Ramesh Neelamani

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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—