

CHAN-MIN HSU

✉ r07945010@ntu.edu.tw  Chan-Min Hsu  VillaHsu  Google Scholar

HIGHLIGHTS

- Research focused on **biomedical microscopy imaging** and **magnetic resonance imaging (MRI)**.
- Extensive experience in **deep learning and data preprocessing** for **image segmentation**.
- Familiar with interdisciplinary collaboration, including **confocal microscopy imaging** and biomedical **data collection**.

EDUCATION

National Taiwan University (NTU)

Sep. 2018 – Jun. 2020

M.S. in Graduate Institute of Biomedical Electronics and Bioinformatics (BEBI)

- Master Thesis: "**Mitochondrial Structure Prediction in Label-free Microscopy Images Using Convolutional Neural Networks**"
- Honor: **Government Special Education Scholarship (F'18 – S'19)**
- Selected Courses: Computer Vision, Medical Image Analysis, Fundamentals of Biomedical Image Processing, Super Resolution Microscopy Techniques
- GPA: 4.03/4.30

National Taiwan University (NTU)

Sep. 2014 – Jun. 2018





B.S. in Electrical Engineering (EE)

- Honor: **Dean's List (F'17)**, **Government Special Education Scholarship (F'16 – S'17)**
- Selected Courses: Data Structure, The Design and Analysis of Algorithms, Intro. to Digital Speech Processing
- GPA: 3.24/4.30, last60: 4.03/4.30

TECHNICAL SKILLS

- **Programming Language**: Python, C/C++, HTML/CSS, JavaScript, MATLAB, Shell Scripting
- **Machine Learning/Deep Learning**: PyTorch, Keras, Scikit-learn
- **Image Processing**: OpenCV, ImageJ Macro, Scikit-image
- **Libraries & Toolkits**: \LaTeX , Linux

PUBLICATION

1. **Chan-Min Hsu**, Yi-Ju Lee, An-Chi Wei, "Convolutional neural networks predict mitochondrial structures from label-free microscopy images". *Accepted to International Forum on Medical Imaging in Asia 2021. Vol. 11792. International Society for Optics and Photonics, 2021 (IFMIA 2021)* 
2. **Chan-Min Hsu**, Yi-Ju Lee, An-Chi Wei. "Using deep learning to predict mitochondria structure in label-free microscopy images". *Accepted to 2019 Taiwan Society for Mitochondrial Research and Medicine Conference (TSMRM 2019) Poster* 
3. **Chan-Min Hsu**, An-Chi Wei, Shao-Ting Chiu, Zih-Hua Chen, Ko-Hong Lin. "Subcellular mitochondria structure prediction in label-free microscope images using convolutional neural networks". *Accepted to The 20th International Conference on Systems Biology (ICSB 2019) Poster* 
4. Cheng-You Lee, **Chan-Min Hsu**, Chiou-Shann Fuh. "FASTER FACE CHANGING TECH". *Accepted to Proceedings of IPPR Conference on Computer Vision, Graphics, and Image Processing, Taitung, Taiwan, D2-1, Paper# CV-0006, pp. 1-8, May 2019 (CVGIP 2019)* 

RESEARCH EXPERIENCES

Multimodal Medical Imaging Optimization Lab, NTU, Advisor: Prof. Kevin T. Chen

Sep. 2021 – PRESENT

Research Assistant

Taipei, Taiwan

- Researched on **Positron Emission Tomography (PET) reconstruction** using deep learning and multimodal medical imaging.
- Set up the laboratory and the network.




Biomedical System Engineering Lab, NTU, Advisor: Prof. An-Chi Wei

Sep. 2020 – Jun. 2021

Research Assistant

Taipei, Taiwan

- Researched on **Transformer-based U-Net** for Biomedical Image Segmentation.

- Built a **Deep Learning model for Biomedical Image Segmentation**.
 - Accepted to IFMIA2021 , Poster in ICSB2019 
- Used Zeiss LSM800 for **Confocal Imaging** and **Data Collection**. ( AC16 Mitochondria Dataset)

Microfluidics Innovated Bio-Applications Lab, CUHK, Advisor: Prof. Megan Y.P. HO

Jul. 2018 – Aug. 2018

Visiting Research Student

Hong Kong

- Learned the practical skills on biomedical research (cell culture) and assisted in sample preparation for cell analysis.

Research Center for Information Technology Innovation, Academia Sinica, Advisor: Dr. Yu Tsao

Jul. 2017 – Aug. 2018

Research Intern

Taipei, Taiwan

- Researched on **Generative Adversarial Networks (GANs)** for throat disease detection. 
- Researched on **Speech Enhancement** using Autoencoder. 

Speech Processing Lab, NTU, Advisor: Prof. Lin-Shan Lee

Mar. 2017 – Jan. 2018

Undergraduate Researcher

Taipei, Taiwan

- Built a **Seq2Seq Chatbot** with sequence GANs and other deep learning methods.
- Surveyed literature on state-of-the-art deep learning methods for Natural Language Processing.

TEACHING EXPERIENCES

Teaching Assistant on Introduction to Biomedical Engineering, Fall 2019 Course

Sep. 2019 – Jan. 2020

- In charge of Homeworks on different topics (**BioModel, Microfluidics, Medical Imaging, Biomedical Optics, etc.**).

Guest Lecturer on Advanced Computer Vision, Spring 2019 Course

Mar. 2019 – Jun. 2019

- Introduced **3D Reconstruction**.
- Slide Link: 

HONORS & AWARDS

Dean's list, EE at NTU

Fall '17

Government Special Education Scholarship (twice), EE and BEBI at NTU

Fall '16 – Spring '17, Fall '18 – Spring '19

Cathay Financial Holdings Enterprise Award, MakeNTU 2019 (out of 50 teams)

Mar. 2019

MediaTek Inc Enterprise Award, MakeNTU 2017 (out of 50 teams)

Feb. 2017

1st Place, 2015 NTU Physics Creative Competition of General Physics Experiment

May. 2015

SELECTED PROJECTS

Mitosis Classification with CNN and Explainable Model 

Jun. 2019

Course Final Project of "Medical Image Analysis"

- Built a CNN model for microscopy image classification on mitosis stages.
- Performed **Model Explanation** on CNNs via LIME algorithm.

Faster Face Changing Tech 

Jun. 2019

Course Final Project of "Advanced Computer Vision"

- Developed a machine learning program which can transfer one's face to others.
- Redesigned the algorithm and network architecture while reducing the execution time significantly.

Eye Controlled Robotic Arm 

Jun. 2017

Course Final Project of "Electrical Engineering Lab (Biomedical Engineering)"

- Built a robotic arm controlled by electrooculography (EOG).
- Designed the algorithm of EOG detection on the open-source electronics platform (Arduino).

LANGUAGE

- **English**, TOEFL iBT: R28/L28/S22/W22
- **Chinese**, Native

- **German**, Goethe-zertifikat: C1