

# Dedy Hermawan Bagus Wicaksono

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## FORMAL EDUCATION/TRAINING

- 2003 - 2008 **Delft University of Technology, the Netherlands**  
Ph.D in Microelectronics (MEMS), thesis on *Learning from Nature: Biologically-inspired Sensors*
- 2000 - 2002 **Tokyo Institute of Technology, Japan**  
M.Eng. degree in Biological Information Engineering (*Seimei Jouhou Kougaku*) (grade 87.44/100), thesis on *AFM-based single molecular level imaging and sensing*
- 1993 – 1998 **Bandung Institute of Technology, Indonesia**  
B.Sc. degree in Engineering Physics (*Teknik Fisika*) (*cum laude*, grade 3.67/4.0), thesis on *Thin-film fabrication of SnO<sub>x</sub>-based CO gas sensor*

## PROFESSIONAL EXPERIENCE

- Dec 2010 – Present **Universiti Teknologi Malaysia (UTM), Malaysia**  
*Laboratory Manager of Fac. Of Health Science and Biomedical Engineering*
- Management of Laboratories within the faculty.
  - Member of UTM Board of Laboratory Managers, planning a UTM Centralized Advanced Lab.
  - Planning and managing equipments.
  - Supervision of chemical acquisition and safety.
- July 2010 – Present **Universiti Teknologi Malaysia (UTM), Malaysia**  
*Senior Lecturer, Department of Biomechanics and Biomedical Materials, Fac. Of Health Science and Biomedical Engineering, and Researcher at Medical Implant Technology Group, Materials and Manufacturing Research Alliance.*
- Conducting research on Biologically-inspired (Bio) Medical Sensor, including but not limited to writing proposals, writing publications.
  - Supervision of post-graduate students researches.
  - Education tasks include assisting and giving lectures;
  - Writing Laboratory modules, and supervising Laboratory practices.
  - Initiation of international collaboration.
- 2008 – 2010 **Delft University of Technology (TU Delft), the Netherlands**  
*Post-Doctoral Researcher, Department of Biomechanical Engineering*
- Conducting research on system packaging and integration of fiber-optic and micro-lenses within dental drill-bit for the purpose of real-time dental bone tissue imaging using *Time-Domain Optical Coherence Tomography (OCT)* technique. The research is conducted within a team, of which another member of the team is developing a novel thermal-optical delay line (TODL) chip for generating the time-domain OCT signal. The program is financed by STW, a Science and Technology agency of the Dutch ministry of Economic Affairs, the Netherlands, under project 0705, with support from related Industries, e.g. W&H Dental Drill, Biocomp, Exalon.
  - Together with a master student, investigating possible micro-sensor structure embeddable to the dental OCT system, for the purpose of real-time bone-tissue temperature measurement during dental drilling. And together with another internship student, investigating possible structure for force measurement during dental drilling.
  - Designing and setting up mechanical characterisation setup for investigating the performance of the drill-sensor integration.
  - Giving the “Bio-inspired Sensor” part of the lecture series on “*Bio-inspired Design*” at Dept. of Biomechanical Engineering.
- 2003 – 2008 **Delft University of Technology (TU Delft), the Netherlands**  
*(Ph.D.) Researcher, Electronics Instrumentations (EI) Laboratory*
- Conducting research on development of three novel sensors inspired from natural biological sensors, implemented using Silicon-based Micro-Electromechanical System (MEMS) technology: e.g. Strain/Stress sensor, Microgyroscope, Far Infrared sensor. This research is part of the ‘learning from nature’ research program. The program is financed by STW, a Science and Technology agency of the Dutch ministry of Economic Affairs, the Netherlands, under project DEL. 6050
  - Modeling and Simulation of MEMS using ANSYS, and FEMLAB/COMSOL Multiphysics
  - Designing Electronic Mask for MEMS fabrication using L-Edit

- Designing and setting-up mechano-optical characterisation setup
  - Designing and setting-up image acquirement and processing setup and also its analysis using MATLAB
  - Conducting micro-fabrication processing, e.g. wet-etching, Contact-Mask Lithography, Polymer micromachining, etc.
  - Operation of characterisation instruments: White Light Interferometry, Microstage stress-strain characterisation, SEM, AFM, etc.
  - Assisting and supervising students on laboratory works, student project and master thesis (total 2 Master students, 2 internship students)
  - Assisting Professors on class-demonstration for lectures about sensors
  - Initiating and facilitating two joint research-projects between TU Delft and Toyota Motor Company Europe, (2 projects). The first project was conducted in 2005, while the second project is started in October 2006, and finished on February 2008.
- 2002 – 2003      **Electronics Engineering Polytechnic Institute Surabaya (EEPIS-ITS), Surabaya, Indonesia**  
*Part-time Teaching Assistant (Lecturer), Engineer*
- Assisting B.Sc. students, on courses (Concepts of Technology: Sensor Technology).
- 2000 – 2002      **Training Center of The Ministry of Foreign Affairs, Japan**  
*Part-time teaching Assistant,*
- Teaching courses on Bahasa Indonesia for candidates of Japanese-diplomats.
- 1999 – 2000      **Tokyo Institute of Technology (Titech), Japan**  
*Junior Researcher, Dept. of Biological Information*
- Operating and Investigation using Atomic Force Microscopy (AFM)
- 1998 – 1999      **Suruga Seiki Kabushiki Kaisha, Shimizu City, Japan**  
*Junior Engineer*
- Operating micrometer-precision *Tsuba-Shita* Machine for micrometer-precision components
- 1997              **Indonesian Institute of Sciences (LIPI), Bandung, Indonesia**  
*Student Internship Trainee*  
 Involved in hands-on experiments with LIPI research engineers and scientists.

#### ORGANIZATIONAL EXPERIENCE

- 2010 – now      Member of Innovation in Science and Technology Commission during International Summit of Ikatan Ilmuwan Indonesia Internasional – I4 (International Indonesian Scientist Association), Jakarta, 16-18 December 2010.
- 2009              Member of Programme Committee of the Workshop on “Tactile Sensing in Humanoids – Tactile Sensors and beyond” at Pierre and Marie Curie University, Paris, France, 7 December 2009, organized by Italian Institute of Technology, Genoa, Italy. I was responsible in reviewing several submitted papers.  
[http://eris.liralab.it/wiki/Tactile\\_sensing\\_workshop\\_%40\\_Humanoids\\_%2709](http://eris.liralab.it/wiki/Tactile_sensing_workshop_%40_Humanoids_%2709)
- 2009              Part of the initiator and organizer of the 1<sup>st</sup> Indonesian National Workshop on Students’ Nanosatellite Project, involving two guest lecturers from the Netherlands: the Delfi-C3/Delfi-n3Xt team, and ISIS B.V., and various lecturers from universities and governmental institutions in Indonesia  
<http://inspire.eepis-its.edu/news.php>
- 2008 – 2009      Part of the organizer of scientific colloquia among Indonesian students/scientists at Delft, the Netherlands
- 2005 – 2006      Coordinator/trainer of the “Pencak Silat” (Indonesian Traditional Martial Art) club in Delft and Rotterdam.
- 2001              Chairman of the “Zemi-On-Air Biotechnology” (Internet Seminar on Biotechnology) in Tokyo, Japan. An archive is available at <http://wwwstd.ryu.titech.ac.jp/~indonesia/zoa/index.html>  
 Responsibility included: Managing all submitted papers, organizing technical programs, and being the contact person for all correspondences.

#### AWARDS AND HONORS

- 2012              Silver Medal at the Malaysia Technology Expo 2012, 16-18 February 2012, Putra World Trade Centre, Kuala Lumpur, Malaysia; invention: “*Cloth-based Microfluidic Analytical Device Embedded in Sanitary Napkin for On-Site Urine Analysis*”. Team members: Dr. Dedy H.B. Wicaksono, Assoc. Prof. Dr. F. Adibah Abdul Majid, Azadeh Nilghaz, Norsamsiah Muhammad, Syed Mustafa Syed Azman.
- 2011              Gold Award at the 13<sup>th</sup> Industrial Art and Technology Exhibition (INATEX) 2011, 16-18 November 2011, Dewan Sultan Iskandar, UTM, Johor Bahru, Malaysia; invention: “*Cloth-based Microfluidic Analytical Device Embedded in Sanitary Napkin for On-Site Urine Analysis*”. Team members: Dr. Dedy H.B. Wicaksono, Assoc. Prof. Dr. F. Adibah Abdul Majid, Azadeh Nilghaz, Norsamsiah Muhammad, Syed Mustafa Syed Azman, Syazwani Abdul Jamil.
- 2011              Arifin Wardiman Best Paper Award at the 2<sup>nd</sup> International Conference on Instrumentation, Control and Automation, 15-17 November 2011, Bandung, Indonesia. Paper: “*Comparison of two sagittal pelvic tilt measurement protocols using newly calibrated novel pelvic sensor*”. Authors: Isniza Ismail, Aqilah Leela T. Narayanan, Dedy Hermawan Bagus Wicaksono.
- 2011              Bronze Prize in International Engineering Invention & Innovation Exhibition (i-ENVEX) 2011, 8-10 April 2011, Dewan 2020, Kangar, Perlis, Malaysia; invention: “*Microfluidics Cloth-based Analytical Devices*”. Team members: Nazirah Hanim Sharipudin, Nik Nur Zuliyana, Gan Hon Seng, Azadeh Nilghaz, Dedy H.B. Wicaksono.

- 2004 Best Flash Presentation Award at Semiconductor Advances for Future Electronics (SAFE) 2004, 25-26 November 2004, Veldhoven, The Netherlands.
- 2003 Best Flash Presentation Award at Semiconductor Advances for Future Electronics (SAFE) 2003, 25-26 November 2003, Veldhoven, The Netherlands.
- 2001 – 2002 *Yoneyama Rotary foundation* scholarship during master graduate study at Dept. of Biological Information, Tokyo Institute of Technology
- 1998 Best Student Scientific Paper at National Student Scientific Fair 1998, Semarang, Indonesia
- 1994 – 1995 Granted B.Sc. scholarships from Citibank Foundation Indonesia

## LIST OF PUBLICATIONS

### PATENT (1)

1. D.H.B. Wicaksono, Patrick J. French, Chikatoshi Maeda, Kazunori Kagawa, Hirohisa Onome, Eisaku Kakiuchi, *Infrared Sensor comprising a Golay Cell*, European patent application EP 2 060 891 A1, Date of publication: 20 May 2009, pp. 1-10

### REFEREED JOURNAL (6)

1. A. Nilghaz, D.H.B. Wicaksono, D. Gustiono, F.A. Abdul Majid, E. Supriyanto, and M.R. Abdul Kadir, *Flexible Microfluidic Cloth-based Analytical Devices Using Low-Cost Wax Patterning Technique*, Lab on a Chip, Vol. 12, no. 1 (2012), pp. 209-218. DOI:10.1039/C1LC20764D. **(IF = 6.260)**
2. F. Jutzi, D.H.B. Wicaksono, G. Pandraud, N. de Rooij, and P.J. French, *Far-infrared Sensor with LPCVD-Deposited Si-Rich Nitride Absorber Membrane, Part 1: Optical Absorptivity*, Sensors and Actuators A: Physical, Vol. A152-2 (2009), pp. 119-125. **(IF = 1.933)**
3. F. Jutzi, D.H.B. Wicaksono, G. Pandraud, N. de Rooij, and P.J. French, *Far-infrared Sensor with LPCVD-Deposited Si-Rich Nitride Absorber Membrane, Part 2: Thermal Property and Sensitivity*, Sensors and Actuators A: Physical, Vol. A152-2 (2009), pp. 126-138. **(IF = 1.933)**
4. D.H.B. Wicaksono, L.-J. Zhang, G. Pandraud, J.F.V. Vincent, and P.J. French, *Fly's Proprioception-inspired micromachined strain-sensing structure: idea, design, modeling and simulation, and comparison with experimental results*, Journal of Physics: Conference Series, **34** (2006), pp. 336-341. **(SCOPUS and ISI Indexed)**
5. D.H.B. Wicaksono, J.F.V. Vincent, G. Pandraud, G. Craciun, and P.J. French, *Biomimetic strain-sensing microstructure for improved strain sensor: fabrication results and optical characterization*. J. Micromech. Microeng. **15** (2005) S72–S81. **(IF = 2.276)**
6. D.H.B. Wicaksono, T. Ebihara, H. Funabashi, M. Mie, Y. Yanagida, M. Aizawa, and E. Kobatake, *On-Chip Biosensing of Estrogen Receptor- $\alpha$  at Single Molecular Level*. Biosensor and Bioelectronics **19** (2004). pp. 1573-1579. **(IF = 5.361)**

### BOOK CHAPTERS (2)

1. Dedy H.B. Wicaksono, Vijayekumar Rajaraman, and Patrick J. French, *Design of A Biologically-inspired Piezoresistive Strain-Sensing MEMS*, in MEMS Technology and Devices, Eds.: A. Liu, J. Wu, C. Lu & C.D. Reddy, Pan Stanford Publishing, Singapore, pp. 340-343, (total pages: 4), June 2007, ISBN 978-981-270-960-8, ISBN 981-270-960-6
2. Dedy H.B. Wicaksono, Yue Chen, Vijayekumar Rajaraman, Lukasz Pakula, and Patrick J. French, *On the Initial Design and Simulation of A Biologically-Inspired MEMS Gyroscope*, in MEMS Technology and Devices, Eds.: A. Liu, J. Wu, C. Lu & C.D. Reddy, Pan Stanford Publishing, Singapore, pp. 336-339, (total pages: 4), June 2007, ISBN 978-981-270-960-8, ISBN 981-270-960-6

### PHD THESIS (1)

Dedy H.B. Wicaksono, *Learning from Nature: Biologically-inspired Sensors*, total pages: 400+xvi, November 2008, ISBN 978-90-813316-3-0, available online at TU Delft Library's Repository: <http://repository.tudelft.nl/view/ir/uuid%3Aa3f4607b-efd7-4a91-a436-864a8c3eceb2/>

### PEER-REVIEWED INTERNATIONAL/NATIONAL CONFERENCE (42)

1. I. Ismail, A.L.T. Narayanan, and D.H.B. Wicaksono, *Comparison of two sagittal pelvic tilt measurement protocols using newly calibrated novel pelvic sensor*, accepted for presentation at the 2<sup>nd</sup> International Conference on Instrumentation, Control & Automation (ICA) 2011, November 15 – 17, 2011, Bandung Institute of Technology, Indonesia. **(SCOPUS Indexed)**.
2. A. Nilghaz, D.H.B. Wicaksono, and E. Supriyanto, *Simultaneous Multiple Assays on Microfluidic Cloth-based Analytical Devices*, accepted for presentation at the 2<sup>nd</sup> International Conference on Instrumentation, Control & Automation (ICA) 2011, November 15 – 17, 2011, Bandung Institute of Technology, Indonesia. **(SCOPUS Indexed)**.
3. A. Nilghaz, D.H.B. Wicaksono, and F.A. Abdul Majid, *Batik-inspired Wax Patterning for Cloth-based Microfluidic Device*, accepted for presentation at the 2<sup>nd</sup> International Conference on Instrumentation, Control & Automation (ICA) 2011, November 15 – 17, 2011, Bandung Institute of Technology, Indonesia. **(SCOPUS Indexed)**.
4. D.H.B. Wicaksono, E. Margallo-Balbás, G. Pandraud, P.J. French, P. Breedveld, and J. Dankelman, *Micro-Optics Assembly in Dental Drill as a Platform for Imaging and Sensing during Surgical Drilling*, in Proceedings of IEEE Sensors 2010, November 2010, Hawaii, USA, pp. 265-268. **(SCOPUS Indexed)**
5. M. Geljon, E. Margallo-Balbás, G. Pandraud, D.H.B. Wicaksono, and P.J. French, *Time-Domain Optical Coherence Tomography System with Integrated Delay Line for Surgical Guidance Applications*, in Proceedings of 32<sup>nd</sup> Annual Int'l Conference of the IEEE Engineering in Medicine and Biology Society (EMBS) 2010, August 31 - September 4, 2010, Brazil, pp. 3017-3020. **(SCOPUS Indexed)**
6. D.H.B. Wicaksono, F. Carta, P.J. French, and J. Dankelman, *Early feasibility study for MOMS-based Shear Stress Sensing in Dental Drilling*, in Proceedings of Semiconductor Advances for Future Electronics (SAFE) 2009, 26-27 November 2009, Veldhoven, the Netherlands, pp. 545-550.

7. D.H.B. Wicaksono, E. Margallo-Balbás, P. Breedveld, P.J. French, and J. Dankelman, *Integrated Sensor-Packaging Probe for Dental Drilling System: Design and Early Fabrication Results*, in Proceedings of Semiconductor Advances for Future Electronics (SAFE) 2009, 26-27 November 2009, Veldhoven, the Netherlands, pp. 556-560.
8. M. Abayazid, D.H.B. Wicaksono, J. Dankelman, and P.J. French, *Modeling heat generation and temperature distribution for temperature sensing during dental surgical drilling*, in Proceedings of Semiconductor Advances for Future Electronics (SAFE) 2009, 26-27 November 2009, Veldhoven, the Netherlands, pp. 1-10.
9. P.J. French, and D.H.B. Wicaksono, *Biomimetics: Learning from Nature to Make Better Sensors*, in Proceedings of the 24<sup>th</sup> Symposium on Microelectronics Technology and Devices SBMicro 2009, Eds. D. De Lima Monteiro, O. Bonnaud, N. Morimoto, *Electrochemical Society (ECS) Transactions*, Vol. 23 (1), Devices and Systems, pp. 193-202, August 31-September 3 2009, Natal, Brazil. **(SCOPUS Indexed)**
10. D.H.B. Wicaksono, G. Pandraud, C.K. Yang, J. Dankelman, and P.J. French, *Bio-inspired dome-shape SiO<sub>2</sub>/SiN membrane as strain-amplifying transducer*, in Proceedings of the Eurosensors XXIII 2009, 6-9 September 2009, Lausanne, Switzerland, *Procedia Chemistry*, **1** (2009) 770-773. **(SCOPUS Indexed)**
11. D.H.B. Wicaksono, F. Jutzi, G. Pandraud, and P.J. French, *Performance of miniaturized LPCVD-SiN-membrane-based 7-14 μm infrared thermal detector: analytical, modelling, and experimental study*, in Proceedings of IEEE Sensors 2008, pp. 498-501, Lecce, Italy, 26-29 October 2008. **(SCOPUS Indexed)**
12. D.H.B. Wicaksono, F. Jutzi, G. Pandraud, N. de Rooij, and P.J. French, *Optical and Thermal Properties Investigation of Si-rich Nitride Membrane for Bio-inspired Far Infrared Sensor Application*, in Proceedings of the 4<sup>th</sup> Asia Pacific Conference on Transducers and Micro/Nano Technologies (APCOT 2008), pp. 397-400, Taiwan, 22-25 June 2008.
13. D.H.B. Wicaksono, F. Jutzi, G. Pandraud, and P.J. French, *Optical Absorptivity of LPCVD SiN membrane in 8-14 μm wavelength region for far infrared sensor application*, in Proceedings of Indonesian Students' Scientific Meeting (ISSM) 2008, pp. 163-167, Delft, the Netherlands, 13-15 May 2008.
14. D.H.B. Wicaksono, F. Jutzi, G. Pandraud, and P.J. French, *Thermal Property of LPCVD SiN membrane for far infrared sensor application*, in Proceedings of Indonesian Students' Scientific Meeting (ISSM) 2008, pp. 168-173, Delft, the Netherlands, 13-15 May 2008.
15. F. Jutzi, D.H.B. Wicaksono, G. Pandraud, and P.J. French, *Optical Absorptivity and Thermal Property of LPCVD-Deposited Low-Stress Si-Rich Nitride Membrane for Far-Infrared Sensor*, in Proceedings of Semiconductor Advances in for Future Electronics (SAFE) 2007, pp. 482-487, Veldhoven, The Netherlands, 29-30 November 2007.
16. D.H.B. Wicaksono, Y. Chen, and P.J. French, *Design and Modelling of a Bio-inspired MEMS Gyroscope*, in Proceedings of the International Conference on Electrical Engineering and Informatics 2007, pp. 226-229, Bandung, Indonesia, 17-19 June 2007
17. D.H. B. Wicaksono, G. Pandraud, L. Pakula, V. Rajaraman, J.F.V. Vincent, and P.J. French, *A Dome-Shape Bio-inspired Piezoresistive MEMS Strain Sensor*, in Proceedings of the International Conference on Electrical Engineering and Informatics 2007, pp. 464- 467, Bandung, Indonesia, 17-19 June 2007
18. Y. Chen, D.H.B. Wicaksono, L. Pakula, V. Rajaraman, and P.J. French, *Modelling, Design and Fabrication of A Bio-inspired MEMS Vibratory Gyroscope*, in Proceedings of Semiconductor Advances in for Future Electronics (SAFE) 2007, pp. 572-576, Veldhoven, The Netherlands, 29-30 November 2007.
19. Y. Chen, D.H.B. Wicaksono, L. Pakula, V. Rajaraman, and P.J. French, *Modelling, Design and Fabrication of A Bio-inspired MEMS Vibratory Gyroscope*, Proceedings of 18<sup>th</sup> Workshop on Micromachining, Micromechanics and Microsystems Europe 2007 (MME 2007), pp. 1-4, Guimares, Portugal, 16-18 September 2007.
20. Y. Chen, D.H.B. Wicaksono, and P.J. French, *Early Stages on Design and Simulation of A Silicon Bio-inspired MEMS Vibratory Gyroscope*, in Proceedings of Sense of Contact (SoC) 2007, in Zeist, the Netherlands, 4 April 2007.
21. D.H.B. Wicaksono, N. Gharbage, L-J. Zhang, Y. Chen, and P.J. French, *Influence of Structural Parameters on Stress/Strain Amplification Property of Biomimetics Membrane-In-Recess Si Microstructure*, in Proceedings of Semiconductor Advances in for Future Electronics (SAFE) 2006, in Veldhoven, The Netherlands, 23-24 November 2006.
22. Y. Chen, D.H.B. Wicaksono, L-J. Zhang, J.F.V. Vincent, and P.J. French, *Strain-Amplifying Property of Bioinspired Membrane-in-Recess Microstructure: Analytical Modelling*, in Proceedings of Semiconductor Advances in for Future Electronics (SAFE) 2006, in Veldhoven, The Netherlands, 23-24 November 2006.
23. Y. Chen, D.H.B. Wicaksono, L-J. Zhang, and P.J. French, *Preliminary Study on the Design of a Silicon Bio-inspired MEMS Gyroscope*, in Proceedings of Semiconductor Advances in for Future Electronics (SAFE) 2006, in Veldhoven, The Netherlands, 23-24 November 2006.
24. D.H.B. Wicaksono, L-J. Zhang, N. Gharbage, Y. Chen, J.F.V. Vincent, and P.J. French, *Numerical Modelling of Biomimetics Strain-Sensing Microstructure*. In Proceedings Eurosensors XX, T2B-P13, pp. 1-4, Göteborg, Sweden, 17-20 September 2006.
25. D.H.B. Wicaksono, G. Pandraud, G. Craciun, and P.J. French, *Size-dependency of cryo-icp-etching-based process for the fabrication of biomimetic membrane-in-recess microstructure*. In Proceedings of Eurosensors XIX, pp. 1-4, Barcelona, Spain, 11-14 September 2005.
26. G. Pandraud, D.H.B. Wicaksono, L. Hebrard, A.J.L. Adam, and Patrick J. French, *Induced Coupled Plasma Deep Reactive Ion Etching Based Sensors*, in Proceeding of the 16<sup>th</sup> MicroMechanics Europe (MME) Workshop, pp. 68-71, Göteborg, Sweden, 4-6 September 2005.
27. D.H.B. Wicaksono, G. Pandraud, and P.J. French, *Image Processing and Interpretation for Optical Characterisation of Biomimetic Mechanical-Strain-Sensing Microstructure*, in Proceeding of International Conference on Instrumentation, Communication, and Information Technology (ICICI) 2005, pp. 341-346, Bandung, Indonesia, 3-5 August 2005.
28. G. Pandraud, D.H.B. Wicaksono, P.J. French, and P.M. Sarro, *Compact Building Blocks for Optical Sensing on PECVD SiC Technology*, in Proceeding of International Conference on Instrumentation, Communication, and Information Technology (ICICI) 2005, pp. 453-458, Bandung, Indonesia, 3-5 August 2005
29. D.H.B. Wicaksono, G. Pandraud, and P.J. French, *Simple Optical Characterisation for Biomimetic Micromachined Silicon Strain-sensing Structure*. In Proceeding of International Conference on Experimental Mechanics (ICEM), [Proc. SPIE Vol. 5852](#), PART II, art. No. 124, 2005, p. 788-795, 29 November – 1 December 2004, Singapore. **(SCOPUS Indexed)**
30. D.H.B. Wicaksono, G. Pandraud, J.F.V. Vincent, and P.J. French, *Early stages fabrication and optical characterisation of new micromachined silicon strain-sensing structures inspired from the campaniform sensillum of*

- insects*. In Proceeding of Semiconductor Advances for Future Electronics (SAFE), pp. 787-792, Veldhoven, The Netherlands, 25-26 November 2004.
31. D.H.B. Wicaksono, G. Pandraud, G. Craciun, J.F.V. Vincent, and P.J. French, *Fabrication and Initial Characterisation Results of A Micromachined Biomimetic Strain Sensor inspired from the Campaniform Sensillum of Insects*. in Proceeding of IEEE Sensors 2004, pp. 542-545, Vienna University of Technology, Vienna, Austria, 24-27 October 2004. **(SCOPUS Indexed)**
  32. D.H.B. Wicaksono, G. Pandraud, G. Craciun, J.F.V. Vincent, and P.J. French, *Fabrication Results and Qualitative Optical Characterisation of a New Type Biomimetic Strain-Sensing Microstructures*. In Proceeding of 15<sup>th</sup> Micromechanics Europe Workshop (MME), pp. 80-83, Leuven, Belgium, 5-7 September 2004.
  33. D.H.B. Wicaksono, G. Pandraud, G. Craciun, J.F.V. Vincent, and P.J. French, *Design and Early Stages-Fabrication of New Biomimetic Strain-sensing Microstructures*, in Proceeding Seminar Instrumentasi Berbasis Fisika II (2<sup>nd</sup> Physics-based Instrumentation Seminar), pp. 57-62, Bandung, Indonesia, 22-23 July 2004.
  34. D.H.B. Wicaksono, G. Pandraud, G. Craciun, W. A. van Duyl, J.F.L. Goosen, J.F.V. Vincent and P.J. French, *Design and Preliminary Fabrication of a new micromachined silicon strain sensor based on the Campaniform Sensillum of Insects*. In Proceedings of Asia Pacific Conference of Transducers and Micro- Nano- Technology (APCOT MNT) 2004, Vol. 3-1, pp. 437-442, Sapporo, Japan, 4-7 July 2004.
  35. D.H.B. Wicaksono, W.A. van Duyl, J.F.V. Vincent, and P.J. French, *Preliminary Study on the Design of a New Micromachined Silicon Strain Sensor based on the Campaniform Sensillum of Insects*. In Proceeding of Semiconductor Advances for Future Electronics (SAFE), pp. 721-725, Veldhoven, The Netherlands, 25-26 November 2003.
  36. D.H.B. Wicaksono, T. Ebihara, M. Mie, Y. Yanagida, E. Kobatake, and M. Aizawa, *Assay of DNA-binding Protein Bound to Streptavidin-labeled DNA Probe by AFM Imaging: Principles with Application in Solution-based Assay and On-Chip Biosensing*. In Proceedings Indonesian Students' Scientific Meeting (ISSM) 2003, pp. 117-124, Delft, The Netherlands, 9-10 October 2003.
  37. D.H.B. Wicaksono, *Molecular Nano-biotechnology with Emphasis on Utilisation of DNA and AFM for Assay System: A Review*. In Proceedings of Indonesian Students' Scientific Meeting (ISSM) 2003, pp. 125-129, Delft, The Netherlands, 9-10 October 2003.
  38. D.H.B. Wicaksono, et al., *AFM single molecular biosensing of DNA-binding protein using designed DNA probe pin-holed with streptavidin at its end*, in Abstract Proceedings of Biosensors 2002, Kyoto, Japan, 15-17 May 2002.
  39. E. Kobatake, D.H.B. Wicaksono, H. Funabashi, M. Mie, and M. Aizawa, *Single Molecular Detection of Transcription Factor Bound to DNA-probe by AFM*, in 2004 Joint International Meeting of 206<sup>th</sup> Meeting of the Electrochemical Society, Inc., and 2004 Fall Meeting of The Electrochemical Society of Japan, Symposium AC1- Bioelectrochemistry, Biosensor, and Biodevice Technology, Organic and Biological Electrochemistry / Sensor, Honolulu, Hawaii, , October 3-8, 2004. **(SCOPUS Indexed)**
  40. E. Kobatake, D.H.B. Wicaksono, M.Mie, Y. Yanagida, M. Aizawa. *AFM-based DNA-binding-protein Biosensing System*, in Japanese, in Japan Electrochemical Society Symposium on Biological Science and Electrochemistry, in Tokyo Institute of Technology, Oo-okayama, Tokyo, Japan, 1-3 of April 2003.
  41. Eiry Kobatake, D.H.B. Wicaksono, Masayasu Mie, Yasuko Yanagida, Masuo Aizawa, *On-Chip Biosensing of Estrogen Receptor at Single Molecular Level by AFM*, International Symposium on Fusion of Nano and Bio Technologies (FNB 2003), Tsukuba, Japan, 9-10 March 2003.
  42. H. K. Dipojono, A. Nuruddin, D.H.B. Wicaksono, and Nugraha, *Development of thin film SnO gas sensor for CO detection*, in National Conference on Material Science III, Jakarta, Indonesia, September 20-22, 1998.

#### EXTERNAL REPORTS TO COMPANIES/INDUSTRIES OR THIRD PARTIES (13)

1. Eduardo Margallo-Balbás, and Dedy H.B. Wicaksono, *Sensory Feedback for Surgical Drilling: Intermediate Report on Project Status*, External report to STW, Delft: EI Lab and Dept. of Biomechanical Engineering, Delft University of Technology, 24 November 2009.
2. Eduardo Margallo-Balbás, and Dedy H.B. Wicaksono, *Sensory Feedback for Surgical Drilling: Intermediate Report on Project Status*, External report to STW, Delft: EI Lab and Dept. of Biomechanical Engineering, Delft University of Technology, 21 April 2009.
3. Eduardo Margallo-Balbás, and Dedy H.B. Wicaksono, *Sensory Feedback for Surgical Drilling: Intermediate Report on Project Status*, External report to STW, Delft: EI Lab and Dept. of Biomechanical Engineering, Delft University of Technology, 23 September 2008.
4. D.H.B. Wicaksono, and P.J. French, *Modelling of Bio-inspired IR Sensor*, External Report to Toyota Motor Europe. Delft: EI Lab., Delft University of Technology. 7th December 2007
5. D.H.B. Wicaksono, P.J. French, *Learning from Nature*, External report to STW (DEL. 6050). Delft: EI Lab, Delft University of Technology. November 2007
6. D.H.B. Wicaksono, and P.J. French, *Summary of Progress and Plan Biomimetic Far Infrared Sensor*, External Report to Toyota Motor Europe. Delft: EI Lab., Delft University of Technology. 12th October 2007
7. F. Jutzi, D.H.B. Wicaksono, and P.J. French, *Short Progress Status Report Bio-inspired MEMS Far-Infrared Sensor for Night Vision Application*, for Toyota Motor Europe, External Report to Toyota Motor Europe. Delft: EI Lab., Delft University of Technology. 24th July 2007
8. D.H.B. Wicaksono, P.J. French, *Learning from Nature*, External report to STW (DEL. 6050). Delft: EI Lab, Delft University of Technology. April 2007
9. D.H.B. Wicaksono, and P.J. French, *The Design and Modelling of Bio-inspired Cheap MEMS Far Infrared Sensor (FIR) For Night Vision Application*, 1st Term Report on Second-Step Project for Toyota Motor Europe, External report to Toyota Motor Europe. Delft: EI Lab., Delft University of Technology. 28th February 2007
10. D.H.B. Wicaksono, D. Tanase, P.J. French, *Learning from Nature*, External report to STW (DEL. 6050). Delft: EI Lab, Delft University of Technology. March 2006.
11. D.H.B. Wicaksono, and P.J. French, *Feasibility Study for the Design and Development of Bio-inspired Small and Inexpensive Far Infrared Sensor for Night Vision Application*, External Report to Toyota Motor Company Europe, 35 pages, Delft, February 2006.
12. D.H.B. Wicaksono, D. Tanase, P.J. French, *Learning from Nature*, External report to STW (DEL. 6050). Delft: EI Lab, Delft University of Technology. 2005.

13. D.H.B. Wicaksono, D. Tanase, P.J. French, *Learning from Nature*, External report to STW (DEL. 6050). Delft: EI Lab, Delft University of Technology. 2004.

#### INVITED (SCIENTIFIC) TALKS (4)

1. A. Nilghaz, G.O.F. Parikesit, F.A. Abdul Majid, and D.H.B. Wicaksono, *Cloth as a Flexible Platform for Low-Cost Microfluidic Colorimetric Assay*, in ACIKITA International Conference of Science & Technology (AICST), Jakarta, Indonesia, 26-27 July 2011.
2. D.H.B. Wicaksono, *System of Education and Tips to Continuing Studies to Holland*, in ACIKITA Educational Seminar, Jakarta, Indonesia, 25 July 2011.
3. D.H.B. Wicaksono and P.J. French, *Learning from Nature: Biologically-inspired Microsensors*, in Sense of Contact, in Zeist, the Netherlands, 9 April 2008.
4. D.H.B. Wicaksono et. al., *Influence of Structural Parameters on Stress/Strain Amplification Property of Biomimetics Membrane-In-Recess Si Microstructure*, Semiconductor Advances in for Future Electronics (SAFE) 2006, in Veldhoven, The Netherlands, 23-24 November 2006.

#### SCIENTIFIC LECTURES/TALKS/POSTER (10)

1. D.H.B. Wicaksono, *A sensible world: a dream or a reality*, in Guest Lecture at the Dept. of Engineering Physics, Institut Teknologi Bandung (ITB), Bandung, Indonesia, 3<sup>rd</sup> December 2010.
2. D.H.B. Wicaksono, *A sensible world: a dream or a reality*, in Guest Discussion at the Dept. of Engineering Physics, Gadjah Mada University, Yogyakarta, Indonesia, 1<sup>st</sup> December 2010.
3. D.H.B. Wicaksono, *Aspek Pemodelan dalam Desain Sensor (Modelling Aspect in Sensor Design)*, in long-distance lecture to students of the Department of Mathematics, Faculty of Science and Mathematics, Universitas Pelita Harapan, Tangerang, Indonesia, 4 May 2009.
4. D.H.B. Wicaksono, et al., *Design of an Integrated Sensor-Packaging Probe for Dental Drilling System*, in 2<sup>nd</sup> Dutch Conference on Bio-Medical Engineering (Dutch BME), in Egmond aan Zee, the Netherlands, 22-23 January 2009.
5. D.H.B. Wicaksono, *Learning from Nature: Biologically-inspired Microsensors*, in long-distance lecture to students of the Department of Electrical Engineering, Faculty of Industrial Technology, Universitas Pelita Harapan, Tangerang, Indonesia, 13 May 2008.
6. D.H.B. Wicaksono et. al., *Insect's Proprioception-Inspired Strain Sensor: From Concepts to Implementation*. In Sense of Contact 8, Wageningen, The Netherlands, 28 March 2006.
7. *Biologically-Inspired (Biomimetic) Sensors and Sensing Systems*. In Guest-Lecture at Electronics Polytechnics Institut Teknologi Sepuluh Nopember Surabaya (EEPIS-ITS), Surabaya, Indonesia, 8 August 2005.
8. *Biologically-Inspired (Biomimetic) Sensors and Sensing Systems*. In Half-day Seminar at Dept. of Engineering Physics, Institut Teknologi Bandung (ITB), Bandung, Indonesia, 4 August 2005.
9. *Semiquantitative Modelling of a Biomimetic Micromechanical Structure's Optical Characterisation Results based on Ideal Fabry-Perot Interferometer Equation*. In Indonesian Applied Mathematics Society in Nederland (IAMS-N) Meeting, Delft, The Netherlands, 21 October 2004.
10. *Dissemination and Utilization of Scientific Informations from Indonesian Scientists Overseas for Broad Non-Scientific Communities in Indonesia*. Indonesian Students' Scientific Meeting (ISSM) 2003, Delft, The Netherlands, 9-10 October 2003.

#### POPULAR SCIENCE ARTICLE (6)

1. Chemistry World, 17 November 2011, "A lab you can wear?", written by Tamsin Phillips, (<http://www.rsc.org/chemistryworld/News/2011/November/17111102.asp>)
2. MaterialsToday.com, 24 November 2011, "Microfluidic device prints wax directly onto cotton", written by Laurie Donaldson, (<http://www.materialstoday.com/view/22266/microfluidic-device-prints-wax-directly-onto-cotton/>)
3. Article about thesis, in TU Delta (<http://www.delta.tudelft.nl/nl/archief/artikel/insecten-staan-model-voor-microsensoren/18632>) and Engineers Online (<http://www.engineersonline.nl/MBM/engineers.nsf/htmlViewDocuments/3F024B9744A8D561C12574FE007ED44C>)
4. Article in KIJK June 2009, "Met Dank aan de WESP", written by Rowdy Blokland
5. Dedy H.B. Wicaksono, *Belajar dari Thailand dalam Pengembangan Studi Nanoteknologi* (English: Learning from Thailand in Nanotechnology's Research and Development), in <http://netsains.com/2008/03/belajar-dari-thailand-dalam-pengembangan-studi-nanoteknologi/> (Indonesia's popular science site), 29 March 2008
6. Dedy H.B. Wicaksono, *Nanoteknologi, Antara Impian dan Kenyataan* (English: Nanotechnology, between dreams and reality), in Pikiran Rakyat (Indonesia's West Java's main Newspaper), 10 July 2003.

#### OTHER SCIENTIFIC CONTRIBUTIONS: REVIEWER/COMMITTEE, ETC.

1. Peer Reviewing for submitted papers to the journal Sensors and Actuators A: Physical
2. Member of International Program Committee (IPC) of the 2<sup>nd</sup> International Conference on Instrumentation, Control & Automation (ICA) at Bandung, Indonesia, November 15-17, 2011, organized by The Instrumentation and Control Research Group of the Faculty of Industrial Technology, Bandung Institute of Technology (ITB), Indonesia.
3. Member of International Scientific Committee of ACIKITA International Conference on Science and Technology (AICST), Jakarta, Indonesia, July 26-27, 2011.
4. Reviewer for the 2010 Design of Medical Devices Conference DMD2010, April 13-15, 2010, Minneapolis, MN, USA.
5. Member of Programme Committee of the Workshop on "Tactile Sensing in Humanoids – Tactile Sensors and beyond" at Pierre and MarieCurie University, Paris, France, 7 December 2009, organized by Italian Institute of Technology, Genoa, Italy. Website: [http://eris.liralab.it/wiki/Tactile\\_sensing\\_workshop\\_@\\_Humanoids\\_'09](http://eris.liralab.it/wiki/Tactile_sensing_workshop_@_Humanoids_'09)
6. Writing and editing an upcoming book, entitled "Learning from Nature: Biologically-inspired Sensors", based on chapters from own thesis, as well as invited chapter contributions from well-known experts in bio-inspired sensors. Expected publication: April 2010.

## RESEARCH PROJECTS AND GRANTS (6)

1. Dutch *Stichting voor Technologische Wetenschap* (STW) DEL. 6050, "Learning from Nature", 2003-2008, as Project Researcher (PhD Research Assistant), Project Leader: Prof. P.J. French, Delft University of Technology.
2. Dutch *Stichting voor Technologische Wetenschap* (STW) 07505, "Sensory Feedback for Surgical Drilling", 2008-2010, as Project Researcher (Post-doctoral Researcher), Project Leader: Prof. dr. P.J. French, Delft University of Technology
3. Toyota Motor Europe, "Bioinspired Infrared Sensor for Automotive Night Vision", 2006-2008, as Project Researcher, Project Leader: Prof. dr. P.J. French, Delft University of Technology
4. FAVF (Foreign Academic Visiting Fund) Vot. R.J130000.7736.4D004, "Characterisation of Multi Degrees of Freedom (DOF) Bio-inspired Inertial Sensor for Medical Surgery Guidance Application", 1 February 2011 – 31 January 2012, as Project Leader, Universiti Teknologi Malaysia, RM 30,000.00
5. GUP/RUG Tier 1 (Research University Grant) Vot. Q.J130000.7136.01H65, "Development of Novel Top-Down Manufacturing Methods for Textile-Based (Bio)Medical Micro-/Nano- Devices", 1 April 2011 – 31 March 2013, as Project Leader, Universiti Teknologi Malaysia, RM 129,000.00
6. FRGS (Fundamental Research Grant Scheme) Vot. No. Q.J130000.7836.4F099, "Micromechanical Behaviour of Campaniform Sensillum and Its Mimetic Structure for Biomedical Sensor", 1 July 2011 – 30 June 2013, as Project Leader, from Ministry of Higher Education Malaysia (MOHE), RM 189,600.00

## STUDENT SUPERVISORY (18)

**PHD:** 3 STUDENTS

**MASTER:** 9 STUDENTS (4 COMPLETED)

**UNDERGRADUATE:** 3 STUDENTS

**INTERNSHIP:** 3 STUDENTS

1. Nawale Gharbage, Internship Student, Summer 2006
2. Yue Chen, Master Student, 2006-2007
3. Fabio Jutzi, Master Student, 2007-2008
4. Fabio Carta, Internship student, Summer 2009
5. Momen Abayazid, Master Student, 2009-2010
6. Xiaojun Zhang, Master Student, 2009-2010
7. Azadeh Nilghaz, Master Student, 2010-2012
8. Ankur Agrawal, Internship student, 2011
9. Isniza Ismail, Master Student, 2011-...
10. Norshamsiah Muhammad, PhD Student, 2011-...
11. Raziah Esa, PhD Student, 2011-...
12. Abdul Azis, Master Student, 2011-...
13. Syazwani Abdul Jamil, Master Student, 2011-...
14. Sahba Sadir, PhD Student, 2011-...
15. Syed Mustafa Syed Azman, Master Student, 2011-...
16. Yuen Aoi Chee, Undergraduate Student, 2011-2012
17. Zuliyana Mohd. Rajdi, Undergraduate Student, 2011-2012
18. Nazirah Hanim Sharipudin, Undergraduate Student, 2011-2012 (co-supervision)

## SUBJECTS / COURSES TAUGHT

1. Concept of Technology
2. Bahasa Indonesia
3. Bio-inspired Sensors
4. Biomechanics

## COURSES AND WORKSHOP ATTENDED

2003	Smart Sensor Systems 2003, organized by Electronic Instrumentation (EI) Lab., Delft Institute of Microelectronics and Submicron Technology (DIMES), TU Delft, The Netherlands.
2003	Integrated Circuit Fabrication Technology, organized by ECTM Lab., Delft Institute of Microelectronics and Submicron Technology (DIMES), TU Delft, The Netherlands.
2003	Applied I-line Lithography, organized by ECTM Lab., Delft Institute of Microelectronics and Submicron Technology (DIMES), TU Delft, The Netherlands.
2004	Tutorial on various Sensor-related topics at IEEE Sensors 2004, Vienna, Austria, organized by IEEE Sensors Council, and Vienna Technical University.
2005	DIMES & DCMM Summer Course 2005: Oil in the Clean room 'Bringing together Microsystems and Mechatronics'.
2005	TOP-Training: Training in Orientation and Personal qualities, organized by MoTiv, Delft.
2006	Advanced Modeling Features Course, organized by COMSOL B.V., Netherlands.
2007	Ipecunia Patent/Chainnovation Course on IP-Valorisation, organized by NanoNed and Ipecunia B.V.
2007	1st e-CUBES Summer School on 3-D Integrated Micro/Nano Modules for Easily Adapted Applications, Uppsala, Sweden, organized by e-CUBES and Uppsala University, Sweden.
2008	Tutorial on various Sensor-related topics at IEEE Sensors 2008, Lecce, Italy, organized by IEEE Sensors Council.
2008	INTEGRAMM Plus short-course on MEMS design and fabrication.
2009	Eurosensors 2009 School with courses on Micro-optics, RF-MEMS, Scaling effect, and micro-fluidics.
2011	Publication Workshop by Professor Diego Mantovani