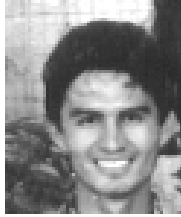




Aims of the International Graphonomics Society (IGS)

During the second international graphonomics conference in 1985, the decision was made to establish the International Graphonomics Society (IGS). The general aims of the IGS are the advancement of research in the field of graphonomics. These aims include an exchange of views and expertise, joint-project research, and the dissemination and application of knowledge wherever appropriate. Some means to achieve these goals are: the organization of conferences and workshops and the publication of their proceedings, the stimulation of communication and research contacts by any other means, the transmission of information through a regular bulletin (BIGS), an electronic list (Scrib-L) and the maintenance of a graphonomics research directory. The IGS has the status of a legal non-profit organization. It was established as a foundation ('stichting') under the law of the Netherlands on January 30th, 1987.

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From the Editors



This is the 31th electronic Bulletin of the International Graphonomics Society, eBIGS 16, 1-2. Due to unforeseen circumstances, we have combined issues 16-1 and 16-2 into this single eBIGS. As always, readers are most welcome to submit letters, regular or occasional columns, book reviews, or news. Consider submitting brief tutorial papers or research notes. For more information, please email us at pepeum@wam.umd.edu or asgheedham@ntu.edu.sg.

This issue of BIGS contains a book review by Dr. Arnold Thomassen, the First Call for Papers for our next IGS2003 conference in Scottsdale, Arizona, and a survey about the interest of the IGS membership in launching a peer-reviewed Journal for IGS. In addition, a list of news and recent publications relevant to IGS membership are compiled in this issue. As usual, BIGS is completed with an update of the Conference Agenda, workshops and other special events.

José L. Contreras-Vidal
Graham Leedham

IGS Board

Réjean Plamondon	President	(1997-02)
Ruud Meulenbroek	Member	(2000-05)
Marvin Simner	Member	(2000-03)
Angelo Marcelli	Information Office	(2000-05)
Peter Baier	Member	(2000-05)
Jose L. Contreras-Vidal	BIGS, Co-editor	(2000-05)
Graham Leedham	BIGS, Co-editor	(2000-05)
Venu Govindaraju	Publicity and Web	(2000-05)
Arend Van Gemmert	Secretary, Treasurer	(2001-06)



Message from the President



Montreal, December 2, 2001.

Dear Fellow members,

Last August I was attending the 16th ICPR (International Conference on Pattern Recognition) that we were hosting in Quebec City. What surprised me the most, apart from the huge attendance (about 1,000 participants), was the strong place that computer processing of handwriting still hold in this general conference. Research on the on-line and off-line recognition of handwriting is still a hot topic! How much of these scientists are aware of our society and would enjoy participating to our next conference. What about the other communities that share some interests for research on handwriting? Many of these societies have their own conference. How many of their attendees know IGS? How many would benefit from participating actively to our next conference?

In one year from now, we will hold the IGS conference in Scottsdale, Arizona. What about coming there with a friend? The Call for Papers is included in this issue of eBIGS. It would be great if each one of our members were taking a few minutes to send a copy of it to a few potential participants, inviting them to present a paper, to attend the meetings. Wouldn't it be a nice way to help Hans-Leo Teulings and his friends who are already working hard to organize the event?

Réjean Plamondon
President of IGS



Message from the Secretary/Treasurer

Dear IGS members,

As of October 2002 all Secretary/Treasurer duties are transferred to Arizona State University. I like to thank our former Secretary/Treasurer, Dr. Ruud Meulenbroek for his efforts the last several years and I hope I can count on his wisdom in the future. I hope also that I will be able to give the IGS the same kind of service as was provided by Ruud and like to thank everyone for the trust that is put upon me.

I would also like to inform you of a change in membership dues payment. Many members already noticed that the IGS did not send membership dues requests out for this year. As of this year, the board decided to change the payment procedure. Instead of paying every year, members are now asked to pay every two years the double amount. This request will start next year for the membership years 2003/2004. The payment for membership is to be paid together with registration for the conference. The forms for registration will have a separate entry for membership. If a member decides not to attend the conference he/she can still stay a member by paying just the membership dues. This change will make membership payments more efficient from an administrative point of view, and therefore it will be more cost effective. I hope that this new procedure will not inconvenience our members too much.

Sincerely,
Arend Van Gemmert
IGS Secretary/Treasurer
vangemmert@asu.edu



IGS Feature

Skilled handwriting forgery and its extreme consequences

by Arnold J.W.M. Thomassen



Review of Simon Worrall (2002). *The poet and the murderer: A true story of literary crime and the art of forgery*. New York-London: Dutton. [271 pages, hardback \$23.95, ISBN 0-525-94596-2]

Probably the most fascinating prisoner today in Utah State Correctional Facility is a slightly crippled and scarred man aged 48, serving a life sentence for homicide since 1986, following a career as a historical-documents and rare-books dealer in Salt Lake City, Utah. His name is Mark William Hofmann. Journalist Simon Worrall, impelled by the exposure in 1997 of a sensational literary forgery by this convicted document expert, took great trouble to find out exactly what happened. He wrote an absorbing book – his first – reporting on his research, his impressions and interpretations.

In Worrall's account, Hofmann grew up in a Mormon environment in Salt Lake City. With his intelligent, empiricist mind, however, he could not digest the religion's bizarre beliefs and magic rituals. He found himself trapped in a contradictory world where deceit is cherished and truth suppressed. Mark was not even allowed to discuss with his parents his internal struggle with this hypocrisy. Understandably, Hofmann fostered a deep hate against the Mormon Church of Jesus Christ of Latter-Day Saints (LDS) and increasingly detested its members. Apart from ensuing from this background as an irreligious agnostic, he failed to develop a sense of distinction between reality and fiction, between truth and lies – in short he failed to develop a conscience. As Worrall sees it, this constitutes the basis of Hofmann's criminal practices.

In his trade, a documents dealer will now and then discover a precious manuscript of historical interest. Hofmann soon found out that for him – an incredibly meticulous craftsman - it was rather easy to make up such a document himself and sell the forged copy as a discovery. When necessary, a second document could likewise be fabricated to support the provenance of the first. It gave Hofmann great satisfaction, and in fact a feeling of power, when he could mislead respected document experts with his forgeries. His technical skills, e.g., in handwriting simulation and paper and ink preparation, were indeed superior. And so was his knowledge of the language of the era, and the stylistic and spelling idiosyncrasies of the to-be-forged author (see, e.g., McMenemy, 2002). But of equal importance, he had a brilliant intuition of which documents would either be received most eagerly by the intended audience or would shock that audience most violently.

One such audience – for Hofmann the major one – was the LDS. His strategy was to undermine the religion by exploiting the internal conflicts in the Church,



its historical lacunae, and its myths. By ‘discovering’ time and again an essential document, usually a letter fabricated by himself, he often (but not always, to avoid losing trust) compromised the Mormon hierarchy, in particular the founder and first prophet of the Church, Joseph Smith (1805-1844) in whom he saw a fraud and manipulator. The contemporary LDS authorities would then buy such a document, intending to fill the gap in Mormon history, or to avoid damage by scandals and controversies. In all, there are over 150 known Mormon forgeries by Mark Hofmann. Besides these, Hofmann produced hundreds of other fakes, including a unique historical print ‘from 1639’, and handwriting simulations like those of Abraham Lincoln and George Washington, and literary forgeries such as those of Mark Twain. Altogether, he forged 129 historical personalities.

First and foremost in Worrall’s book, however, is a fake poem purportedly written by Emily Dickinson in 1871. It is a 39-word text, untitled and pencil-written. The first of its 15 lines reads “That God cannot be understood”. Emily Dickinson (1830-1885) is one of America’s greatest poets of the 19th century. She was a brilliant, intelligent, hyper-sensitive, lonely but love-sick spinster who spent nearly all her solitary life in her parents’ house ‘Homestead’ in Amherst, Massachusetts. She wrote 1,775 poems (Johnson, 1955) that were not published until after her death. Both her intriguing style and her peculiar handwriting (Franklin, 1981) are highly idiosyncratic.

It is perplexing to see from the copy of the forgery in Worrall’s book (pp. 264-267), how well both these unique features are simulated by Hofmann. The poem’s text, claimed by Mark Hofmann himself to have been composed by him in three days, reflects his own agnostic outlook, but similarly that of the nonconformist poet herself. This seems to be the only view shared by the sincere poet and her forger. Indeed, it is most likely that Hofmann selected her, and chose the agnostic theme, to highlight the unorthodox, skeptic attitude held by this independent woman whose poetry had been rediscovered in the fifties of the 20th century and treasured so much ever since.

The reader certainly gains some insight into her withdrawn life, but – in spite of the book’s balanced main title, and the reference to literary crime in its subtitle – the poet and her work receive much less weight than the murderer and his criminal action: In the book’s central chapters (5-17), only 10 out of 186 pages are concerned with Dickinson. These pages (Chapter 11) and the other chapters (1-4 and the Epilogue) disclose the poet’s frail existence and tell the compelling story of the fabricated poem, its creator, and its transaction history. Like a detective, Worrall tracked the forgery during three years across the United States. He did a tremendous lot of research, resulting in a book crammed with connected facts, names, and situations. He consulted dozens of key persons in this “web of intrigue and mystery” (p. xii). Among these, he interviewed three members of the IGS about psychomotor and kinematic aspects of handwriting and forgery.



As mentioned, the author readily presents his opinions and interpretations, in particular on the motives of the main character on whose life several media reported earlier since his imprisonment. He creeps into the mind and the forging actions of Hofmann in the same way as he proposes that the counterfeiter 'entered the mind' of his models. Worrall presents quasi-introspective data on Hofmann's exceptional feelings and bodily sensations. These are ascribed to his capacity to induce self-hypnosis, which made him 'both intensely focused and fully relaxed' so that he could steer his hand without the slightest hesitation, and believe his own lies. This enabled him to sell his products, and to sail through the several lie-detector tests. In Worrall's interpretation, moreover, Hofmann's success, which even fooled the Library of Congress, gave him the feeling that he was far from criminal but, instead, perfect and thus invulnerable. Still, there was his craving for recognition as an expert documents dealer, his desire to manipulate others, and his greed for money, which allowed him to lead a comfortable life, and which in the end he needed badly.

This end approached when he could not deliver a promised file of fictional, compromising documents on early Mormon history. This collection he still had to fabricate long after he had received a large sum of money for it from an apostate member of the LDS. To escape from the resulting situation in which he faced his exposure as a swindler-forgery as well as his bankruptcy, Hofmann constructed two bombs, one for a principal creditor and one to put the police detectives on the wrong track. Thus the audacious, amoral craftsman emerged as a diabolical, ruthless pervert. He committed the double murder on October 15th, 1985. Soon after that, he placed a third bomb, also meant as a smoke screen, in his own car. Unintentionally, it went off in his hands, mutilating but not killing him. Ultimately, following his arrest, it was not the handwriting but the ink that disclosed Mark Hofmann as a forger. In a set of crucial documents it appeared that he could not adequately simulate 'time' as it alters the chemical properties of a document, especially of its ink, which in his forgeries showed unauthentic microscopic cracks.

Mark Hofmann's motives are not the only subject of Worrall's subjective interpretation. For example, where Emily Dickinson's later handwriting is concerned, the author makes a 'graphological' assessment in terms of a 'feeling of failing energies' (p. 254). The author's own feelings, e.g., one of deep indignation, are expressed - most explicitly in Chapter 4 - when he uncovers the ill-behaviour of what he sees as the corrupt auction houses of Sotheby's and Christie's, careless as they are about possible forgery, telling lies about authenticity statements, leaving out from the provenance the names of less reliable dealers, and fixing price commissions between themselves.

Summing up, the book contains the compelling tale of what seems the most skilled and most ruthless master-forgery of our time, and the story of what really happened to his fake Dickinson poem - all in a world of deceit. This reads as well-composed fiction. As a professional journalist, however, Worrall seems to feel obliged to present all the details revealed by his scrutiny. In several places this results in an overdose, so that the reader who does not remember all the



names and places, tends to lose the thread of the story. A name register would have been useful here. Chapter 8, completely devoted to forgery-as-such in a world-wide and historical perspective, although well-documented and interesting, may be skipped by those who wish to continue the engrossing true story. Some chapter titles are very direct, others are enigmatic. For the rest, however, the book is written so well that it is difficult for the absorbed reader to stop, or even to pause for a second to reflect and to bring home every detail and name. Especially for those interested in handwriting and its abuse, the book provides a most welcome entertainment, abundant with both information and suspense.

References

Franklin, Ralph (1981). *Manuscript books of Emily Dickinson*. 2 Volumes. New Haven, Conn.: Yale University, Beinecke Library.

Johnson, Thomas H. (Ed.) (1955). *The complete poems of Emily Dickinson*. 3 Volumes. Boston-Toronto: Little, Brown & Co.

McMenamin, Gerald R. (2002). *Forensic linguistics: Advances in forensic stylistics*. London-New York: CRC Press.



Is IGS ready for its own Journal?

We would like to know the interest of the IGS members in having their own peer-reviewed *International Journal of Graphonomics Research*. In this regard, the Editors would like to ask you to email your answers to the following questions to pepeum@wam.umd.edu (Dr. Jose L Contreras-Vidal):

1. Would you like to see IGS launching a peer-reviewed Journal, e.g., *The International Journal of Graphonomics Research*?
2. Would you prefer printed, on-line, or printed/on-line versions of the *Journal*?
3. Would you be interested in obtaining open access to the online *Journal*? For members-only? For the at-large scientific community?
4. Would you prefer quarterly, bi-monthly or annual frequency for the *Journal*?
5. Would you be interested in publishing in the *Journal*? If so, how many manuscripts would you expect to submit per year?
6. Would you be willing to pay a publishing fee to help defray publishing costs? If so, how much?
7. Would you be willing to review manuscripts for the *Journal*? If so, how many manuscripts per year?
8. Who would you recommend for a potential position in the Editorial Board/Editorial Sections?
9. What Sections (e.g., Forensic Science, Basic Neuroscience, Education, Clinical Neuroscience, Paleography, Engineering, Computer Science, Cognitive Science, Artificial Intelligence, Positions Open, Current Conferences; Reviews, etc.) of the *Journal* would you like to see included?
10. Would you like selected (after full peer-review) articles from each biannual IGS conference published in the *Journal*?

Based on your responses, I will compile a summary statement to be distributed at the next IGS2003 conference, and at the Business Meeting of the Society.

Thank you for your time!

Jose L Contreras-Vidal, Ph.D.
Co-Editor, eBIGS



Special Issue of Human Movement Science following IGS 2002

At the Tenth Biennial Conference of the IGS on 6-8 August 2001 in Nijmegen a number of high-quality motor control papers were selected for publication in a special issue of *Human Movement Science*. The preparations of this special journal issue, edited by Ruud Meulenbroek (University of Nijmegen) and Arend van Gemmert (Arizona State University), are going according to plan even though a slight delay has occurred. The final paper intended to be included in the project is currently under review. It is expected that the project will be completed early 2003. The special HMS issue on handwriting will consist of six papers covering the following topics: eye-hand coupling during drawing (authors: G. Anthony Reina and Andrew B. Schwartz), visuomotor adaptation (authors: Ariel D. Prager and José L. Contreras-Vidal), approaches to analysis of handwriting as a task of coordinating a redundant motor system (authors: Mark L. Latash, Frederic Danion, John F. Scholz, Vladimir M. Zatsiorsky and Gregor Schöner), the drawing kinematics of elderly (authors: Diana H. Romero, Arend W. A. van Gemmert, Charles H. Adler, Harold Bekkering, George Stelmach) and cerebellar ataxia (authors: Vittorio Sanguineti, Pietro G. Morasso, Luigi Baratto, Giampaolo Brichetto, Giovanni Luigi Mancardi and Claudio Solaro).

IGS News

- The IGS office has been transferred from Nijmegen to the new Secretary/Treasurer, Dr. Arend van Gemmert at Arizona State University in Tempe (USA).
- The Bulletin of the International Graphonomics Society is now published on-line and the printed version has been discontinued. To make sure you receive the IGS Bulletin, Society information, and other valuable information please update your email address by sending an email to the Secretary/Treasurer at vangemmert@asu.edu.



IGS2003 CALL FOR PAPERS

11th International Graphonomics Society conference (IGS2003)
(www.Graphonomics.org/igs2003)

SPECIAL THEME

Connecting sciences using graphonomics research.

TOPICS

- o NOVEL DEVELOPMENTS:
Implanted electrodes and chips, bionics, robotics, tactile sensors.
- o FUNDAMENTAL RESEARCH ON FINE MOTOR CONTROL:
Neurocognitive processes, biomechanics, visual and tactile feedback, neuro-imaging, bimanual force coordination.
- o MEDICAL APPLICATIONS:
Quantizing movement disorders or treatment effects.
- o EDUCATIONAL AND DEVELOPMENTAL APPLICATIONS:
Motor development, cross-sectional and longitudinal studies, teaching methods, learning disabilities, letter design, remediation.
- o COMPUTER INTERACTION APPLICATIONS:
Recording and analysis techniques, movement-based pattern recognition and signature verification, gesture recognition, pen computing, handwritten document analysis, algorithms and data processing.
- o FORENSIC APPLICATIONS:
Science and statistics of handwriter-identification, certified handwriting expertise procedures, case studies, historic scripts.

DATES

2-5 November 2003

VENUE

Old Town Hotel, Scottsdale, Arizona, USA; at Old Western Town Scottsdale with art galleries and Fashion Square Mall.
(www.OldTownHotelScottsdale.com).

RELATED 2003 CONFERENCES

(See <http://www.graphonomics.com/conferences.php>)

- o Jul 10-15, 6th IBRO World Congress of Neuroscience, Prague, Czech Republic (www.ibro2003.cz/index.html).
- o Aug 3-6, 2003ICDAR 7th International Conference on Document Analysis, Edinburgh, Scotland, UK (www.essex.ac.uk/ese/icdar2003/).
- o Sep 22-26, EAFS2003, 3rd European Academy of Forensic Science Meeting, Istanbul, Turkey (eafs2003.enfsi.org) (www.enfsi.org).



- o Sep 20-24, MCC2003, 3rd Motor Control Conference, Varna, Bulgaria (www.laps.univ-mrs.fr/~gantchev).
- o Nov 2-5, IGS2003, 11th International Graphonomics Society conference, Scottsdale, AZ, USA (www.Graphonomics.org/igs2003).
- o Nov 1-7, 2003AFDE American Forensic Document Examination, Scottsdale, Arizona, USA.
- o Nov 8-13, NSF2003, 32nd Society for Neuroscience meeting, New Orleans, USA. (Satellite conferences start Nov 6).

DEADLINES AND DATES

At Your Soonest Convenience, please, e-mail igs2003@Graphonomics.org. We would also like your suggestions for guest/plenary speakers.

Jan 31, 2003 Submission of your preliminary title

Mar 31, 2003 Submission of a 4-page full paper. You will receive your peer review within 30 days after submission

Aug 30, 2003 Submission of your final paper

Aug 30, 2003 Early registration for conference and hotel

Sep 30, 2003 Latest cancellation date

Nov 2, 2003 Welcome reception 5:30-7:30pm

Nov 3, 2003 9am, Opening

Nov 5, 2003 4pm, Closing

Nov 5, 2003 Submission of full papers for publication in Motor Control (www.neuroscript.net/motorcontrol)

ANNOUNCEMENTS

o Conference web site: www.Graphonomics.org/igs2003

o Bulletin of the International Graphonomics Society (BIGS): www.cedar.buffalo.edu/igs/

o Scrib-L mailing list for handwriting researchers: www.Graphonomics.org/scribl.php

o Inquiries and comments: (igs2003@Graphonomics.org) (Telephone +1-480-350 9200)

SUBMISSION AND REGISTRATION METHOD

Via www.Graphonomics.org/igs2003



Recent Publications

In this section of BIGS the bibliographical details of recent publications relevant to the IGS are reported. In addition to publications by IGS members that were reported to the IGS office, the results of searches in Medline are given that were directed at papers on handwriting and related graphic skills, which were published during the six months prior to the distribution of BIGS. IGS members are invited to report the bibliographic details of their recent publications to the IGS office.

O'Hare A, Khalid S. The association of abnormal cerebellar function in children with developmental coordination disorder and reading difficulties. *Dyslexia*. 2002 Oct-Dec; 8(4):234-48.

Burr V. Related Articles. Judging gender from samples of adult handwriting: accuracy and use of cues. *J Soc Psychol*. 2002 Dec; 142(6):691-700.

Marr D, Cermak S. Predicting handwriting performance of early elementary students with the developmental test of visual-motor integration. *Percept Mot Skills*. 2002 Oct; 95(2):661-9.

Rodriguez-Vera FJ, Marin Y, Sanchez A, Borrachero C, Pujol E. Illegible handwriting in medical records. *J R Soc Med*. 2002 Nov;95(11):545-6.

Hamilton SS. Evaluation of clumsiness in children. *Am Fam Physician*. 2002 Oct 15;66(8):1435-40, 1379.

Sita J, Found B, Rogers DK. Forensic handwriting examiners' expertise for signature comparison. *J Forensic Sci*. 2002 Sep; 47(5):1117-24.

Ohyama H, Honjo S, Sekitani T, Nishikawa K, Okinaka Y, Matsuo T. Evaluation of ataxia with square drawing test discussing macrographism. *Adv Otorhinolaryngol*. 1983; 30:306-10.

Delazer M, Lochy A, Jenner C, Domahs F, Benke T. When writing 0 (zero) is easier than writing O (o): a neuropsychological case study of agraphia. *Neuropsychologia*. 2002; 40(12):2167-77.

Knoblich G, Seigerschmidt E, Flach R, Prinz W. Authorship effects in the prediction of handwriting strokes: evidence for action simulation during action perception. *Q J Exp Psychol A*. 2002 Jul; 55(3):1027-46.

Teulings HL, Contreras-Vidal JL, Stelmach GE, Adler CH. Adaptation of handwriting size under distorted visual feedback in patients with Parkinson's disease and elderly and young controls. *J Neurol Neurosurg Psychiatry*. 2002 Mar; 72(3):315-24



Recent Conferences

Conferences which have already been announced in a previous BIGS issue are summarised by means of a brief, marked (*) entry

16th INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION (ICPR 2002)*

ICPR 2002 is the sixteenth conference of the International Association for Pattern Recognition (IAPR) and is organized in cooperation with the IEEE Computer Society and supported by the Canadian Image Processing and Pattern Recognition Society (CIPPRS). The ICPR 2002 Theme will be "Pattern Recognition for Mankind and the Environment" and the conference will be an international forum for discussions on recent advances in the fields covered by the four conference tracks:

Track 1: Computer Vision and Robotics

Track 2: Pattern Recognition, Neural Networks, and Document Analysis

Track 3: Image and Signal Processing

Track 4: Biomedical and Multimedia Applications

Organizing Committee:

General Chair: Ching Suen, Concordia University, Canada

Technical Program: Rangachar Kasturi, Penn State University, USA

Sponsorship and Publicity: Réjean Plamondon, École Polytechnique, Canada

Tutorials and Demos: Denis Poussart, Université Laval, Canada

Local Arrangements: Denis Laurendeau, Université Laval, Canada

Finance Committee: Jean-Guy Deschênes, École Polytechnique, Canada

Conference Location:

ICPR 2002 will be held at the Quebec City Convention Center. Quebec City is known for its French culture and European tradition, its beautiful scenery along the St-Lawrence River, excellent food, and exceptional quality of living.

Conference Secretariat:

ICPR 2002 - Quebec City

c/o Agora Communication

2600, boulevard Laurier

Tour Belle Cour, suite 2680

Sainte-Foy, Quebec, Canada

G1V 4M6

E-mail contact: icpr2002@gel.ulaval.ca

<http://www.icpr2002.gel.ulaval.ca>



First International Conference on Information Technology & Applications (ICITA2002).

Conference location: Bathurst, NSW Australia - 200Km west of Sydney.
Date: 24-28 November 2002.

First International Conference on Information Technology & Applications organised and supported by the Charles Sturt University, Australia and IEEE NSW Section, will be held in Bathurst (west of Sydney), Australia. Each year many conferences in the area of Information Technology (IT) are organised, however, in many ways, ICITA is unique. It provides a platform for academics in all IT areas to meet, exchange ideas, establish and extend professional networks. It is important that IT professionals stretch across narrowly defined subject areas and constantly acquire a global technical and social perspective. ICITA 2002 offers an opportunity to facilitate such a cross-disciplinary and social gathering.

The Technical Programme Committee is soliciting papers in areas that include but not necessarily limited to IT applications in the following areas:

- Track 1: IT in Telecommunication and Mobile Communications.
- Track 2: IT in Multimedia; Computer Networking; Security; Hacking and Database Interface.
- Track 3: E-commerce.
- Track 4: IT in game technology; Project Management & QA in Software Development.
- Track 5: IT in Engineering: AI, Signal/Image Processing; Power & Power Electronics; Sensors.
- Track 6: IT in Remote Sensing, GIS, Instrumentation and Biomedical Engineering.
- Track 7: IT in Education, Open Learning and IT Management.
- Track 8: IT in health care.
- Track 9: Quantum aspects of Information Technology.
- Track 10: IT in the Humanities.
- Track 11: Engineering Applications of IT - CAD/CAM, CAE, CIM, CNC.
- Track 12: IT in Forensic Science.
- Track 13: IT and Supercomputing.

More information about the conference can be found at the website: <http://odysseus.mit.csu.edu.au>



ICONIP'02-SEAL'02-FSK'02

[The joint conference has attracted 1100 submissions (ICONIP'02: 670; SEAL'02: 230; FSKD'02: 200) from 60 countries and is shaping up as one of the most exciting events in soft computing]

**9th International Conference on Neural Information Processing
(ICONIP'02)**
**4th Asia-Pacific Conference on Simulated Evolution And Learning
(SEAL'02)**
**1st International Conference on Fuzzy Systems and Knowledge
Discovery
(FSKD'02)**

November 18 - 22, 2002, Orchid Country Club, Singapore

Sponsored by:
Asia-Pacific Neural Network Assembly
SEAL & FSKD Steering Committees
Singapore Neuroscience Association

In Co-Operation with:
IEEE Neural Network Society
International Neural Network Society
European Neural Network Society
SPIE

Supported by:
Lee Foundation
US AOARD, ARO-FE
Singapore Exhibition & Convention Bureau
Novartis Pharmaceuticals

The joint conferences feature papers from researchers, practitioners, and students worldwide in, but not limited to, the following areas.

ICONIP'02:

ARTIFICIAL NEURAL MODELS - Learning algorithms, Neural modeling and architectures, Neurodynamics

NATURAL NEURAL SYSTEMS - Neuroscience, Neurobiology, Neuro-physiology, Brain imaging, Learning and memory

COGNITIVE SCIENCE - Perception, Vision and auditory models

HARDWARE IMPLEMENTATION - Artificial neural chips

HYBRID SYSTEMS - Neuro-fuzzy systems, Evolutionary neural nets, etc

APPLICATIONS - Bioinformatics, Finance, Manufacturing, etc.

SEAL'02:

THEORY - Co-evolution, Coding methods, Collective behavior



METHODOLOGY - Evolution strategies, Genetic algorithms, Genetic programming, Molecular and quantum computing, Evolvable hardware, Multi-objective optimization, Ant colony, Artificial ecology

EVOLUTIONARY LEARNING - Artificial life, Bayesian evolutionary algorithms

HYBRID SYSTEMS - Evolutionary neuro-fuzzy systems, Soft computing

APPLICATIONS - Scheduling, Operations research, Design, etc

FSKD'02:

THEORY AND FOUNDATIONS - Fuzzy theory and models, Uncertainty management, Statistical & probabilistic data mining,

Rough sets, Intelligent agents

METHODS AND ALGORITHMS - Classification, Clustering, Data warehousing, Visualization, Decision trees, Data preprocessing

HYBRID SYSTEMS - Evolutionary neuro-fuzzy systems, Soft computing

APPLICATIONS - Control, Optimization, Natural language processing, Forecasting, Human-computer interaction, etc.

Keynote Speakers:

Shun-ichi Amari, RIKEN Brain Science Institute, Japan

David Fogel, Natural Selection, Inc., USA

Mitsuo Kawato, ATR, Japan

Xin Yao, The University of Birmingham, UK

Lotfi A. Zadeh, University of California, USA

For more information contact:

Nanyang Technological University

ICONIP'02-SEAL'02-FSKD'02 Secretariat

Conference Management Centre/CCE

Administration Annex Building, #04-06

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Tel: +65 6790 4826