Chun-Fu Yeh

No.195, Sec 4, Zhongxing Rd. Zhudong Township, Hsinchu County 310, Taiwan R.O.C
Phone: +886-911-176-645 | Email: kevincfyeh@gmail.com

OBJECTIVE

- **Pursue an PhD degree** in Computer Science to strengthen my research skills in the development of artificial intelligence (AI) for medicine and healthcare.
- **Become a researcher mastering cross-disciplinary knowledge**, including Computer Science (CS), User Experience Design (UX), Occupational Therapy (OT).

PROFESSIONAL PROFILE

- **Project investigator** for leading the development of innovative technology for medical and healthcare service with **2 years** of experience.
- **Raise 1M USD in funding** with 2 research proposals within 2 years.
- Take charge of **3 research projects** for the development of **deep learning / machine learning models** for medical and healthcare services.
- **Proven ability** to pinpoint needs and propose a promising solution accordingly for medical services **by 3+ medical directors / attending physicians** in medical centers.
- Selected to be **one of 30 Alumni Coaches** as part of the inaugural IDEO U Alumni Fellowship program to engage and guide IDEO U online learners.

EDUCATION

Master of Science (M.S.) in Occupational Therapy 07/2013 - 08/2015
National Taiwan University, Taipei, Taiwan

- **GPA**: **overal 4.00 / 4.00**
- Master's thesis: The Effects of External Task Difficulties on Arm-Trunk Movements in Children with Hemiplegic Cerebral Palsy
- Relevant Course: Academic English Writing, Matlab Programming and Application, Computer Methods in Human Motion Analysis, Statistics in Psychology and Education, Advanced Cognitive Neuroscience

Bachelor of Science (B.S.) in Occupational Therapy 09/2009 - 06/2013
National Taiwan University, Taipei, Taiwan

- **GPA**: **overal 3.95 / 4.00**
- **Dean's List * 2** (for ranking top two (5%) in class in semester)
- Relevant Course**:** Engineering Mathematics, Assessment and Application of Assistive Technology, Clinical Reasoning and Evidence-based Practice.

WORK & RESEARCH EXPERIENCE

Project Investigator & Artificial Intelligence Researcher 07/2017 - Present
Dept. of Intelligent Medical & Healthcare System, Div. of Healthcare Service,
Service Systems Technology Center, Industrial Technology Research Institute (ITRI)

- *Project:* **AI-based Early-stage Glaucoma Detection with Fundus Images**
  - Funding: 170K USD | Period: 01/2018 - 12/2018
  - Build up a deep learning model to quantify the retinal nerve fiber layer (RNFL) defects
- *Project:* **The Development of Medical Devices for COPD Exacerbation Development Monitoring**
  - Total Funding: 900K USD | Period: 04/2017 - 12/2018
  - Design an innovative service system to help patients with chronic obstructive pulmonary disease (COPD) detect acute exacerbation earlier by means of abnormal lung sound detection
  - The model for lung sound detection (normal, wheeze, rhonchi and crackle) achieved **85.78% of accuracy**, 5% higher than the accuracy reported in reference paper
  - **2 patents filed**

Artificial Intelligence Researcher 01/2017 - Present

Dept. of Intelligent Medical & Healthcare System, Div. of Healthcare Service,
Service Systems Technology Center, Industrial Technology Research Institute (ITRI)

- *Project:* **Artificial Intelligence-based Diabetics Fundus Image Decision Support**
  - **Funding: 600K USD**
  - Period: 01/2017 - 12/2018
  - Design an innovative system to prevent patients with diabetes from severe diabetic retinopathy
  - The **kappa score** between the model and the doctor was **84.15%**, higher than that reported by Google and that of the 3th place of Diabetic Retinopathy Detection Challenge in Kaggle.

IDEO U Alumni Coach Fellow 01/2017-Present

IDEO

- Selected to be one of 30 Alumni Coaches as part of the inaugural IDEO U Alumni Fellowship program. Responsibilities include providing guidance to IDEO U learners, participating in IDEO U workshops and building a global community of practice.
- IDEO U Alumni Fellows met the following requirements for selection: provided high quality, enriching contributions to the IDEO U community as learners, demonstrated a robust understanding of the content, and have worked to apply the learnings in their own contexts.

Project Researcher 09/2015 - 12/2017

Dept. of Intelligent Medical & Healthcare System, Div. of Healthcare Service,
Service Systems Technology Center, Industrial Technology Research Institute (ITRI)

- Build up a performance analysis system with pressure-sensing mat to guide Tai Chi learners practice at home **- 1 patent filed**

Research Assistant 09/2013 - 08/2015

Movement Science and Assistive Technology Lab,
School of Occupational Therapy, College of Medicine, National Taiwan University

- *Project:* **Development and Application of Rehabilitation Games for Children with Cerebral Palsy Using Motion Sensing Technology**
  - Design a Kinect-based rehabilitation program using modern therapeutic approach
  - **Collaboration with cross-disciplinary team**, including occupational therapist, industrial designer and software engineer.
- *Project:* **The Development of Brain-Computer Interface for Motor-Imagery Training**
  - Discover models (SVM / KNN) to quantify motor imagery ability with EEG signals

Teaching Assistant 09/2013 - 06/2015

School of Occupational Therapy, College of Medicine, National Taiwan University

- Help graduate students learn programming in Matlab
- Coach international occupational therapist intern to do physical assessments on stroke patients
- Teach undergraduates to identify human anatomy from Cadaver

Occupational Therapy Intern 07/2012 - 06/2013

National Taiwan University Hospital (NTUH)

- Full-time internship in NTUH. Learn to be an independent occupational therapist in following 3 fields: pediatric, physical and psychological.
- Got certificate for being an occupational therapist in 09/2013

TRAINING & CERTIFICATE

Immersive Silicon Valley Training (ISVT) 07/2018 - 09/2018

San Francisco Bay Area, California, USA

- **Designated by the director** of Service Systems Technology Center, Industrial Technology Research Institute (ITRI)
- 2.5-month business trip in silicon valley. Look for potential business & research partners and also promote AI products developed in ITRI
- Successfully build up a long-term relationship with DirectDerm, a startup for telemedicine in dermatology.

Artificial Intelligence Nanodegree and Specializations 05/2017 - 02/2018

Online Course, Udacity

- Learn to build up deep learning applications with python, tensorflow and keras
- 4 Projects:
  - Sing Language Recognizer with Hidden Markov Model
  - Facial Keypoints Detection with Convolution Neural Network
  - Machine Translation (French vs. English) with Recurrent Neural Network
  - End-to-end Speech Recognizer with Recurrent Neural Network

Deep Learning Nanodegree Foundation 01/2017 - 05/2017

Online Course, Udacity

- Learn the fundamentals of deep learning, including convolution neural network, recurrent neural network, generative adversarial network.
- 3 Projects:
  - Image Classification with Python and Tensorflow
  - TV Scripts generation with Recurrent Neural Network
  - Human Face Generation with Generative Adversarial Network

IDEO U Design Thinking Courses 06/2016 - 10/2016

Online Course, IDEO

- Learn the mindset of design thinking and the methods to drive innovation
- Courses: Insights for Innovation, Storytelling for Influence, From Ideas to Action and Leading for Creativity
- **Selected to be an alumni coach** after taking all these four courses.

SKILLS

Languages: Mandarin (native), English (fluent)

- **TOEFL iBT: 107/120** (R: 30, L: 27, S: 23, W: 27)
- **GRE: 323/340** (V:156, Q:167, W: 3.5)

Technical: Python, Deep Learning / Machine Learning, HTML, CSS, SQL, C++

HONORS & AWARDS

Outstanding Youth Award 2014

- Awarded by the director of college of medicine in National Taiwan University
- Selected to be one of the 7 outstanding youths in college of medicine due to the achievements both in clinics and research.

Altruism Award 2012

- Awarded by the director of college of medicine in National Taiwan University
- Stand out from 30 classmates in terms of the leadership and the contribution to making learning environment better in class.

PUBLICATIONS

Journal Papers

- Chen, H.-L., **Yeh, C.-F.**, & Howe, T.-H. (2015). Postural control during standing reach in children with Down syndrome. *Res Dev Disabil, 38*(0), 345-351. doi: http://dx.doi.org/10.1016/j.ridd.2014.12.024

Patents

- **Chun-Fu Yeh**, Yi-Fei Luo, Cheng-Lii Chang, I-Ju Yeh. (2018) Method and System for Automatically Identifying and Marking Adventitious Sounds. U.S. Patent, Patent Pending.
- Cheng-Lii Chang, Yi-Fei Luo, Ho-Hsin Lee and **Chun-Fu Yeh.** (2018) Lung Sound Monitoring Device and Lung Sound Monitoring Method Thereof. U.S. Patent 16/120,985, Patent Pending.
- **Chun-Fu Yeh**, Szu-Han Tzao and Ming-Chieh Tsai. (2016) Body Motion Analysis System, Portable Device and Body Motion Analysis Method. U.S. Patent 2018/0178060A1, filed December 23, 2016. Patent Pending.

Conference Papers & Posters

- **Chun-Fu Yeh**, Guan-An Chen, Kwou-Yeung Wu, Min-Yu Huang (2018) Feasibility of Early Detection for Retinal Nerve Fiber Layer Defect with Digital Fundus Image in Glaucoma Patients. The 31st IPPR Conference on Computer Vision, Graphics and Image Processing, Tainan, Taiwan, August 19-21. **(Oral Presentation)**
- Chen, H-L., Lin, S-Y., **Yeh C-F.**, Wang, T-N., Tang, H-H., Ruan, S-J. (2016). Development of a Unilateral Kinect-based Rehabilitation Game for Children with Cerebral Palsy. The 16th annual research colloquium of the Department of Occupational Therapy in National Taiwan University, Taipei, Taiwan.
- **Yeh CF**, Huang WF, Lin SY, Chen HL. (2015) Effects of task difficulty on reaching tasks in typically developing children, 2015 International Occupational Therapy Conference, Shenzhen, China, March 20-22.
- Lin SY, **Yeh CF**, Huang WF, Chen HL. (2015) Trunk control during reaching within and beyond arm length in developmental children, 2015 International Occupational Therapy Conference, Shenzhen, China, March 20-22.
- Hao-Ling Chen and **Chun-Fu Yeh** (2014) Dynamic Postural Control During Functional Reaching in Children with Down Syndrome and Typical Development. *The 1st Global Conference on Biomedical Engineering (GCBME 2014)*, Tainan, Taiwan, October 9-12. **(Oral Presentation)**
- Wu CT, Liu YH, Hsu WC, Chen PM, **Yeh CF**, Seng GJ and Chen HL. (2014) A potential biofeedback BCI design for motor imagery training using single-trial EEG, 2014 IEEE International Conference on Automation Science and Engineering. Taipei, Taiwan, August 18-22.
- **Chun-Fu Yeh**, Wei-Chun Hsu, Yi-Hung Liu, Po-Ming Chen, Yu-Tsung Hsiao, Ya-Ting Chen, Chien-Te Wu and Hao-Ling Chen (2014) The “Imagery” Fitt’s Law of Motor Control in Human Brain Single-trial EEG analysis. *The 21st Annual Meeting of the Cognitive Neuroscience Society*, Boston MA, USA, April 5-8.
- Yi-Hung Liu, Hao-Ling Chen, Wei-Chun Hsu, Po-Ming Chen, Yu-Tsung Hsiao, **Chun-Fu Yeh**, Ya-Ting Chen and Chien-Te Wu (2014) Classification of Perception-based Motor Imagery with Single-Trial EEG Analysis. *The 21st Annual Meeting of the Cognitive Neuroscience Society*, Boston MA, USA, April 5-8.

EXTRA ACTIVITIES

Director General of United Eagle Welfare Committee 01/2017 - 12/2017

Industrial Technology Research Institute, Hsinchu, Taiwan

- Took charge of 300K USD budget to hold activities that can benefit employees

REFERENCES

Professor Hao-Ling Chen
School of Occupational Therapy, College of Medicine, National Taiwan University
4F., No.17, Xuzhou Rd., Zhongzheng Dist., Taipei City 100, Taiwan (R.O.C.)
hlchen@ntu.edu.tw
+886 2 33668162

Manager Jian-Ren Chen
Dept. of Intelligent Medical & Healthcare System, Div. of Healthcare Service,
Service Systems Technology Center, Industrial Technology Research Institute (ITRI)
No.195, Sec 4, Zhongxing Rd. Zhudong Township, Hsinchu County 310, Taiwan (R.O.C.)
cjr@itri.org.tw
+886 3 5913416

Division Director Yi-Fei (Peter) Luo
Div. of Healthcare Service, Service Systems Technology Center, ITRI
No.195, Sec 4, Zhongxing Rd. Zhudong Township, Hsinchu County 310, Taiwan (R.O.C.)
PeterLuo@itri.org.tw
+886 3 5912699