Millie Sikdar

Box 26, 6335 Thunderbird Crescent, Vancouver, BC V6T 2G9
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EDUCATION

M.A.Sc. in Electrical and Computer Engineering, degree received in Nov. 2005
University of British Columbia, Vancouver, Canada.
(Specialization: Radar Remote Sensing)
Average grade (6 courses + Thesis): A+ (90%)
Supervisor: Dr. Ian Cumming

Bachelor of Engineering (Electronics and Telecommunication Eng.), Distinction with honours degree received in 2001.
Government College of Engineering, Aurangabad, India
Overall Average percentage: 71.5%

PROFESSIONAL EXPERIENCE

Research Analyst, MacDonald Dettwiler and Assoc. (MDA), Richmond, Canada, (Dec.2004 till date)
Currently working as a Research Analyst in the R&D dept. at the MDA headquarters in Richmond. Job responsibilities broadly include development of algorithms and research methodologies for applications using polarimetric SAR data.

Research Assistant, University of British Columbia, Vancouver, Canada, (Sept. 2002 – Dec. 2004)
Worked as a Research Assistant in the Dept. of Electrical and Computer Eng. (UBC). The research work involved developing a model for soil moisture estimation using polarimetric SAR data.

Teaching Assistant, University of British Columbia, Vancouver, Canada, (Jan. 2004 – Dec.2004)
Was employed as Teaching Assistant for courses EECE 466 – Digital Signal Processing Systems and EECE 575 – Digital Image Processing. The duties involved marking of assignments as well as mid-term and final examinations, and conducting a problem solving tutorials every week

Summer Trainee, Society for Applied Microwave and Electronics Engineering and Research (SAMEER), Mumbai, India, (June 2000 – Aug. 2000)
Training involved the design and development of RF filters.

PROJECT WORKS

MDA RESEARCH PROJECT (Oct 2005 till date)
" Airport Obstacle Mapping"

- The objective of this project work is to demonstrate the capability of using information from both optical and SAR sensors to remotely identify targets which prove to be potential hazards to aircrafts.
- Contributed significantly in determining the methodology to be used in target identification.
- Methodology involved use of polarimetric target detection algorithms to identify targets in SAR imagery. Target information is subsequently fused with optical imagery to confirm the presence of the target. Target height determination is also performed using a semi-automated process based on shadow-lengths available in the optical imagery.
- Exhibited expertise in both polarimetric target detection as well as data fusion.

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MDA RESEARCH PROJECT (Dec 2004 – Oct 2005)
"Intelligent Radar-Based Automatic Polarimetric Data Extraction"

- The objective of this project work is to perform directed SAR Automatic Data Extraction research for the National Geospatial Intelligence Agency (NGA), USA; with focus on specific NGA technology needs.
- Significantly contributed to the development and implementation of algorithms for work packages focussing primarily on SAR polarimetry.
- Exhibited significant expertise in IDL and Matlab programming by developing extensive software for applications such as, polarimetric target detection, polarimetric change detection, and extraction of linear features through information content in polarimetric SAR data.
- Analyzed results obtained using both CV-580 and E-SAR data and contributed to their subsequent documentation.
- Contributed to other research areas of the project such as data fusion and PolInSAR.

M.A.Sc THESIS WORK – (2003 – 2005)
"A modified Empirical Model for Soil Moisture Estimation in Vegetated Areas using Polarimetric SAR Data"

- The objective of this work is to develop an improved model, which explicitly incorporates vegetation effects and utilizes information available in polarimetric SAR data, for better soil moisture estimation in vegetated areas.
- An attempt is also made to remotely determine the vegetation parameters such that the need for ground-based measurements is reduced to a minimum.
- The proposed model was successfully applied to the SIR-C, AIRSAR and CV-580 data.

COURSE PROJECTS (2002-2003):

1. RADARSAT-1 Data Processing (Vancouver Scene)
2. Implementation of filters for Speckle reduction in Ultrasound Images
3. Conceptualization of the design of an improved high resolution SAR processor for F1-Fighter Series Multimode Search and Track Radar
4. Simulation of SAR data from a point target and implementation of the Range Doppler Algorithm to process the simulated data and focus the point target.

UNDERGRADUATE PROJECT- (2000-2001):
"**Frequency Analysis of Discrete time Signals**"

- The project offers an interactive menu driven software package used for several digital signal processing operations.
- The software was developed in C, and finds application in the frequency analysis of different speech signals recorded in .WAV format using the FFT module.

PUBLICATIONS

- M. Sikdar, I.G.Cumming, A Modified Empirical Model for Soil Moisture Estimation in Vegetated Areas using SAR Data, Proceedings IGARSS, pp. 803-806, Anchorage, Alaska, 2004
- M. Sikdar, I.G.Cumming, Incorporating a Vegetation Index into a Soil Moisture Retrieval Model – Results from Convair-580 SAR Data, Proceedings IGARSS, Seoul, Korea, 2005

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COMPUTER SKILLS

- **Operating Systems:** Windows 9X, 2000 and XP, Unix, DOS
- **Programming Languages:** IDL 6.1, MATLAB 7.0.4 (and lower), C
- **Word processing softwares:** Microsoft Word, Latex, Miktex
- **Software Packages :** Envi 4.1, PWS (Polarimetric Work Station)