirements for each technique, bringing you up-to-date descriptions of techniques used by leading scientists in the field of remote sensing and Earth observation. Provides clear and concise descriptions of modern remote sensing methods Explores the most current remote sensing techniques with physical aspects of the measurement (theory) and their applications Provides chapters on physical principles, measurement, and data processing for each technique described Describes optical remote sensing technology, including a description of acquisition systems and measurement corrections to be made*

*Advances in Mapping from Remote Sensor Imagery: Techniques and Applications* reviews some of the latest developments in remote sensing and information extraction techniques applicable to topographic and thematic mapping. Providing an interdisciplinary perspective, leading experts from around the world have contributed chapters examining state-of-the-art land management issues, such as mapping tree species, recognizing invasive plants, and identifying key geologic features, require an understanding of complex technical issues before the best decisions can be made. Hyperspectral remote sensing is one of the technologies that can help with reliable detection and identification. Presenting the fundamentals of remote sensing at an introductory level, *Hyperspectral Remote Sensing: Principles and Applications* explores all major aspects of hyperspectral image acquisition, exploitation, interpretation, and applications. The book begins with several chapters on the basic concepts and underlying principles of remote sensing images. It introduces spectral radiometry concepts, such as radiance, irradiance, flux, and blackbody radiation; covers imaging spectrometers, examining spectral range, full width half maximum (FWHM), resolution, sampling, signal-to-noise ratio (SNR), and multispectral and hyperspectral sensor systems; and addresses atmospheric interactions. The book then discusses information extraction, with chapters covering the underlying physics principles that lead to the creation of an image and the interpretation of the image's information. The final chapters describe case studies that illustrate the use of hyperspectral remote sensing in agriculture, environmental monitoring, forestry, and geology. After reading this book, you will have a better understanding of how to evaluate different approaches to hyperspectral analyses and to determine which approaches will work for your applications. The science and technology of remote sensing is introduced in terms of its history, concepts and language, and its application to the exploitation and management of marine fisheries. The physics of electromagnetic radiation is reviewed with reference to atmospheric and target interactions. The variety of sensor platforms and sensor types are described, the latter in the context of either global or sequential acquisition systems. Environmental satellites, their associated sensors and the techniques of digital image processing also are reviewed. Direct and indirect applications of remote sensing technology to fisheries are described in general, followed by a series of specific case studies. Recommended reference material, a glossary of terms and acronyms, sources of oceanographic satellite data and a selected list of training institutions conclude this manual.

*Land Applications of Radar Remote Sensing*

*Principles, Techniques, and Applications*

*Remote Sensing of Land Use and Land Cover*

*Application of Remote Sensors in Forestry*

*High Spatial Resolution Remote Sensing*

*Principles and Applications*

Remote Sensing Applications in Environmental and Earth System Sciences is a contemporary, multi-disciplinary, multi-scaling, updated, and upgraded approach of applied remote sensing in the environment. The book begins with an overview of remote sensing technology, and then explains the types of data that can be used as well as the image processing and analysis methods that can be applied to each type of application through the use of case studies throughout. Includes a wide spectrum of environmental applications and issues Explains methodological image analysis and interpretation procedures for conducting a variety of environmental analyses Discusses the development of early warning systems Covers monitoring of the environment as a whole – atmosphere, land, and water Explores the latest remote sensing systems in environmental applications This book is an excellent resource for anyone who is interested in remote sensing technologies and their use in Earth systems, natural resources, and environmental science.

Filling the need for a comprehensive book that covers both theory and application, *Remote Sensing of Land Use and Land Cover: Principles and Applications* provides a synopsis of how remote sensing can be used for land-cover characterization, mapping, and monitoring from the local to the global scale. With contributions by leading scientists from around the world,

*Remote Sensing of Forest Environments: Concepts and Case Studies* is an edited volume intended to provide readers with a state-of-the-art synopsis of the current methods and applied applications employed in remote sensing the world's forests. The contributing authors have sought to illustrate and deepen our understanding of remote sensing of forests, providing new insights and indicating opportunities that are created when forests and forest practices are considered in concert with the evolving paradigm of remote sensing science. Following background and methods sections, this book introduces a series of case studies that exemplify the ways in which remotely sensed data are operationally used, as an element of the decision-making process, and in the scientific study of forests. *Remote Sensing of Forest Environments: Concepts and Case Studies* is designed to meet the needs of a professional audience composed of both practitioners and researchers. This book is also suitable as a secondary text for graduate-level students in Forestry, Environmental Science, Geography, Engineering, and Computer Science.

This book is a completely updated, greatly expanded version of the previously successful volume by the author. The Second Edition includes new results and data, and discusses a unified framework and rationale for designing and evaluating image processing algorithms. Written from the viewpoint that image processing supports remote sensing science, this book describes physical models for remote sensing phenomenology and sensors and how they contribute to models for remote-sensing data. The text then presents image processing techniques and interprets them in terms of these models. Spectral, spatial, and geometric models are used to introduce advanced image processing techniques such as hyperspectral image analysis, fusion of multisensor images, and digital elevation model extraction from stereo imagery. The material is suited for graduate level engineering, physical and natural science courses, or practicing remote sensing scientists. Each chapter is enhanced by student exercises designed to stimulate an understanding of the material. Over 300 figures are produced specifically for this book, and numerous tables provide a rich bibliography of the research literature.

*An Introductory Manual*

*Image Registration for Remote Sensing*

*Advances in Land Remote Sensing*

*Radar Remote Sensing*

*The Application of Remote Sensing Technology to Marine Fisheries*

*Techniques and Applications*

*High spatial remote sensing data have been often used as valuable sources of information throughout emergency management cycle. Information extracted in high spatial remote sensing data right after a devastating earthquake can help assess the earthquake's damage of roads and buildings and make emergency plans for contact and evacuation. The book will discuss emerging high spatial resolution data sources, and detail novel techniques and applications for handling, retrieving, and making best use of high spatial resolution remote sensing data.*

*Advanced Remote Sensing is an application-based reference that provides a single source of mathematical concepts necessary for remote sensing data gathering and assimilation. It presents state-of-the-art techniques*

for estimating land surface variables from a variety of data types, including optical sensors such as RADAR and LIDAR. Scientists in a number of different fields including geography, geology, atmospheric science, environmental science, planetary science and ecology will have access to critically-important data extraction techniques and their virtually unlimited applications. While rigorous enough for the most experienced of scientists, the techniques are well designed and integrated, making the book's content intuitive, clearly presented, and practical in its implementation. Comprehensive overview of various practical methods and algorithms Detailed description of the principles and procedures of the state-of-the-art algorithms Real-world case studies open several chapters More than 500 full-color figures and tables Edited by top remote sensing experts with contributions from authors across the geosciences

Within the framework of Ispra Courses, a course on "Applications of Remote Sensing to Agrometeorology" was held from April 6th to 10th, 1987 at the Joint Research Centre of the European Communities, Ispra Italy. The purpose of the course was to familiarize scientists, active in Agrometeorology and related fields, with remote sensing techniques and their potential applications in their respective disciplines. Conventional ground investigations in various fields of natural sciences such as hydrology, pedology and agrometeorology can be supplemented by a range of instruments carried by airborne or earth orbiting platforms. The last few years, in particular, have seen many developments in this respect and a growing amount of information can now be derived not only from dedicated earth resources satellites such as the LANDSAT and SPOT, but also from other platforms such as METEOSAT and the series of NOAA-TIROS. Future platforms (ERS-1, Space Station, etc.) with their advanced sensors will further broaden the range of applications open to the investigators. The use of these data sources, together with field investigations, can lead, at a reduced cost, to a better characterization of the spatial and temporal properties of natural systems.

With reference to India.

Applications of Remote Sensing in Agriculture  
perspectives for the future based on recent experiences

Polarisation: Applications in Remote Sensing

Remote Sensing Applications in Environmental and Earth System Sciences

LiDAR Remote Sensing and Applications

Concepts and Case Studies

Generating a satisfactory classification image from remote sensing data is not a straightforward task. Many factors contribute to this difficulty including the characteristics of a study area, availability of suitable remote sensing data, ancillary and ground reference data, proper use of variables and classification algorithms, and the analyst's e

Discover cutting edge theory and applications of modern remote sensing in geology, oceanography, atmospheric science, ionospheric studies, and more The thoroughly revised third edition of the Introduction to the Physics and Techniques of Remote Sensing delivers a comprehensive update to the authoritative textbook, offering readers new sections on radar interferometry, radar stereo, and planetary radar. It explores new techniques in imaging spectroscopy and large optics used in Earth orbiting, planetary, and astrophysics missions. It also describes remote sensing instruments on, as well as data acquired with, the most recent Earth and space missions. Readers will benefit from the brand new and up-to-date concept examples and full-color photography, 50% of which is new to the series. You'll learn about the basic physics of wave/matter interactions, techniques of remote sensing across the electromagnetic spectrum (from ultraviolet to microwave), and the concepts behind the remote sensing techniques used today and those planned for the future. The book also discusses the applications of remote sensing for a wide variety of earth and planetary atmosphere and surface sciences, like geology, oceanography, resource observation, atmospheric sciences, and ionospheric studies. This new edition also incorporates:

- A fulsome introduction to the nature and properties of electromagnetic waves
- An exploration of sensing solid surfaces in the visible and near infrared spectrums, as well as thermal infrared, microwave, and radio frequencies
- A treatment of ocean surface sensing, including ocean surface imaging and the mapping of ocean topography
- A discussion of the basic principles of atmospheric sensing and radiative transfer, including the radiative transfer equation

Perfect for senior undergraduate and graduate students in the field of remote sensing instrument development, data analysis, and data utilization, Introduction to the Physics and Techniques of Remote Sensing will also earn a place in the libraries of students, faculty, researchers, engineers, and practitioners in fields like aerospace, electrical engineering, and astronomy. Advances in spatial, spectral, and temporal resolution over the past several years have greatly expanded opportunities for practical applications of remote sensing data. To explore the implications of these possibilities, the NRC held a series of three workshops on different facets of remote sensing applications. This report is on the third of those workshops: the development and use of remote sensing data and information by state, local, and regional governments. The steering committee was asked to examine the opportunities, potential challenges, and policy issues associated with the application of remote sensing data in the public sector including approaches and procedures for government agencies to use such data and barriers to development and use of the applications. The resulting report is addressed primarily to non-technical managers and decisions makers at all levels of government below the federal level. Image registration employs digital image processing in order to bring two or more digital images into precise alignment for analysis and comparison. Accurate registration algorithms are essential for creating mosaics of satellite images and tracking changes on the planet's surface over time. Bringing together

*invited contributions from 36 distinguished researchers, the book presents a detailed overview of current research and practice in the application of image registration to remote sensing imagery. Chapters cover the problem definition, theoretical issues in accuracy and efficiency, fundamental algorithms, and real-world case studies of image registration software applied to imagery from operational satellite systems. This book provides a comprehensive and practical overview for Earth and space scientists, presents image processing researchers with a summary of current research, and can be used for specialised graduate courses.*

*Proceedings of a Course held at the Joint Research Centre of the Commission of the European Communities in the Framework of the Ispra-Courses, Ispra, Varese, Italy, 6-10 April 1987*

*Recent Advances and Applications in Remote Sensing*

*Advanced Remote Sensing*

*Models and Methods for Image Processing*

*Introduction to the Physics and Techniques of Remote Sensing*

*Applications and Challenges*

Effectively Manage Wetland Resources Using the Best Available Remote Sensing Techniques Utilizing top scientists in the wetland classification and mapping field, Remote Sensing of Wetlands: Applications and Advances covers the rapidly changing landscape of wetlands and describes the latest advances in remote sensing that have taken place over the pa

This is a monograph concerning the scattering of electromagnetic waves from surfaces to generate information for the purposes of remote sensing. It combines, for the first time, a treatment of two important new ideas, namely information from the orientation or polarisation of the wave and how it can be combined with interferometry.

This book provides a comprehensive and advanced overview of the basic theory of thermal remote sensing and its application in hydrology, agriculture, and forestry. Specifically, the book highlights the main theory, assumptions, advantages, drawbacks, and perspectives of these methods for the retrieval and validation of surface temperature/emissivity and evapotranspiration from thermal infrared remote sensing. It will be an especially valuable resource for students, researchers, experts, and decision-makers whose interest focuses on the retrieval and validation of surface temperature/emissivity, the estimation and validation of evapotranspiration at satellite pixel scale, and the application of thermal remote sensing. Both Prof. Huajun Tang and Prof. Zhao-Liang Li work at the Chinese Academy of Agricultural Sciences (CAAS), China.

Sensors, Algorithms, and Applications

Environment and Risks

Remote Sensing of Vegetation

Applications and Advances

Linking Remote Sensing and Social Science

People and Pixels