Kirkpong Kiatpanichagij

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EDUCATION :

Asian Institute of Technology Pathumthani
Studying for doctoral degree in Mechatronics Engineering Thesis : "Micro sensor Design and Neural Classification Technique for Muscle EMG Signal Detection and Classification", from January 2004 till present.

Asian Institute of Technology Pathumthani
M.Eng. in Mechatronics Engineering, November 2003. With excellent thesis : "A neural network based prosthetic hand controller using the muscle EMG", King's Scholarship for Education of Asia provided by the Office of the National Education Commission, Thailand, 2002. GPA 3.82/4.00 with The Werner von Siemens Excellence Award

Chiang Mai University Chiangmai
B.Eng. (HONS.) in Electrical Engineering, February 1999. Thesis: "A Development of Control of Switched-Reluctance Motor" supported by National Science and Technology Development Agency (NSTDA), GPA 3.49/4.00 (2nd class honors).

RESEARCH INTERESTS :

Bioelectric signal classification, machine vision, artificial neural network and fuzzy logic system.

PUBLICATIONS :

- Kiatpanichagij, K. & Afzulpurkar, N., **"Automated visual inspection for contamination detection in electronic industry",** The 16th DAAAM International Symposium "Intelligent Manufacturing & Automation: Focus on Young Researchers and Scientists ", 19-22nd October 2005, Opatija, Croatia.
- Kiatpanichagij, K. & Afzulpurkar, N., **"EMG signal application development",** The 16th DAAAM International Symposium "Intelligent Manufacturing & Automation: Focus on Young Researchers and Scientists ", 19-22nd October 2005, Opatija, Croatia.
- Kiatpanichagij, K. & Afzulpurkar, N. V.(2006). **Automated visual inspection for contamination detection in electronic industry**, Chapter 27 in DAAAM International Scientific Book 2006, B. Katalinic (Ed.), Published by DAAAM International, ISBN 3-901509-47-X, ISSN 1726-9687, Vienna, Austria.
- Kirkpong Kiatpanichagij and Nitin V. Afzulpurkar, "**Automated visual inspection for contamination detection in electronic product**", 29th Electrical Engineering Conference (EECON-29), Pattaya, Thailand, 9-10th November 2006.

EXPERIENCES :

- *Test engineer* of Thai NJR Co., Ltd. (ICs assembly factory) for 2 years from April 1999 to April 2001. Prepared and repaired ICs testing system, i.e. programs, testers, test heads and other hardware. Was responsible for managing and implementing calibration of all measurement equipment in a factory. Also analyzed and disposed low-yielded and rejected products.
- *Researcher* of Premier TDO Co., Ltd. (R&D company) for 1 year from April 2001 to February 2002. Conducted researches on a design of low cost 3-phase inverter for 3-phase induction motor speed control, Power Factor Correction (PFC) circuit and EMI filter for an inverter. Also, wrote micro-controller programs to support other projects.
- *Freelance author* of Semiconductor electronics magazine of SE-EDucation Public Co., Ltd. since March 2003 in total of 15 articles e.g. principle of 3-phase inverter, Power Factor Correction, 3 articles about basic electronics circuit etc.
- *Instructor and Teaching Assistance* at Sirindhorn International Institute of Technology (SIIT) from June 2004 to December 2005. Conducted laboratory classes of C programming and scored students' homework and assignments.
- *Trainer* of "Machine Vision System" training project from the middle of 2005 to the end of 2006. Preparing the training materials and conducting laboratory sessions. The training was separated into 5 batches and each batch contains 20 trainees and takes 5 training days. The training purposes are to introduce the structure of machine vision system and also provide hand-on experiences to the trainees.
- *Freelance programmer* since January 2004, when is the starting time of my study for Doctoral degree. The works can be detailed as following.
    1. A program for calculating and rendering curves and surfaces from control points contained in IGES (Initial Graphics Exchange Specification) files. The program was implemented by Borland C++ builder. It utilized OpenGL library and knowledge of NURBS. This task was hired by 5-Axis (Thailand) research group (http://www.5axis-thai.com/).
    2. An "Ant Colony System" (ACS-the superior version of Ant System, AS) console program by Microsoft Visual C++ for solving Multi Depots Vehicle Routing Problem with Time Window constraint (MDVRPTW). The program was designed to solve the logistic problem, which there are many depots, large number of customers which have different demand of service, different demand of goods and different time window constraint. The optimized function is the total distance of all vehicles.
    3. Leader of programmers Conducted another two programmers to write a program used for automated visual inspection system. The program was implemented by Borland C++ Builder. This project was funded by NECTEC and 3 HDD manufacturers, i.e. Seagate Technology (Thailand) Ltd., Western Digital (BangPa-In) Company Limited and Hitachi Global Storage Technologies (Thailand) Company Limited. The program was designed to inspect different products of each company. It employs knowledge of digital image processing, visual inspection, computer graphics and camera interfacing. The NECTEC project number of this work is NT-B-22-E8-36-48-03.
    4. Color inspection program. This program is used to inspect contamination of mono color fabric. The user can teach the system about the type of contamination. It utilizes digital image processing and 3-layer feed forward artificial neural network knowledge.
    5. A program for optimizing plant parameters (In progress). In this program, there are 2 important operations e.g. plant modeling and selecting the parameters. A 3-layer feed forward artificial neural network was used to model a plant. The multi objectives particle swarm optimization (MOPSO) was used to select the plant parameters according to the required output.

TECHNICAL SKILLS :

- Power electronics for motor speed control, especially 3-phase induction motor and switched reluctance motor.
- Micro-controller : MCS-51 series and Motorola MC68HC908JL3, MC68HC908JK3 and 68HC11 series.
- Artificial Neural Network by C++ programming.
- Fuzzy logic classification by C++ programming.
- Machine vision and inspection system by C++ programming.

COMPUTER SKILLS :

Borland C++ Builder, Microsoft Visual C++, Microsoft Visual Basic, Borland Delphi, MATLAB, Protel for electronics circuit simulation, PC-based data acquisition, Computer Graphic by OpenGL and Microsoft Office.

TRAININGS :

- **"The calibration for ISO 9000"** by National Institute of Metrology (Thailand), July 1999.
- **"The uncertainty of measurement"** by National Institute of Metrology (Thailand), July 1999.
- **"LabVIEW Basic 1: Introduction"** May 2006.

REFERENCES :

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Faculty of Engineering,
Chiang Mai University
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Dr. Nitin V Afzulpurkar
Coordinator, Industrial Systems
Engineering Program and
Microelectronics Program,
Asian Institute of Technology
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PERSONAL INFORMATION :

Date of birth	:	19 July 1977
Height	:	172 cm
Weight	:	87 kg
Marital status	:	Single
Military status	:	Exempted