

Summary

- Finding the pattern of similarity in phenotypic clinical documents and genotypic data to realize personalized medicine
- Undiagnosed diseases finding, clinical decision making, and data-driven medicine
- Machine learning and natural language processing approach
- Healthcare information technology innovation and startup

Education

- Sep 2015- **Harvard Medical School, Boston, MA**
Master of Medical Science in Biomedical Informatics
- Managing 3 collaborative works with MIT and Massachusetts General Hospital
 - Scholarship of Harvard Clubs of the Republic of China
- Sep 2004 **Chang Gung University, Taoyuan, Taiwan** (first tier medical school in Taiwan)
- Jun 2011 *Doctor of Medicine (M.D.) (GPA: 3.99/4.0, Rank: 5/106)*
- Presidential Award 5 times (for top 5% students)
 - 2 teaching assistant/recitation experiences in the 100 students class, 1 year class leadership
 - Board Certificate of Medical Doctor in Taiwan
 - Certificate of Advanced Cardiovascular Life Support
- Jun 2011 **Harvard Medical School, Boston, MA**
Exchange Student (Massachusetts Eye and Ear Infirmary)

Professional Experience | Research

- Sep 2015 - **Laboratory of Computer Science, Massachusetts General Hospital (MGH)** (top-ranked hospital in USA)
Research Fellow (Advisor: Dr. Henry Chueh [Director of LCS in MGH])
- Building an unstructured clinical documents based pipeline to improve the workflow of curbside consultation by **natural language processing** and **machine learning** based approach
 - Improving the performance of existed projects 'Experta' and 'DXplain' by implementing the machine learning-based algorithms and **ontology**-based database
 - Extracting knowledge of relative hypoglycemia using MIMIC database (MIT)
 - Analyzing Cost-effectiveness decision of using continuous EEG on post resuscitation patients with hypoxic-ischemic encephalopathy (MGH)
 - Improving the outcome of kidney transplantation patients by using mobile-based educational modules and data analysis (Brigham and Women's Hospital)
 - Semi-finalist of Brigham and Women's Physicians Organization (BWPO) Care Redesign and Incubator Startup Program (BCRISP)
- May 2014 **Molecular Imaging Center in National Taiwan University** (rank #1 in Taiwan)
- Apr 2015 *Research Associate (Advisor: Prof. Chi-Kuang Sun [Director of Center. SPIE, IEEE, OSA Fellow])*
- Developed a methodology of identifying skin melanocytes in noninvasive harmonic generation microscopic imaging
 - Managed a collaborative project with 2 academic institutes (computer science)
 - Strategic planning of commercializing virtual biopsy microscopy, which meets the unmet need that can reach more than 3 million population with the risk of skin cancer
 - 3 first author and 5 co-author conference presentations/papers, 1 first author peer-review manuscript under revision
 - First Prize Award. HIT Biomedical Innovation Hackathon
- Jun 2009 **Kidney Research Center, Chang Gung Memorial Hospital**
- May 2011 *Undergraduate Research Assistant (Advisor: Prof. Ya-Chung Tian [Director of Center])*
- Cytokines effects on polyomavirus BK infection
 - Great Honor. Taiwan Medical Development Awards for Outstanding Writings. Taiwan
 - Research Funding. Medical Foundation in Memory of Dr. Deh-Ling Cheng. Taiwan
 - 2 conference presentations, and 2 student grant awards

- Jun 2008 **Cancer Molecular Diagnostics Lab, Chang Gung Memorial Hospital**
 - May 2011 *Undergraduate Research Assistant (Advisor: Prof. Lee-Yung Shih [Director of Laboratory])*
- Clinical data analysis of concomitance of essential thrombocythemia and chronic myeloid leukemia
 - 1 first author peer-review publication on SCI journal (citation: 1)
- Jun 2009 **Department of Psychology, Chang Gung Memorial Hospital**
 - May 2011 *Undergraduate Research Assistant (Advisor: Prof. Chin-Yen Chen [Director of Department])*
- Clinical data analysis of relationship between Stanford Sleepiness Scale and Heart Rate Variability in Medical Students
 - 2 co-author peer-review publication on SCI journals (citation: 12)
- Jul 2009 **Cancer Immunology and Gene Therapy lab, Johns Hopkins Medical Institute**
 - Aug 2009 *Summer Research Assistant (Advisor: Prof. Tzyy-Chou Wu [Director of Laboratory])*
- Journal article writing and literature reviews, and molecular cell biology techniques training
 - 1 co-author peer-review publication on SCI journals (citation: 35)

Professional Experience | Clinical

- Aug 2012 **Chang Gung Memorial Hospital, Linkou, Taiwan** (the largest medical center in Taiwan)
 - Apr 2014 *Resident Physician in Pathology and General Medicine*
- Supervised more than 10 medical clerks, interns and residents
 - Selected as visiting scholar to Department of Pathology, University of Tokyo Hospital, Tokyo, Japan
- Jun 2010 *Rotating Internship*
 - May 2011
- Won OSCE Award. Taiwan Association of Medical Education
 - Won 2nd Prize in Medical Record Writing Competition
- Jul 2012 **Mbanane Government Hospital, Mbabane, Hhohho, Swaziland** (the largest hospital in Swaziland)
Resident Physician
- 2 rural and suburban outreaches, and critical ward care
 - Medical volunteer of Taiwan Medical Mission in Swaziland
- Aug 2011 **Republic of China Army, Chungli, Taiwan**
 - Jul 2012 *Medical Officer of Health, Secondary Lieutenant*
- Managed a medical clinic, and a shelter for soldiers with psychiatric diseases

Publications [2 first-authored and 3 co-authored, all on SCI journals]

1. Weng, W.-H., Liao, Y.-H., Tsai, M.-R., Huang, H.-Y., Sun, C.-K. (2016). Differentiating intratumoral melanocytes from Langerhans cells in non-melanocytic pigmented skin tumors in vivo by using label-free third harmonic generation microscopy. *Journal of Biomedical Optics*. (IF 2.859) (under revision)
2. Liu, C.-H., Tang, W.-R., Weng, W.-H., Lin, Y.-H., & Chen, C.-Y. (2016). The process of coping with stress by Taiwanese medical interns: a qualitative study. *BMC Med Educ*, 16(1). (IF 1.218)
3. Lin, Y.-H., Chen, C.-Y., Lin, S.-H., Liu, C.-H., Weng, W.-H., Kuo, T. B. J., & Yang, C. C. H. (2013). Gender differences in cardiac autonomic modulation during medical internship. *Psychophysiology*, 50(6), 521–527. (IF 2.986)
4. Weng, W.-H., & Shih, L.-Y. (2011). Occurrence of BCR-ABL1-Positive Chronic Myeloid Leukemia following Essential Thrombocythemia. *Acta Haematologica*, 126(4), 220–223. (IF 1.116)
5. Hung, C.-F., Monie A., Weng, W.-H., Wu, T.-C. (2010). DNA vaccines for cervical cancer. *Am J Transl Res*, 2(1), 75-87. (IF 3.402)

Selected Conferences [5 first authored and 5 co-authored, including 2015 NIPS workshop, SPIE Photonics West 2015]

1. Weng, W.-H., Tsai, M.-R., Liao, Y.-H., Sun, C.-K. (2015, February). Differentiating pigmented skin tumors by the tumor-associated melanocytes based on in vivo third harmonic generation microscopy. Oral session presented at SPIE Photonics West 2015, San Francisco, CA.
2. Weng, W.-H., Tsai, M.-R., Liao, Y.-H., Sun, C.-K. (2014, November). Identifying melanocyte in pigmented skin lesions based on in vivo third harmonic generation microscopy. Poster session presented at Biomedical Molecular Imaging 2014. Taipei, Taiwan.
3. Weng, W.-H., Liu, W.-M., Tsai, M.-R., Liao, Y.-H., Sun, C.-K. (2014, November). In vivo quantification of melanin mass density in human by using third harmonic generation microscopy. Poster session presented at Biomedical Molecular Imaging 2014. Taipei, Taiwan.
4. Weng, W.-H., Tian, Y.-C. (2010, August). Interleukin-1 beta Inhibits BK virus gene expression and replication in human renal proximal tubular epithelial cells. Oral session presented at Taiwan Medical Development Awards for Outstanding Writings. Taipei, Taiwan.
5. Weng, W.-H., Tian, Y.-C. (2009, September). IL-1 has suppressive effect on BKV replication. Oral session presented at Summer Student Study for Infectious Disease. Kaohsiung, Taiwan.

Other

- English (fluent, IELTS 8.0), Chinese (native), Taiwanese (native), Japanese (basic)
- Expertise in R, Python, SQL, cTAKES, Tableau, Matlab, ImageJ, Fiji
- Develop iOS App 'LabBuddy' (more than 10,000 downloads)
- Yearbook designer (medical school), teaching fellow in medical camps and Biology Club, photography, cycling, swimming