

## Bai, Ying-Wen

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### Education

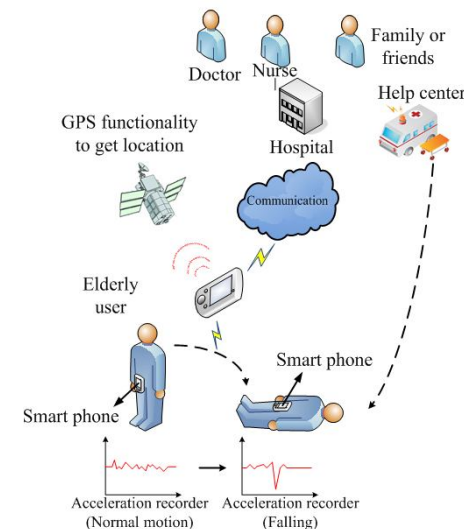
Ph.D. Electrical Engineering, Columbia University, New York, USA, 1993.

M.S. Electrical Engineering, Columbia University, New York, USA, 1989.

B.S. Electronic Engineering, National Taiwan Institute of Technology, R.O.C. 1981.

My research focuses on mobile computing and microcomputer system design. For examples, my laboratory has designed the automatic room light intensity detection and control using a microprocessor and light sensors [1], as well as designing a scanner with stitching of multiple image capture [2]. We also designed the distance tracking for the remote control of an MP3 player [3]. Furthermore, we designed the embedded home surveillance system by use of multiple ultrasonic sensors [4].

Recently, my laboratory also designed the fall monitor system by using a 3-Axis accelerometer in a smart phone [6]. For examples, we not only analyze the change of acceleration but also analyze the six typical actions of humans. These are going upstairs, going downstairs, standing up, sitting down, running and jumping. Then we compare the six actions with the characteristics of a fall. These are weightlessness, impact, immobility and overturning of the body. Our design is based on an open source system platform and the accelerometer in the smart phone. If there has been a fall motion our design provides the GPS functionality to obtain the location of the user and draws the help path on both the smart phones and the computers of his family, friends or help center immediately.



## Selected publication

1. Ying-Wen Bai and Yi-Te Ku, "Automatic Room Light Intensity Detection and Control Using a Microprocessor and Light Sensors", *IEEE Transactions on Consumer Electronics*, Vol. 54, No. 3, August 2008, pp. 1173-1176.
2. Ying-Wen Bai and Chien-Chung Cheng, "Design and Implementation of a Scanner with Stitching of Multiple Image Capture," *IEEE Transactions on Consumer Electronics*, Vol. 54, No. 4, Nov. 2008, pp. 1501-1505.
3. Ying-Wen Bai and Yi-Fan Huang, "Distance Tracking for the Remote Control of an MP3 Player," *IEEE Transactions on Consumer Electronics*, Vol. 55, No. 1, Feb. 2009, pp. 229-234.
4. Ying-Wen Bai, Li-Sih Shen and Zong-Han Li, "Design and Implementation of an Embedded Home Surveillance System by Use of Multiple Ultrasonic Sensors," *IEEE Transactions on Consumer Electronics*, Vol. 56, No. 1, Feb. 2010, pp. 119-124.
5. Ying-Wen Bai, Zi-LI Xie and Zong-Han Li, "Design and Implementation of a Home Embedded Surveillance System with Ultra-Low Alert Power," *IEEE Transactions on Consumer Electronics*, Vol. 57, No. 1, Feb. 2011, pp. 153-159.
6. Ying-Wen Bai, Siao-Cian Wu, and Cheng-Lung Tsai, "Design and Implementation of a Fall Monitor System by Using a 3-Axis Accelerometer in a Smart Phone," *IEEE Transactions on Consumer Electronics*, Vol. 58, No. 4, Nov. 2012, pp. 1269-1275.

## Financial support for Ph.D. students

[Stipend]

1. National Science Council (NSC) Scholarship for Ph.D : up to NT 12,000/mo
2. Ministry of Education Teaching Excellent Project for Ph.D: up to NT 12,000/mo (Teaching assistant, optional)
3. Fu Jen Catholic University International PhD student Scholarship: NT 10,000/mo

[Tuition]

1. The 1<sup>st</sup> and 2<sup>nd</sup> year tuition is waived (around NT 220,000).
2. The tuition will be free after the 3<sup>rd</sup> year of Ph.D program