

BIO(MEDICAL) ENGINEERING RELATED PUBLICATIONS

J.W. Gardner, University of Warwick, UK

1. Cole M, Covington JA and **Gardner JW** 2011 *Sensors and Actuators B* **156** 832-839 “Combined electronic nose and tongue for a flavour sensor”
2. Aziz, F, Che Harun F, Covington J, **Gardner JW** 2011 *AIP Conf. Proc.* **1362** 223-225 “Towards an analogue neuromorphic VLSI instrument for the sensing of complex odours”
3. Karout S, Racz, Z, Capurro A, Cole M, **Gardner JW** and Pearce TC 2011 *AIP Conf. Proc.* **1362** 77-78 “Ratiometric chemical blend processing with a neuromorphic model of the insect macroglomerular complex”
4. **Gardner JW** and Taylor JE 2011 *Proc. of 8th IASTED International Conference on Biomedical Engineering Conf.*, Austria, 16-18 Feb, 2011 “Novel convolution-based signal processing technique for an artificial olfactory mucosa”
5. Racz Z, Cole M, **Gardner JW**, Pathak S, Jordan M, Challis RA 2011 *Transducers Conf.*, Beijing, China “Cell-based surface acoustic wave resonant sensor for biomolecular agent detection”
6. Covington JA, Ouaret N, **Gardner JW**, Nwokolo C, Bardhan KD, Arasaradnam RP 2011 *ISOEN*, New York, USA “Detection and identification of inflammatory bowel disease electronic nose”
7. Cole M, **Gardner JW**, Pathak S, Racz Z, Challiss R and Markovic D 2010 *Proceedings of 7th IASTED International Conference on Biomedical Engineering, Innsbruck, Austria, 17-19 Feb, 2010, pp.195-201* ISBN: 978-0-88986-826-7 “Cell-based acoustic sensors for biomedical applications”
8. Invited paper: **Gardner JW** 2010 IBEC Workshop, Barcelona, Spain, 9-10 April 2010 “Artificial olfaction: a Warwick perspective”
9. Invited paper: **Gardner JW** *Proceedings of EC Advanced Workshop on Infochemical Communication, Granada, Spain, 10-11 March 2010* “Smart piezoelectric chemoreceiver”
10. **Gardner JW** and Taylor JE 2009 *IEEE Sensors Journal* **9** 929-935 “Novel convolution-based signal processing techniques for an artificial olfactory mucosa”
11. Iwaki T, Covington JA, Udrea F, **Gardner JW** 2009 *Sensors and Actuators B* **141** 370–380 “Identification and quantification of different vapours using a single polymer chemoresistor and the novel dual transient temperature modulation technique”
12. Che Harun FK, Taylor JE, Covington JA, and **Gardner JW** 2009 *Sensors and Actuators B* **141** 134-140 “An electronic nose employing dual-channel odour separation columns with large chemosensor arrays for advanced odour discrimination”
13. Pearce TC, Sanchez-Montanes MA and **Gardner JW** 2009, Chapter in book, *Springer series, Ch5, pp75-92*, “Improved odour detection through imposed biomimetic temporal dynamics”
14. Cole M, **Gardner JW**, Racz Z, Pathak Guerrero SA, Muñoz L, Carot G, Pearce TC, Challiss J, Markovic D, Hansson BS, Olsson S, Kübler L 2009 *Proceedings of IEEE Sensors Conference*, 978-1-4244-5335-1/09 “Biomimetic insect infochemical communication system”

15. Cole M, **Gardner JW**, Pathak S, Pearce TC, Rácz Z 2009 *Procedia Chemistry* **1** 305-308, Proceedings of the Eurosensors XXIII conference, Lausanne “Towards a biosynthetic infochemical communication system”
16. Sanchez-Montanes MA, **Gardner JW** and Pearce TC 2008 *Proc. Roy. Soc. A*, **464**, 1057-1077 “Spatiotemporal information in an artificial olfactory mucosa”
17. **Gardner JW**, Nadarajan S and Kimber P, *Proceedings 6th IASTED International Conf Biomedical Engineering*, 13-15 February 2008, Austria, pp145-150, ISBN:978-0-88986-721-5 “Modelling and measurement of odour transportation within the human nasal cavity”
18. Koickal T, Hamilton A, Tan SL, Covington JA, **Gardner JW** and Pearce TC 2007 *IEEE Transactions on Circuits and Systems I*, **54**, 60-73 “Analog VLSI circuit implementation of an adaptive neuromorphic olfaction chip”
19. Yates J, Chappell M, and **Gardner JW** 2007 *Proc. Roy. Soc. A*, **463**, 551-568 “Novel phenomena based dynamic model of carbon-black/composite vapour sensors”.
20. Covington JA, **Gardner JW**, Hamilton A, Pearce TC and Tan SL 2007 *IET Proc. Nanobiotechnology*, **1**, 15-21 “Towards a truly biomimetic olfactory microsystem: an artificial olfactory mucosa”
21. **Gardner JW**, Covington JA, Tan S-L and Pearce TC 2007 *Proc. Roy. Soc. A*, **463**, 1713-1728 “Towards an artificial olfactory mucosa for improved odour classification”
22. Guha PK, Ali SZ, Lee CC, Udrea F, Milne WI, Iwaki T, Covington JA and **Gardner JW** 2007 *Sensors and Actuators B*, **127**, 260-266 “Novel design and characterisation of SOI CMOS micro-hotplates for high temperature gas sensors”
23. Edited book: **Gardner JW** (2007) *Proc. of the 25th IASTED International Multi-conference Biomedical Engineering*, 13-15 Feb. 2007, IASTED, Canada, pp468. ISBN 978-0-88986-648-5
24. **Gardner JW**, Covington JA, Tan SL and Pearce TC *GOSPEL Workshop on Bio-inspired Signal Processing, Barcelona, Spain, 24-26 January 2007*, “A biologically-inspired artificial olfactory mucosa”
25. **Gardner JW**, Apostolidou A, Cole M, Dowson C, Edmunds S, and Sehra G, *Proc. Biomedical Engineering 2007*, Austria, Feb 2007. “Towards a low-cost optical biosensor system for biomedical immunoassay applications”
26. **Gardner JW**, Tan SL, Covington JA and Pearce TC, *Technical Digest of Transducers and Eurosensors 2007*, pp 2465-2467, Lyon, France, June 10-14, 2007 “Enhanced discrimination of complex odours based upon spatio-temporal signals from a micro-mucosa”
27. **Gardner JW** and Taylor JE, *Technical Digest of Transducers and Eurosensors 2007*, pp 2473-2476, Lyon, France, June 10-14, 2007 “Novel convolution based signal processing techniques for a simplified artificial olfactory mucosa”
28. Tan SL, Covington JA, **Gardner JW** and Pearce TC, *AsiaSim 2007, Seoul, Korea, October 10-12, 2007* “Finite element simulation of biomimetic olfactory microsystem for spatio-temporal signal generation”
29. Leonte II, Sehra G, Cole M, Hesketh P, and **Gardner JW** 2006 *Sens. Actuators B*, **118**, 349-355 “Taste sensors utilizing high-frequency SH-SAW devices”
30. **Gardner JW**, Boilot P and Hines EL 2005 *Sensors and Actuators B*, **106**, 114-121 “Enhanced electronic nose performance by sensor selection using a new integer based genetic algorithm approach”
31. **Gardner JW**, Hines EL and Dowson C 2005 *Ingenia*, **18738**, 38-39 “Smelling illness”

32. **Gardner JW**, Beeby L, Chappell M, Udrea F, Yates J and Dowson CG, *Proc. of the 24th IASTED International Multi-conference Biomedical Engineering*, 15-17 Feb. 2006, “Identification of staphylococcus aureus infections by volatile chemical headspace analysis”
33. Invited paper: **Gardner JW**, CAPE lecture series, University of Cambridge, UK, 31 March 2006, “Microsensors and MEMS for chemical and biological detection”
34. Covington JA, Tan SL, Pearce TC, Hamilton A and **Gardner JW**, *Proc. of IET Seminar on MEMS Sensors & Actuators*, 27-28 April 2006, London, UK, 107-112 “Towards a truly biomimetic olfactory microsystem: an artificial olfactory mucosa”
35. **Gardner JW**, Covington JA, Tan SL, and Pearce TC, *Euroensors XX, Gothenberg, Sweden, Sept. 2006*. “A biologically inspired artificial olfactory mucosa”
36. **Gardner JW**, Hines EL and Dowson C 2005 *Ingenia*, **18738**, 38-39 “Smelling illness”
37. Dutta R, Morgan D, Baker N, **Gardner JW**, and Hines EL 2005 *Sensors and Actuators B*, **109**, 355-352 “Identification of Staphylococcus aureus infections in hospital environment: electronic nose based approach”
38. Yates JWT, **Gardner JW**, Chappell MJ, and Dow CS 2005 *IEE Proc.-Sci. Meas. Technol.*, **152**, 97-102 “Identification of bacterial pathogens using quadrupole mass spectrometer data and radial basis function neural networks”
39. Yates JWT, Chappell MJ, **Gardner JW**, Dow CS, Dowson C, Hamood A, Bolt F and Beeby L 2005 *Computer Methods and Programs in Biomedicine*, **79**, 259-271 “Data reduction in headspace analysis of blood and urine samples for robust bacterial identification”
40. **Gardner JW**, Cole M, Dowson CG, Newton P and Sehra G, *IASTED International Conference on Biomedical Engineering*, Innsbruck, Austria, 16-18 Feb 2005 “Smart acoustic sensor for the detection of bacteria in milk”
41. Cole M, **Gardner JW**, Leonte I, Sehra G, Noh HS and Hesketh PJ, *Proc. 4th IEEE Conf. on Sensors*, Irvine, California, USA, Oct. 31 – 3 Nov. 2005, “Voltage modulated SAW microtrap system: smart assaying of biomaterials”
42. Dutta R, **Gardner JW** and Hines EL 2004 *MRS Bulletin*, **29**, 697-700, October 2004, 1-5 “Electronic noses diagnose illness: classification of ENT bacteria using a neural-network based electronic nose”
43. Edited book: Hesse J, **Gardner JW** and Göpel W (2004) *Sensors in Medicine and Health Care*, Sensors Applications, Volume 3, Wiley-VCH, Dordrecht, ISBN 3-527-29556-9.
44. Cole M, Sehra G, **Gardner JW** and Varadan VK 2004 *IEEE Sensors Journal*, **4**, 543-550 “Development of smart tongue devices for measurement of liquid properties”
45. Shykon ME, Morgan DW, Dutta R, Hines EL, and **Gardner JW** 2004, *Journal of Laryngology and Otology*, **118**(9), 706-709, ISSN:0022-2151, “Clinical evaluation of the value of the electronic nose in the diagnosis of ear, nose and throat infection – a preliminary study”
46. Tan SL, Covington JA, and **Gardner JW**, *SPIE Meeting on Smart Sensors and Materials*, San Diego, March 2004. “Ultra-fast chemical sensing microsystem employing resistive nanomaterials”
47. Covington JA, LLaudet E, Dale N and **Gardner JW**, *8th World Congress on Biosensors: Biosensors 2004*, Granada, Spain 24-26 May 2004. “A bio-probe with integrated electrode array for in-situ chemical measurement”.
48. Leonte I, Hunt M, Sehra G, Cole M and **Gardner JW**, *Proceedings of IEEE Postgraduate Student Colloquium*, Manchester, September 2004, p. 47-52 “SAW bioliquids sensor with RF interrogation”

49. Dutta R, **Gardner JW** and Hines EL, *Proceedings of IEEE Sensors Conference*, Vienna, Austria, Sept. 2004, p. 324-326 “ENT bacteria classification using a neural network based Cyranose 320 electronic nose”
50. Yates JW, **Gardner JW**, Chappell MJ, Bolt F, Beeby L and Dowson C, *IFAC*, 2003. “Chemical sensor screening of blood samples: robust analysis via data set reduction”
51. Invited seminar: **Gardner JW**, Georgia Institute of Technology, Atlanta, USA, September 2003. “Biosensors, Electronic Noses and Electronic Tongues”
52. Boilot P, Hines EL, **Gardner JW**, Pitt R, John S, Mitchell J, Morgan D 2002 *IEEE Sensors Journal* **2** 247-253 “Classification of bacteria responsible for ENT and eye infections using the Cyranose system”
53. Searle GE, **Gardner JW**, Chappell MJ, Godfrey KR and Chapman MJ 2002 *IEEE Sensors Journal* **2** 218-229 “System identification of electronic nose data from cyanobacteria experiments”
54. Dutta R, Hines EL, **Gardner JW** and Boilot P 2002 *BioMedical Engineering OnLine*, **1:4**, “Bacteria classification using Cyranose 320 electronic nose” <http://www.biomedical-engineering-online.com/content/1/1/4>
55. Keynote paper: **Gardner JW** and Cole MV 5th *Int. Conf. on Breath Odor, Tokyo, 1-2 July 2001* “Medical applications of electronic nose technology”
56. Shin HW, Llobet E, **Gardner JW**, Hines EL and Crawford CS 2000 *IEE Proc.- Sci. Meas. Technol.* **147** 158-164 “Classification of the strain and growth phase of cyanobacteria in potable water using an electronic nose system”
57. **Gardner JW**, Shin HW, Hines EL and Dow CS 2000 *Sensors and Actuators B* **69** 336-341 “An electronic nose system for monitoring the quality of potable water”
58. **Gardner JW**, Shin HW and Hines EL 2000 *Sensors and Actuators B* **70** 19-24 “An electronic nose system to diagnose illness”
59. Searle GE, **Gardner JW**, Chappell M, Godfrey KR and Chapman MJ 12th *IFAC Symposium on System Identification, SYSID 2000, Santa Barbara, USA, 21-23 June 2000* “System identification of electronic nose data for monitoring cyanobacteria in potable water: black-box modelling”
60. de Matos R, Dow CS and **Gardner JW** 7th *Int. Symposium on Olfaction and Electronic Noses, Brighton, UK, 20-24 July 2000* “Investigation of the growth characteristics of E. coli using headspace”
61. Boilot P, Hines EL, **Gardner JW**, Hero M, Fink C, Mitchell J and Spencer J 7th *Int. Symposium on Olfaction and Electronic Noses, Brighton, UK, 20-24 July 2000* “Detection of bacteria causing eye infection using an electronic nose”
62. de Matos R, Mason DJ, Dow CS and **Gardner JW** 2000 in **Gardner JW** and Persaud KC (eds.) *Electronic Noses and Olfaction, IOP Publishing Ltd, Bristol*, pp181-188, ISBN 0-7503-0764-1. “Investigation of the growth characteristics of E. coli using headspace analysis”
63. Boilot P, Hines EL, John S, Mitchell J, Lopez F, **Gardner JW**, Llobet E, Hero M, Fink C and Gongora M 2000 in **Gardner JW** and Persaud KC (eds.) *Electronic Noses and Olfaction, IOP Publishing Ltd, Bristol*, pp189-196, ISBN 0-7503-0764-1. “Detection of bacteria causing eye infections using a neural network based electronic nose system”.
64. **Gardner JW**, Hines EL, Molinier F, Bartlett PN and Mottram TT 1999 *IEE Proc.- Sci. Meas. Technol.* **146** 102-6 “Prediction of health of dairy cattle from breath samples using neural network with parametric model of dynamic response of array of semiconducting gas sensors”

65. Shin HW, **Gardner JW**, Hines EL and Dow CS, *International Symposium on Olfaction & Electronic Noses, Tubingen, Germany, 20-2 September 1999* “Classification of toxicity and growth of cyanobacteria in water with an electronic nose”
66. **Gardner J W**, Craven M, Hines E L and Dow C 1998 *Meas. Sci. Technol.* **9** 120-127 “Prediction of bacteria type and growth phase by an electronic nose with a multi-layer perceptron network”
67. Elliott-Martin R J, Mottram T T, **Gardner J W**, Hobbs P J and Bartlett P N 1997 *J. Agri. Eng. Res.* **67** 267-275 “Method of sampling breath as a monitor of health in dairy cattle”
68. Invited paper: **Gardner J W** *Proc. of 3rd East Asian Conf. on Chemical Sensors, Seoul, Korea, 5-6 November 1997* “Diagnosing illness with an electronic nose”
69. **Gardner JW**, Craven MA and Hines EL *3rd International Symposium on Olfaction & Electronic Noses, Miami, Florida, 3-6 November 1996* “Classification of bacteria age and type using an array of metal oxide sensors and pattern recognition techniques”
70. Craven M A, Hines E L, **Gardner J W**, Morgan D, Horgan P, Ene I A 1994 *Int. Conf. on Neural Networks & Expert Systems in Medicine and Healthcare, Plymouth, England, 23-26 August 1994* “Bacteria detection and classification using artificial neural networks in conjunction with an electronic nose”
71. Elliot-Martin R, Bartlett P N and **Gardner J W** 1994 *Proceedings of 1st Int. Symposium on Olfaction & Electronic Noses, Toulouse, France, 26-27 September 1994* “Monitoring of breath odour in dairy cattle”