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# Yu-Wei Liao

## Curriculum Vitae

### Education

- 2010–present **Ph.D. candidate in Mechanical Engineering**, Northwestern University, Evanston, IL.  
Thesis (tentative): “A Functional Electrical Stimulation Controller for Stable Contact Tasks: Piercing Food With A Fork”  
Advisor: Kevin M. Lynch
- 2003–2007 **B.S. in Mechanical Engineering**, National Taiwan University, Taipei, Taiwan.

### Research Experience

- 2010–present **Graduate Research Assistant**, Neuroscience and Robotics Lab, Northwestern University, Evanston, IL, Advised by: Kevin M. Lynch.
- Modeling the human arm biomechanics driven by functional electrical stimulation neuroprostheses
  - Developing algorithms for the control of functional electrical stimulation neuroprostheses for restoring stable contact interactions to patients with spinal cord injuries
- 2009 **Programmer and Research Assistant**, Human Attention and Memory Laboratory, National Taiwan University, Taipei, Taiwan, Advised by: Yei-Yu Yeh.
- Programmed for and assisted completing two studies, analyzed data with Bayesian approaches, and set up protocols for experiments which involve measuring the Event-Related-Potentials of human subjects
- 2007 **Research Assistant**, Robotics Laboratory, National Taiwan University, Taipei, Taiwan, Advised by: Han-Pang Huang.
- Developed an algorithm to perform automatic image distortion correction for a tour-guide robot equipped with an image projector
- 2006 **Undergraduate Research**, Robotics Laboratory, National Taiwan University, Taipei, Taiwan, Advised by: Han-Pang Huang.
- Developed and implemented algorithms for mobile robot mapping using ultrasonic sensor network

### Honors and Awards

- 2010–2012 **Government Scholarship to Study Abroad**, Ministry of Education, Taiwan.
- 2004–2007 **Presidential Award (top 5%)**, National Taiwan University, Taipei, Taiwan.

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## Publications

1. **Yu-Wei Liao**, Eric M. Schearer, Xiao Hu, Eric J. Perreault, Matthew C. Tresch, and Kevin M. Lynch, "Modeling Open-Loop Stability of a Human Arm Driven by a Functional Electrical Stimulation Neuroprosthesis," in *35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2013.
2. Eric M. Schearer, **Yu-Wei Liao**, Eric J. Perreault, Matthew C. Tresch, William D. Mernberg, Robert F. Kirsch, and Kevin M. Lynch, "Multi-Muscle FES Force Control of the Human Arm for Arbitrary Goals," in *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 2013 (accepted).
3. Eric M. Schearer, **Yu-Wei Liao**, Eric J. Perreault, Matthew C. Tresch, and Kevin M. Lynch, "Optimal Sampling for Identifying Models for FES Control of Neuroprostheses," in *International Functional Electrical Stimulation Society Conference*, 2012.
4. Eric M. Schearer, **Yu-Wei Liao**, Eric J. Perreault, Matthew C. Tresch, and Kevin M. Lynch, "Optimal Sampling of Recruitment Curves for Functional Electrical Stimulation Control," in *34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2012.
5. Eric M. Schearer, **Yu-Wei Liao**, Eric J. Perreault, Matthew C. Tresch, and Kevin M. Lynch, "System Identification for 3D Force Control of a Human Arm Neuroprosthesis using Functional Electrical Stimulation," in *International Conference on Robotics and Automation (ICRA)*, 2012.
6. Pei-Chen Chiu, **Yu-Wei Liao**, Cheng-Ta Yang, and Yei-Yu Yeh, "Strategic control through speed grouping in multiple object tracking," poster session in *the 17th meeting of Object, Perception, Attention, and Memory (OPAM)*, Boston, MA, 2009.

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## Teaching Experience

2010 **Teaching Assistant**, ME241: *Fluid Mechanics I*, Northwestern University, Evanston, IL.

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## Professional Activities

### Student Member.

- IEEE
- IEEE Engineering in Medicine and Biology Society

### Student Reviewer.

- *Journal of Biomechanical Engineering (JBME)*
- *International Conference on Rehabilitation Robotics (ICORR)*
- *International Conference on Biomedical Robotics and Biomechatronics (BioRob)*

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## Languages

**Chinese**, native.

**English**, fluent.

**German**, beginner.