Curriculum Vitae - Han Chen

PhD Candidate at Korea University
School of Electrical Engineering
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Research Interests

- **Computer Vision**
  - Medical Image Segmentation
  - Human Action Recognition
  - Object Tracking
- **Machine Learning**
  - Deep Learning
  - Transfer Learning
  - Unsupervised Learning
  - Semi-Supervised Learning
  - Time-Series Anomaly Detection

Skills

- AI & ML-related programming: Python, MATLAB, R
- Machine Learning frameworks: PyTorch, Keras, Scikit-Learn
- Software Engineering: Data Structure, Algorithms
- Mathematics for Machine Learning: Linear Algebra, Optimisation, Probability Theory
- Large-scale Image Data Analysis
- Supply Chain related: Project Management, Vendor Relationship Management, Negotiations

Education

Korea University, South Korea — Sep. 2019 - Present
School of Electrical Engineering (Advisor: Prof. Hanseok Ko)
PhD in Electrical and Computer Engineering

- Research interests: Deep learning-based medical image segmentation, human action recognition, time-series anomaly detection
- Unsupervised medical image segmentation
  - A novel domain adaptation-based method is proposed for the high-performance segmentation of COVID-19 infection in CT scans even without access to the label.
  - This research was published in the Journal of Applied Intelligence.
  - **Project site**; **Paper link**.

  - A teacher-student learning framework proposed to utilize the feature of lung cancer data to boost the segmentation accuracy for COVID-19 infection segmentation.
  - This research was published in the Journal of Biomedical Signal Processing and Control.
  - **Project site**; **Paper link**.

- Human action recognition
  - A feature representation learning method proposed to adapt the CNN-based action recognition model for the new perspectives or objects.
  - This research was published in AVSS 2021 (the 17th IEEE International Conference on Advanced Video and Signal-based Surveillance).
  - **Project site**; **Paper link**.

  - A pose information-guided graph convolutional network proposed to achieve fast and high-accuracy skeleton-based human action recognition.
  - **Project site**.

- Meteorological data forecasting and anomaly detection
  - A Vector Autoregression (VAR) based system proposed for meteorological data analysis, forecasting and anomaly detection.
  - **Project site**.

Harbin Engineering University, China Sep. 2015 - Mar. 2018
College of Information and Communication Engineering (Advisor: Prof. Xiaojun Bi)
M.S. in Information and Communication Engineering

- Research interests: Machine learning-based video salient object detection and object tracking

- Object tracking
  - A optical flow-based video salient object detection method is proposed to detect the most attractive regions from videos.
  - A object tracking algorithm based on Spatio-temporal visual saliency features is proposed.
  - This research was published in the Journal of Harbin Engineering University.
  - **Project site**; **Paper link**.

Harbin Engineering University, China Sep. 2011 - Jun. 2015
College of Information and Communication Engineering
B.S. in Electronic Information Engineering

- Research interests: Embedded system

- Thesis: Design of the intelligent environmental temperature monitoring system based on 51 single chip microcomputer

Work Experience

ZTE Corporation, Shenzhen, China Mar. 2018 - Aug. 2019
Supply Chain Dept.
Global Purchasing Manager

- In charge of server and network device, cooperated with Dell, HPE.

- Experienced in analysis, strategy, relationship management, server supply chains, and negotiations.

Awards

- **BK21 (Brain Korea 21) plus Scholarship**, issued by *Brain Korea 21* , Mar 2019.
- **Natural Sciences and Engineering Scholarship**, issued by *Korea University* , Mar 2019.

Publications

- BI Xiaojun, **CHEN Han**. Video saliency detection algorithm based on spatial-temporal information. Journal of Harbin Engineering University, 2018, 39(11): 1786-1792. DOI: 10.11990/jheu.201711070.
- Yifan Jiang, **Han Chen**, Murray Loew, and Hanseok Ko. "COVID-19 CT image synthesis with a conditional generative adversarial network." IEEE Journal of Biomedical and Health Informatics 25.2 (2020): 441-452.
- Yifan Jiang, **Han Chen**, David K. Han, and Hanseok Ko. "Few-shot learning for CT scan based COVID-19 diagnosis." ICASSP 2021-2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP). IEEE, 2021.
- **Han Chen**, Yifan Jiang, Murray Loew, and Hanseok Ko. "Unsupervised domain adaptation based COVID-19 CT infection segmentation network." Applied Intelligence (2021): 1-14.
- **Han Chen**, Yifan Jiang, and Hanseok Ko. "Action Recognition with Domain Invariant Features of Skeleton Image." 2021 17th IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS). IEEE, 2021.
- **Han Chen**, Yifan Jiang, Murray Loew and Hanseok Ko. "A Teacher-Student Framework with Fourier Augmentation for COVID-19 Infection Segmentation in CT Images." arXiv preprint arXiv: 2110.06411 (2021). (Preprint)

Teaching Experience

Korea University
School of Electrical Engineering
Teaching Assistant

- ECE503: Advanced Pattern Recognition — Fall 2021
- ECE470: Pattern Recognition — Fall 2021

Conference Talks

- The 17th IEEE International Conference on Advanced Video and Signal Based Surveillance
  Oral Presentation — Sep. 2021