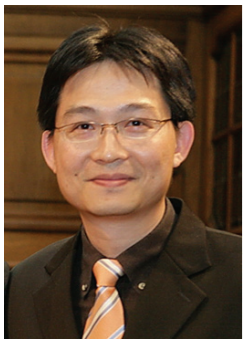
1-10-2010

CURRICULUM VITAE



TANG, Hsiao-Wei, PhD

Taiwanese Nationality

Date of birth: Tainan, Taiwan, February 17th, 1973

Married with HSIAO, Hsiu-Shan

2 children (Ryan 2006, Riley 2008)

Email: tanghsiaowei@gmail.com Tel: +32 485377102

Hertogstraat 141/503 3001 Heverlee Belgium

Education

2000~2006 **Doctor in Engineering**
Promoter: Prof. Hendrik Van Brussel
Department of Mechanical Engineering
Katholieke Universiteit Leuven, Belgium

1998~2000 **Doctoral Program/ PhD Candidate**
Supervisor: Prof. Ming-Shaung Ju and Prof. Fong-Chin Su
Institute of Biomedical Engineering
National Cheng-Kung University, Taiwan

1991~1995 **Bachelor Degree**
Department of Mechanical Engineering
National Cheng-Kung University, Taiwan

Employment History

2006~now **Post Doc, Robot assisted surgery group, K.U.Leuven, Belgium**

*Job responsibilities

My major task is to coordinate the interdisciplinary program 'Intelligent control of a surgical laser manipulator provided with an intuitive human-machine interface and vision processing.' This program is the extension of my PhD work and paves the foundation of startup of 'VESALIUS Robot- a seed for the future'. The total funding is 550,000 euro for 4 years.

*Brief details of project

The project aims at developing a generic technology for intelligent robotic surgery. To achieve this goal, a number of underlying technologies will be developed and integrated: a robotised laparoscope with five degrees of freedom, an intuitive user interface based on writing, an endoscopic 3D vision system with image processing algorithms and an autofocus facility. Clinical evaluation will be carried out along with developing appropriate surgical procedures.

*Achievements

1.Patent application for Remote Center of Motion
2.Design and build the complete VESALIUS Robot
3.Initiate and execute VESALIUS Robot startup project
4.VESALIUS camera holder robot animal test
5.'Best commercial business plan' award in 2010 Start Academy
6. Exhibition in ICT 2010 Brussels
7. 13 market interviews with surgeons from 7 different hospitals
8. 'Glory of Taiwan' reported by Central News Agency

9. ViKYLase system implementation with ViKY camera holder robot of Endo Control

*Reporting relationships

I report the progress to Prof. Hendrik Van Brussel in engineering and Prof. Philippe Koninckx in medicine.

*Appointments

1. CEO, VESALIUS Robot startup project (2009.3~2010.8)
2. Inventor, VESALIUS Robot (2009.3~)
3. Coordinator, Laser Surgical Robot Task Force (2008.1~2009.3)

2003~2007 **Part time assistant, Science division Taipei Representative Office to EU, Brussels, Belgium**

*Job responsibilities

I am working as an assistant to the Director General to promote the EU-Taiwan R&D cooperation platform.

*Job descriptions

1.Information collection and analysis of major EU FP6/FP7 and R&D institutes

2.Matchmaking with Taiwanese national scale projects and R&D teams

3.Organizing scientific and high level meetings with EU partners to facilitate cooperation

4.Editing monthly newsletter to disseminate EU R&D to Taiwanese audiences

*Reporting relationships

I report directly to Dr. Joseph HSU, Director General of Science division

*Appointments

Coordinator, EU-Taiwan Sci-Tech newsletter

2000~2005 **Research assistant Laser Laparoscopic Surgical Robot (LLSR), K.U.Leuven, Belgium**

*Job responsibilities

I am in charge of the development and clinical evaluation of the Laser Laparoscopic Surgical Robot (LLSR) system

*Job descriptions

During this period, I cooperated with Karl Storz GmbH and used their endoscopic devices and FIPS robot prototype to develop the LLSR system. I implemented the Intuitive Writing Interface (IWI) for What-You-Draw-is-What-You-Cut (WYDIWYC) and Direct Writing Interface (DWI) for What-You-Trace-is-What-You-Cut (WYTIWYC). I also invented the Operative Laparoscopic Distance Sensor (OLDS) to measure the distance and applied it in Auto Focus Function (AFF). I defined an Index of Time and Error (ITE) to represent the surgical skill and compared the ITE data of 34 subjects. I statistically confirmed the advantages in speed, accuracy and learning curve of LLSR system. Meanwhile, LLSR was employed by surgeons to perform one nephrectomy on a rabbit and several cholecystectomy on pig livers. LLSR was also featured in many exhibitions.

*Achievements

1.PhD degree

2.2 Journal and 3 conference publications

3.5 public demonstrations
4.LLSR animal test and quantitative evaluation
5.Travel award by World congress for Chinese biomedical engineers scientific conference

*Reporting relationships

I report the progress to Prof. Hendrik Van Brussel in engineering and Prof. Philippe Koninckx in medicine.

1998~2000 **Research assistant CT-image guided needle insertion robot, NCKU, Taiwan**

*Job responsibilities

I am in charge of the development and clinical evaluation of CT-image guided needle insertion robot

*Job descriptions

The main purpose of the project is to provide an easy interface for surgeons to precisely insert the needle to the liver tumor with the guidance of CT images. In addition, the resulting reduction of X-ray radiation gives direct benefit to the patient. I designed and built the prototype from scratch with the input from real clinical environment. The system was able to be tested in the CT room verify its precision. I also proposed a follow up real-time control interface to augment the CT image to the robot controller. During these processes, I realized the huge potentials of surgical robotics and the only way to make them useful is to make a product. Unfortunately, this project was terminated due to lack of funding in 2000.

*Achievements

1.Design and built the complete robot system
2.Test the system with pork in the CT room
3.K.U.Leuven-NCKU exchange scholarship

*Reporting relationships

I report to Prof. Ming-Shaung Ju and Prof. Fong-Chin Su in engineering and Dr. Xi-Zhang Lin in medicine

Patent

2009 Application PCT/EP2010/056611 Remote Centre of Motion Positioner

Honors

2010 Taiwan Innovations Achievement, Central News Agency
2010 Best commercial business plan in 2010 Start Academy competition
2005 Leuven Research Development Scholarship K.U.Leuven
2002 Travel Award -World Congress for Chinese Biomedical Engineers
2001-2004 FWO Scholarship
2000~2001 K.U.Leuven-NCKU exchange scholarship

Exhibitions

2010/9 VESALIUS Robot in ICT 2010 Brussels Zone R5 - Digital Society
2009/11 VESALIUS Robot in Gemma Frisius Investment Forum
2009/5 VESALIUS Robot in General Assembly Industrial Research Fund
2007/9 ViKYLase integration to Mr. Vidal, CEO Endo Control
2006/7 LLSR to Mr. Moreels, CEO Medsys
2005/4 LLSR in Open door day of ME and EE
2004/3 LLSR in Flemish Day of Technology
2003/10 LLSR in Open door day of K.U.Leuven
2002/2 LLSR to product manager of KARL STORZ GmbH

Reference

1. Prof. Hendrik Van Brussel, Professor in Mechanical Engineering K.U.Leuven, Belgium
Email: Hendrik.VanBrussel@mech.kuleuven.be Tel: +32 16 322647 Mobile: +32 475544558

2. Prof. Philippe Koninckx, Prof OBGYN K.U.Leuven, Belgium
E-mail : pkoninckx@gmail.com Tel: +32 16 344202 Mobile: +32 486 271061

3. Prof. Roger de Keersmaecker, Vice-president IMEC, Belgium
Email: rdk@imec.be Tel: + 32 16 281326 Fax: + 32 16281576

List of publication

International Journal

1. H.W. Tang, H. Van Brussel, J. Vander Sloten, D. Reynaerts, G. De Win, B. Van Cleynenbreugel and P. Koninckx, "Evaluation of an intuitive writing interface in robot-aided laser laparoscopic surgery," Computer Aided Surgery, 11(1), 21-30, 2006
2. H.W. Tang, H. Van Brussel, J. Vander Sloten, D. Reynaerts and P. Koninckx, "Implementation of an Intuitive Writing Interface and a Laparoscopic Robot for Gynaecological Laser-assisted Surgery," Proc Inst Mech Eng H: J Eng Med, 219, 293-302, 2005

Book

1. PhD dissertation, 'A telesurgical robot system with intuitive and direct writing interfaces for CO2 laser laparoscopic surgery', Katholieke Universiteit Leuven, Belgium, July 2006

International Conference

1. Markus Moll, Hsiao-Wei Tang, Luc J. Van Gool: GPU-Accelerated Robotic Intra-operative Laparoscopic 3D Reconstruction. IPCAI 2010: 91-101
2. H.W. Tang, H. Van Brussel, P. Koninckx, J. Vander Sloten and D. Reynaerts, A Laparoscopic Robot with Intuitive Interface for Gynecological Laser Laparoscopy, in Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), Taipei, 2003, pp.2646-50
3. J. Peirs, D. Reynaerts, H. Van Brussel, G.. De Gersem, and H.W. Tang. Design of an advanced tool guiding system for robotic surgery, in Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), Taipei, 2003, pp. 2651-2656.
4. H.W. Tang, H. Van Brussel, P. Koninckx, J. Vander Sloten and D. Reynaerts, Auto-Focussing of an Endoscopic Laser Using Image Tracking with an Endoscopic Robot, Proceedings of 2nd European Medical & Biological Engineering Conference (EMBEC'02), 04-08/12, Vienna, 2002, pp.1150-51
5. H.W. Tang, H. Van Brussel, P. Koninckx and J. Vander Sloten, The Implementation of an Intuitive Man-Machine Interface in Robot-Aided Endoscopic Laser Surgery, Computer Assisted Radiology and Surgery(CARS): Proc. of 16th int. congress and exhibition, Paris, 2002, pp.200-205
6. H.W. Tang, M.S. Ju and et al, CT-image guided positioning robot for intervening therapy, Annual Symposium of the Biomedical Engineering Society R.O.C., Taiwan, 1999, pp.46-47
7. H.W. Tang, M.S. Ju and et al, Development of Needle Insertion System for Liver Injection, Annual Symposium of the Biomedical Engineering Society R.O.C., Taiwan, 1998, pp.252-253

Abstracts

1. G. De Win, H.W. Tang, J. Vander Sloten, B. Van Cleynenbreugel, H. Van Brussel and P. Koninckx, The Evaluation of Employing Intuitive Writing Interface in Robot-aided Laser Laparoscopic Surgery, 19th Engineering and Urology Section of the Endourological Society Annual Meeting, 8/5, San Francisco CA, 2004, page23-24
2. H.W. Tang, H.Van Brussel, P. Koninckx, J. Vander Sloten and D. Reynaerts, An Intuitive Man-Machine Interface and Auto-Focus Function in Robot-Aided Gynecological Laser Surgery, World congress for Chinese biomedical engineers-scientific conference abstracts(WCCBE), 11-13/12, Taipei Taiwan, 2002, page 105 (Travel Award)
3. H.W. Tang, P.R. Koninckx, H.Van Brussel and J. Vander Sloten, Development of An Intuitive Writing Interface for Endoscopic Robot in Endometriosis Treatment, Abstracts for the Global Congress of Gynecologic Endoscopy 31st Annual Meeting of the American Association of Gynecologic Laparoscopists (AAGL2002), 20-24/11, Miami Beach FL, 2002, page 54