Ramesh Neelamani

Rice University	Home Address
6100 Main St., ECE dept., MS 366	1933 Dryden Road, #2
Houston TX 77005	Houston, TX 77030
Phone: 713-348-3230, Fax: 713-348-6196	Phone: 713-527-9617
Email: neelsh@rice.edu	Web: www.dsp.rice.edu/~neelsh

SUMMARY

Objective A challenging, full-time position in a collaborative research and development lab

Expertise Multimedia processing theory and applications – signal/image restoration, segmentation, halftoning, compression; multiscale algorithms; color; pattern recognition; graphical models

Strengths Articulate communication, excellent team skills, self-motivation

EDUCATION

Ph.D.
July 2003 (expected)
Electrical and Computer Engineering, Rice University
Thesis: Inverse Problems in Image Processing. GPA: 3.96/4.00
Advisor: Prof. Richard G. Baraniuk

M.S.
May 1999
Electrical and Computer Engineering, Rice University
Thesis: Wavelet-based Deconvolution for Ill-conditioned Systems. GPA: 3.96/4.00
Advisor: Prof. Richard G. Baraniuk

B.Tech.
July 1997
Electrical Engineering, Indian Institute of Technology – Bombay
Thesis: Array Signal Processing. GPA: 8.95/10.00
Advisor: Prof. Harish Parthasarathy

EXPERIENCE

Rice University
1998–present
Research assistant in the ECE department
Designed and implemented (C, MATLAB) multiscale solutions to restoration, inverse halftoning, and segmentation
Submitted 4 journal and 7 conference papers

Ricoh Innovations, Inc.
May–Aug. 2001
Internship in the California Research Center, Menlo Park
Invented and implemented (MATLAB, Python) header-based algorithms to process JPEG 2000 images
Filed 2 patents, submitted 1 conference paper. 1 journal paper in preparation

Xerox Corporation
May–Aug. 2000
Internship in the Document Research Center, Webster, New York
Devised and implemented (C, MATLAB) robust algorithms to discover an image's JPEG compression history
Submitted 2 conference papers. 1 journal paper in preparation

Rice University
Jan.–May 2000
Teaching Fellow for Spectral Analysis
Delivered lectures and developed new course material
Received positive student reviews

HONORS and ACTIVITIES

Eta Kappa Nu Engineering Honor Society, 1998
Rice Graduate Fellowship, 1997–98
Second prize in IEEE all-India student paper contest, 1995

Reviewer for IEEE, IEE, and JEI journals
IEEE student member
President of the Rice graduate student soccer club and Captain of the team, 2000–'02

COMPUTER SKILLS

Systems   UNIX, Linux, Windows
Languages/Packages   MATLAB, C/C++, Mathematica, Maple, Python

PATENTS

K. Berkner, R. Neelamani, G. J. Wolff, M. Boliek, and P. E. Hart, "Creation of Visually Recognizable Display Device Dependent Small-size Representations of Images (SmartNails)," filed in Jan. 2002

K. Berkner, R. Neelamani, E. L. Schwartz, and M. Boliek, "Header-based Processing of Images Compressed using Multi-scale Transforms," filed in Jan. 2002

JOURNAL PUBLICATIONS (download: www.dsp.rice.edu/~neelsh/publications/)

R. Neelamani, H. Choi, and R. G. Baraniuk, "ForWaRD: Fourier-Wavelet Regularized Deconvolution for Ill-Conditioned Systems," to appear in *IEEE Transactions on Signal Processing*, 2003

R. Neelamani, R. Nowak, and R. G. Baraniuk, "WInHD: Wavelet-based Inverse Halftoning via Deconvolution," submitted to *IEEE Transactions on Image Processing*, 2002

D. M. Mittleman, M. Gupta, R. Neelamani, R. G. Baraniuk, J. V. Rudd, and M. Koch, "Recent Advances in Terahertz Imaging," *Applied Physics B*, vol. 68, pp. 1085–1094, 1999

D. M. Mittleman, R. H. Jacobsen, R. Neelamani, R. G. Baraniuk, and M. C. Nuss, "Gas Sensing using Terahertz Time-domain Spectroscopy," *Applied Physics B*, vol. 67, no. 3, pp. 379–390, 1998

R. Neelamani and D. Iyer, "Spectral Performance of GMSK: Effects of Modulation Index and Quantization," *IETE Students' Journal*, vol. 37, no. 4, pp. 231–236, Oct. 1996

SELECT CONFERENCE PUBLICATIONS (download: www.dsp.rice.edu/~neelsh/publications/)

R. Neelamani, and K. Berkner, "Adaptive Representation of JPEG 2000 Images using Header-based Processing," *Proc. IEEE Int. Conf. Image Processing – ICIP 2002*, Rochester, NY, Sept. 2002

R. Neelamani, R. de Queiroz, and R. G. Baraniuk, "Compression Color Space Estimation of JPEG Images using Lattice Basis Reduction," *Proc. IEEE Int. Conf. Image Processing – ICIP 2001*, vol. 1, pp. 890–893, Thessaloniki, Greece, Sept. 2001. Earlier version presented at *8th Int. Workshop on Combinatorial Image Analysis – IWCIA 2001*, Philadelphia, Aug. 2001

R. Neelamani, R. Nowak, and R. G. Baraniuk, "Model-based Inverse Halftoning with Wavelet Vaguelette Deconvolution," *Proc. IEEE Int. Conf. Image Processing – ICIP 2000*, vol. 3, pp. 973–976, Vancouver, Canada, Sept. 2000

R. Neelamani, J. K. Romberg, R. H. Riedi, H. Choi, and R. G. Baraniuk, "Multiscale Image Segmentation using Joint Texture and Shape Analysis," *Wavelet Applications in Signal and Image Processing VIII, Proc. SPIE*, vol. 4119, pp. 215–228, San Diego, July 2000 (invited paper)

R. Neelamani, H. Choi, and R. G. Baraniuk, "Wavelet-based Deconvolution using Optimally Regularized Inversion for Ill-conditioned Systems," *Wavelet Applications in Signal and Image Processing VII, Proc. SPIE*, vol. 3813, pp. 58–72, Denver, July 1999 (invited paper). Earlier versions presented at *ICIP 1999*, Kobe, Japan, Oct. 1999, and *ICASSP 1999*, Phoenix, Mar. 1999

INVITED PRESENTATIONS

"One Hammer, Two Nails: Wavelet-based Solutions to Deconvolution and Inverse Halftoning," LCAV seminar, École Polytechnique Fédérale de Lausanne, Switzerland, Apr. 2002

"Multiscale Image Segmentation," Document Research Center, Xerox Corporation, Webster, NY, July 2000

"Wavelet-based Deconvolution for Ill-conditioned Systems," *Texas Instruments DSP Leadership Meeting*, Dallas, Texas, May 1999

—References available on request—