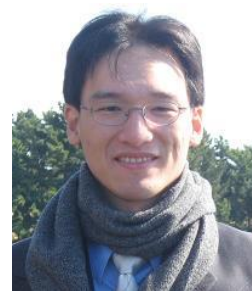


## Yu-Hsiang Hsu (許聿翔)

Associate Professor

B.S. in Mechanical engineering,  
National Taiwan University, 2000  
M.S. in Institute of Applied Mechanics,  
National Taiwan University, 2002  
M.S. in Biomedical Engineering,  
University of California, Irvine, USA 2006  
Ph.D. in Biomedical Engineering,  
University of California, Irvine, USA 2010



Yu-Hsiang Hsu joined the faculty of the Institute of Applied Mechanics at the National Taiwan University since August 2013. Previously, he was a postdoctoral scholar at the California Institute of Technology and also the University of California at Irvine. His research primary focus on three fields: (1) microsystems to develop microtissues for drug screening applications, including cardiac microtissue and microtumor; (2) plastic lab-on-a-chip devices for early and quantitative diagnostic methods for chronic human diseases, and integration with portable devices; (3) smart materials: develop optopiezoelectric composites for the applications of optically controllable pumps, valves, and sonic motors. **He also develops piezoelectric textile sensors for real-time monitoring of body movement and blood pressure monitoring. His teaches the courses of Applied Mathematics, Introduction to Cellular BioMEMS and Biomicrofluidics, and Engineering and Physics of Human Body.**

### Selected Journal Papers

1. **Y.H. Hsu\***, W.W. Liu, T.H. Wu, C. J. Lee, Y.H. Chen, P.C. Li, "Study of diffusive- and convective-transport mediated microtumor growth in a controlled microchamber." *Biomedical Microdevices*, 21(1):7, January 2019.
2. T.H. Chen, T.Y. Chu, Y.M. Lin, S.J. Lin, J.T. Gu, **Y.H. Hsu\***, "Light-activated piezoelectric linear motor by using a serial bimorph made of an optopiezoelectric composite." *Smart Materials and Structures*, 27(10), 105050, September 2018.
3. **Y.H. Hsu\***, C.H. Chan, W.C. Tang, "Alignment of Multiple Electrospun Piezoelectric Fiber Bundles Across Serrated Gaps at an Incline: A Method to Generate Textile Strain Sensors." *Scientific Reports*, 7, 15436. November 2017.
4. H.H. Wang, T.J. Wu, S.J. Lin, J.T. Gu, C.K. Lee, I.C. Cheng, **Y.H. Hsu\***, "Dual light-activated microfluidic pumps based on an optopiezoelectric composite." *Journal of Micromechanics and Microengineering*, 27,125003, October 2017.
5. H.K. Ma, R.H. Chen, N.S. Yu, **Y.H. Hsu**, "A miniature circular pump with a piezoelectric bimorph and adisposable chamber for biomedical applications." *Sensors and Actuators A*, 251: 108-118, November, 2016.
6. T. Nakano, Y. Okaie, S. Kobayashi, T. Koujin, C.H. Chan, **Y.H. Hsu**, T. Obuchi, T. Hara, Y. Hiraoka, T. Haraguchi, "Performance Evaluation of Leader-followerbased Mobile Molecular Communication Networks for Target Detection Applications." *IEEE Transactions on Communications*, PP(99): 1-1, November, 2016.
7. E.W. Huang, Y.H. Hsu, W.T. Chuang, W.C. Ko, C.-K. Lee, W.C. Chang, T.K. Liao, H.C. Thong, "Visible-light modulation on lattice dielectric responses of a piezo-phototronic soft material." *Advanced Materials*, 27(47): 7728-7733, October 2015.
8. H.K. Ma, R.H. Chen, **Y.H. Hsu**, "Development of a piezoelectric-driven miniature pump for biomedical applications." *Sensors and Actuators A: Physical*, 234: 23-33, October 2015.
9. M.L. Moya, **Y.-H. Hsu**, C.C.W. Hughes, S.C. George, A.P. Lee, "In vitro perfused human capillary networks." *Tissue Engineering Part C*, 19(9): 730-737, September 2013. (Co-first author)

10. **Y.H. Hsu**, M.L. Moya, C.C.W. Hughes, S.C. George, A.P. Lee, "A microfluidic platform for generating large-scale nearly identical human microphysiological vascularized tissue arrays" *Lab Chip* 13, pp. 2990–2998, August 2013.
11. **Y.H. Hsu**, M.L. Moya, P. Abiri, C.C.W. Hughes, S.C. George, A.P. Lee, "Full range physiological mass transport control in 3D tissue cultures." *Lab Chip* 13, 81–89, January 2013.

## Projects

### 個人型計畫 (Selected)

1. 懸浮粒子預濃縮器及過濾器開發  
國立臺灣大學核心計畫-計畫主持人-許聿翔  
NT\$1,996,000 2018/06/01~2019/12/31
2. 智慧應變貼布開發  
產學合作計畫-計畫主持人-許聿翔  
NT\$1,000,000 2018/02/01~2019/01/31
3. 可攜式之個人化數位分子檢測系統  
科技部專題研究計畫(一般型研究計畫)-計畫主持人-許聿翔  
NT\$3,662,000, 2017/08/01~2020/07/31
4. 自動化心臟藥物篩檢系統研發  
科技部專題研究計畫(一般型研究計畫)-計畫主持人-許聿翔  
NT\$2,991,000., 2016/08/01~2019/07/31
5. 一可進行藥物引起之心臟毒性研究之壓電智慧型系統研發  
科技部專題研究計畫(一般型研究計畫)-計畫主持人-許聿翔  
NT\$ 2,079,000., 2014/8/1~2016/7/31
6. 可自動檢測心肌細胞對藥物反應之壓電換能器的開發  
科技部專題研究計畫(新進人員研究計畫)-計畫主持人-許聿翔  
NT\$ 1,067,000., 2013/11/01~2014/10/31

### 整合型計畫 (Selected)

1. 創新 PM2.5 空氣懸浮微粒濾淨系統之設計、研製與系統驗證-研發空氣懸浮微粒濾淨系統整合運用的創新駐極體材料與控制系統  
科技部專題研究計畫(跨領域研究計畫)-子計畫共同主持人-許聿翔  
NT\$18,917,000., 2016/07/01~2018/06/30
2. 發展微流道三維細胞培養系統以進行運用金奈米液滴之光熱治療研究  
國衛院專題研究計畫-共同主持人-許聿翔  
NT\$4,950,00., 2017/01/01~2018/12/31
3. 開發前瞻整合性 3D 列印技術製造仿生組織  
邁向頂尖大學計畫(第三類國合計畫)-子計畫主持人-許聿翔  
NT\$18,917,000., 2016/01/01~2017/12/31
4. 以雙光子光致聚合技術製作奈微米結構應用於高效率乳化液滴產生及細胞培養  
科技部專題研究計畫(一般型研究計畫)-共同計畫主持人-許聿翔  
NT\$ 4,440,000., 2015/08/01~2018/07/31
5. 陣列式光壓電感應器之開發與血壓計系統整合  
科技部專題研究計畫(跨領域研究計畫)-子計畫共同主持人-許聿翔  
NT\$ 2,864,000., 2016/08/01~2017/07/31
6. 整合阻抗分析、光學檢測和光流體晶片的定點照護系統之開發與系統驗證  
科技部專題研究計畫(跨領域研究計畫)-子計畫主持人-許聿翔  
NT\$ 6,741,000., 2013/08/01~2014/07/31