

Curriculum Vitae

Personal Details

Name: Hammadi Nait-Charif

Mailing Address:

National Center for Computer Animation
Media School
Bournemouth University
Poole, BH12 5BB
UK

Tel. No. 01202966702 (office) 07886613305 (mobile)

E-mail: hnccharif@bournemouth.ac.uk

1 - Higher Education

- 1995-1998 PhD, Information & Computer Sciences, Graduate School of Sciences & Technology
Chiba University, Japan
Thesis title: Design of Fault Tolerant Feedforward Neural Networks
- 1987-1990 Master of Engineering (Ingénieur d'Etat), Electronic Engineering, Ecole Hassania
(Engineering Faculty) Casablanca, Morocco
Thesis title: Adaptive Control of Phosphate Rotary Dryer
- 1985-1987 Math Sup./Spé, Advanced Mathematics, Lycée Mohamed V, Casablanca, Morocco

2 - Experience and Employment History

2.1 Teaching

- 02/06-to-date Senior Lecturer in Computer Science where I am involved in Computer Programming labs supervision, student tutoring, and projects supervision both at master and PhD level. Starting from October, I will be teaching Computer Programming and Mathematics for Computer Graphics.
- 2003-2005 Teaching Fellow, Division of Applied Computing, University of Dundee, lecturing, lab supervision & exam setting for undergraduate courses: Computer Vision, Computer Systems, Digital Signal Processing, Human-Computer Interaction.
- 1998-2001 Assistant then Associate Professor, Electrical and Electronic Engineering Department, Mohamed-I University, Morocco, preparation and delivery of undergraduate and postgraduate courses: Algorithms & Data Structure, Computer Networks, Neural Networks, Image Processing, Object Oriented Programming (C++), Electronic Circuit Design and analysis, Design and Build Projects in Electronic Engineering, Analog Communications, Numerical Methods (Linear Algebra & Differential Equations).

- 1996-1997 Teaching Assistant, Department of Information and Computer Sciences, Chiba University, Japan, Tutoring and workshops for master students: Fault Tolerant Computing, Artificial Neural Networks.
- 1991-1994 Assistant Professor, Electrical and Electronic Engineering Department, Mohamed I University, Morocco, preparation and delivery of undergraduate courses: Algorithm & Data Structure, Operating Systems, Electronic Circuit Design and analysis, Analog Communications.

2.2 Research

- 02/06-to date I am now working on real time automated face and facial features tracking and Recognition for the perceptual user interface and interactive computer gaming. In the same time I am the second supervisor of a PhD student working on physics based mesh free deformation for computer graphics.
- 07/05-01/06 Postdoctoral Research Assistant on “Reverse Engineering the Human Visual System” project under the supervision of Prof. R. Davies. We are developing search algorithms based on the study of human pre-attentive and goal-directed visual search. It is assumed that attentive search strategies will provide medium to high-level functionality for tasks such as object recognition and tracking, and will directly support machine-learning approaches to computer vision.
- 2001-06/05 Postdoctoral Research Fellow on EPSRC EQUAL project “Advanced Sensors for Supportive Home Environments for the Elderly” (PI: Dr Stephen McKenna), Department of Applied Computing, University of Dundee. We developed a computer vision system that monitors a person in their home environment, learns models of spatial context and detects any unusual inactivity (falls). The system uses Iterated Likelihood Weighting (ILW) which, in conjunction with the broad likelihood responses obtained, achieved accurate tracking even when the motion model was poor.
- The system was also adapted for a smart meeting application to monitor a group of people interacting in a meeting room, track them automatically, and recognise their actions.
- 1999 Fulbright Visiting Scholar. Research on neural networks and image processing. A neural network based approach for image compression was developed. Department of Electrical and Computer Engineering, Michigan State University, USA.
- 1998-2001 Research on neural network control, image processing, and pattern recognition. I supervised master and PhD students at Electrical and Electronic Engineering Department, Mohamed I University, Morocco.
- 1995-1998 PhD student, Graduate school of Science & Technology, Chiba University, Japan. My research area was in neural networks and fault tolerant computing. Several techniques were proposed to design fault tolerant feedforward neural networks.
- 1994-1995 Monbusho Research Fellow, Department of Information and Computer Science, Chiba University, Japan. My research area was in neural networks and fault tolerant computing.

2.3 Administrative and Community Contribution

- 1998.2000 Head of Electrical and Electronic Engineering Department, Mohamed I University, Morocco.
- 1998.2001 Member of the Faculty Board (Institute of Technology), Mohamed I University, Morocco.
- 1998.2002 Member of the University Senate, Mohamed I University, Morocco.
- 1999-2000 Member of the University Research Committee, Mohamed I University, Morocco.
- 1999-2001 Member of the Regional Committee for the Higher Education System Review, Mohamed I University, Morocco.
- 2005-to date Founding and Board member of the British association for Culture and Development, a charity.

3 - Membership of Professional Bodies

Member of British Machine Vision Association (BMVA).
Ex member of IEEE and Ex member of IEICE (Japan).

4 - Languages

I am fluent in Berber, Arabic, English, French and Japanese.

Publications List

Refereed Journal and Transaction Papers (10)

- [1] H. Nait-Charif and S. McKenna, "Tracking the activity of participants in a meeting", *Machine Vision and Applications*, pp.83-93, May 2006.
- [2] S. McKenna & H. Nait-Charif, "Efficient Tracking of Human Motion using Auxiliary Particle Filters and Iterated Likelihood Weighting" *Image and Vision Computing Journal*, 25(6), pp 852-862, June 2007.
- [3] S. McKenna and H. Nait-Charif, "Summarizing Contextual Activity and Detecting Unusual Inactivity in Supportive Home Environment", *Pattern Analysis and Applications Journal*. Published online: 20 May 2005
- [4] Md. I. H. Bhuiyan, Md. K. Hassan, H. Nait-Charif, T. Yahagi "Image Compression with Neural Networks Using Dynamic Construction Algorithm", *J. of Signal Processing*, vol. 5, no 6, pp 445-454, November 2001.
- [5] E. Daoudi, E. Jaara and H. Nait-Charif, "Parallélisation de la compression d'Image", (Parallelization of Neural Network-based Image Compression), *Reseaux et Systeme Repartis Journal*, pp. 361-369, January 2001, Hermes Science Edition (in French).
- [6] S. Zouggar, H. Nait-Charif, M. Azizi, "Neural Control and Transient Analysis of the LCL-Type Resonant Converter", *European Physical Journal Applied Physics EPJ*, vol. 11, n°. 1, July 2000, pp: 21-27.
- [7] H. Nait Charif, T. Ohmameuda, K. Kaneko, and H. Ito, "Dynamic Constructive Fault Tolerant Algorithm for Feedforward Neural Networks", *IEICE Trans. Information and Systems*, vol. E81-D, no. 1, pp. 115-123, January 1998.
- [8] H. Nait Charif and H. Ito, "On the Activation Function and Fault Tolerance in Feedforward Neural Networks", *IEICE Trans. Information and Systems*, vol. E81-D, no. 1, pp. 66-72, January 1998.
- [9] H. H. Nait-Charif and H. Ito, Improving the Performance of Feedforward Neural Networks by Noise Injection into Hidden Neurons", *Int. Journal of Intelligent and Robotic Systems* (Kluwer), vol. 21, no. 2, pp. 103,115, February 1998.
- [10] H. Nait-Charif and H. Ito, "A Learning Algorithm for Fault Tolerant Feedforward Neural Networks", *IEICE Trans. Information and Systems*, vol. E80-D, no. 1, pp. 21-27, January 1997.

Conference Papers (24)

- [11] S. McKenna, H. Nait-Charif and T. Frank, "Video Understanding for Laparoscopic Surgery: Instrument Tracking", *Image and Vision Computing New Zealand Conference*, Dunedin, New Zealand, November 2005.
- [12] R. Aboutni, M. ElHitmy, E. M. Jaara, H. Nait-Charif, "Impact Of Texture Images Compression Using Discrete Cosine Transform On The Texture Parameters", *International Conference on Pattern Recognition & Information Processing*, Minsk, Belarus, May 2005.
- [13] H. Nait-Charif and S. J. McKenna, "Activity Summarisation and Fall Detection in a Supportive Home Environment", *International Conference on Pattern Recognition (ICPR)*, Cambridge, vol. 4, pp. 323-326, August 2004.
- [14] S. J. McKenna and H. Nait-Charif, "Learning Spatial Context from Tracking using Penalized Likelihood Estimation", *International Conference on Pattern Recognition (ICPR)*, Cambridge, vol. 4, pp. 138-141, August 2004.

- [15] H. Nait-Charif and S. J. McKenna, "Tracking Poorly Modeled Motion Using Particle Filters with Iterated Likelihood Weighting", *Asian Conference on Computer Vision Systems (ACCV04)*, Jeju, Korea, pp. 156-161, January, 2004.
- [16] S. McKenna, H. Nait-Charif, F. Marquies-Faulkes and A. Newel, "Activity Monitoring for Independent Living using Ceiling-Mounted Visual Sensors", *International Conference on Aging, Disability and Independence*, December 2003, Virginia, USA.
- [17] H. Nait-Charif and S. McKenna, "Head Tracking and Action Recognition in a Smart Meeting Room", *IEEE International Workshop on Performance Evaluation of Tracking and Surveillance (PETS-ICVS)*, Graz, Austria, pp. 24-31, March, 2003.*
- [18] M. Nasri, R. Aboutni, M. El Hitmy, H. Nait-Charif, H. Jender, "Cascade system, genetic algorithm-Multilayer neural network for a supervised classification of texture images", *Third workshop on Physics in Signal and Image Processing*, Grenoble, France 29-31 january, 2003.
- [19] M. I. H. Bhuiyan, M. K. Hasan, M. A. Haque, and H. Nait-Charif, "A robust method for image compression using dynamically constructive neural network", *Sixth International Symposium on Signal Processing and its applications (IEEE ISSPA)*, pp.525-528, August 14-16, 2001, Kuala Lumpur, Malaysia.
- [20] H. Nait-Charif and F. Salam, "Neural Networks-based Image Compression System," *The 43rd IEEE Midwest Symposium on Circuits and Systems*, Lansing, MI, pp. 446-449, August 2000.
- [21] E. Daoudi, E. Jaara and H. Nait Charif, "Parallel Methods for Image Compression Using Multilayer Neural Networks", *Int. Conf. on Artificial and Computational Intelligence for Decision, Control and Automation in Eng. and Industrial Applications ACIDCA'2000* Monastir, Tunisia, pp. 15-20, March 2000.
- [22] S. Zouggar, H. Nait-Charif and M. Azizi, "Dynamic Analysis and Control Design of the LCL Type Resonant Converter' *Int. Conf. on Artificial and Computational Intelligence for Decision, Control and Automation in Eng. and Industrial Applications ACIDCA'2000* Monastir, Tunisia, 22-24 March 2000.
- [23] H. Ouriachi, D. Hamad, H. Nait-Charif and M. Barboucha, "Unsupervised Classification Using Evolutionary Programming Approach and Akaike Criteria", *14th Int. Symposium on Computers and Information Sciences (ISCIS99)*, Izmir, Turkey.
- [24] S. Zouggar, H. Nait-Charif and M. Azizi, "Neural Control and Transient Analysis of the LCL Type Resonant Converter", *Int. Conf. Engineering of Modern Electric Systems (EMES'99)* Romania, 1999.
- [25] S. Zouggar, H. Nait Charif, G. Rojat and M. Azizi, "Dynamic Analysis and Control Design of the LCL Type Resonant Converter", *8th European Conference on Power Electronics and Applications EPE'99* CD-ROM.
- [26] H. Nait-Charif, T. Ohmameuda, K. Kaneko, and H. Ito: "Fault Tolerant Constructive Algorithm for Feedforward Neural Networks", *Proc. of the 1997 Pacific Rim International Symposium on Fault Tolerant Systems (PRFTS'97)*, pp. 215-220 1997.
- [27] H. Nait-Charif and H. Ito, "Noise Injection into Hidden Neurons: A Learning Technique for Enhancing the -Performance of Feedforward Neural Networks", *Proc. of Int. Conf. on Neural Networks and Their Applications (NEURAP'97)*, pp. 245-251, Marseilles, March 1997.
- [28] H. Nait-Charif and H. Ito, "On the Activation Function and Fault Tolerance in Feedforward Neural Networks", *Proc. of Int. Workshop on Dependability in Advanced Computing Paradigms*, pp. 29-34, Hitachi, June 1996.
- [29] H. Nait Charif and H. Ito, "A Fault Tolerant Learning Algorithm for Feedforward Neural Networks", *Proc. of Int. Workshop on Fault Tolerant Parallel Processing*, Hawaii, April 1996.

- [30] H. Nait-Charif, T. Ohmameuda, K. Kaneko, and H. Ito, "Fault Tolerant Learning Technique for Neural Networks", *Proc. of IEICE Fall*, September 1997.
- [31] H. Nait-Charif, A. Nasir and H. Ito, "Improving Fault Tolerance and Generalization Ability by Noise Injection into Hidden Neurons", *Proc. of IEICE Spring*, part. 1, pp. 238 Japan, March 1997. (In Japanese).
- [32] A. Nasir, H. Nait-Charif and H. Ito, "Output Smoothing: A Learning Algorithm for Fault Tolerant Neural Networks", *Proc. of IEICE Spring*, part. 1, pp. 239, Japan, March 1997.
- [33] H. Nait-Charif and H. Ito, "A New Energy Function for Fault Tolerant Neural Networks", *Proc. of IEICE Spring*, part. 1, p. 203, Japan, March 1996.
- [34] H. Nait Charif, T. Ohmameuda, and H. Ito, "Training Method for Fault Tolerant Feedforward Neural Networks", *Proc. of IEICE Fall*, part. 1, Japan, September 1995.

Technical Reports (2)

- [35] H. Nait-Charif, T. Ohmameuda, K. Kaneko, and H. Ito, "Dynamic Construction of Fault Tolerant Feedforward Neural Networks", *IEICE Technical Report*, FTS97-34, pp. 31-38, August 1997.
- [36] H. Nait-Charif and H. Ito, "A Learning Algorithm for Fault Tolerant Feedforward Neural Networks", *IEICE Technical Report*, FTS95-78, pp. 23-30, February 1996.