

Bingbin Liu | Curriculum Vitae

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Education

- **Carnegie Mellon University** **Pittsburgh, PA**
Ph.D. Candidate, Machine Learning Department *September 2019 – June 2024 (expected)*
- **Stanford University** **Stanford, CA**
M.S. Candidate, Computer Science (AI track), GPA 3.99/4.3 *September 2017–June 2019*
- **The University of Hong Kong** **Hong Kong**
B.Eng. CS Major & Math Minor, GPA 3.93/4.3, Major GPA 4.1/4.3 (First-Class Honour) *2013–2017*

Publications

Video Understanding.....

- **Spatiotemporal Relationship Reasoning for Pedestrian Intent Prediction**
ICRA 2020, IEEE-RAL.
Bingbin Liu, Ehsan Adeli, Zhangjie Cao, Kuan-Hui Lee, Abhijeet Shenoi, Adrien Gaidon, Juan Carlos Niebles
- **Temporal Modular Networks for Retrieving Complex Compositional Activities in Videos**
ECCV18 [link]. Also presented at WiCV workshop.
Bingbin Liu, Serena Yeung, Edward Chou, De-An Huang, Li Fei-Fei, Juan Carlos Niebles
- **Learning to Decompose and Disentangle Representations for Video Prediction**
NeurIPS18 [link]
Jun-Ting Hsieh, **Bingbin Liu**, De-An Huang, Li Fei-Fei, Juan Carlos Niebles

AI-Assisted Healthcare.....

- **Descriptive Analysis of ICU Patient Mobilization from Depth Videos**
ML4H18 (workshop)
Laëtitia Shao*, Zaid Nabulsi*, Ruchir Rastogi*, **Bingbin Liu**, Francesca Rinaldo, Serena Yeung, N. Lance Downing, William Beninati, Arnold Milstein, Li Fei-Fei
- **A Computer Vision System to Detect Bedside Patient Mobilization**
In submission
Serena Yeung*, Francesca Rinaldo*, Jeffrey Jopling, **Bingbin Liu**, Rishab Mehra, Lance Downing, Michelle Guo, Gabriel Bianconi, Alexandre Alahi, Julia Lee, Brandi Campbell, Kayla Deru, William Beninati, Li Fei-Fei, Arnold Milstein
- **3D Point Cloud-Based Visual Prediction of ICU Mobility Care Activities**
MLHC18 [link]
Bingbin Liu*, Michelle Guo*, Edward Chou, Rishab Mehra, Serena Yeung, N. Lance Downing, Francesca Rinaldo, Jeffrey Jopling, Brandi Campbell, Kayla Deru, William Beninati, Arnold Milstein, Li Fei-Fei

Experience

- **Graduate Research Assistant** **Stanford University**
Fine-grained action recognition in egocentric videos. *July - Dec 2018*
- **Independent Study** **Stanford University**
Partnership in AI-Assisted Care (PAC) at Vision Lab. Action recognition in depth videos. *Fall 2017 - Spring 2018*
- **Group IT Intern - Enterprise and Analytics** **CLP Power Hong Kong Limited**
Data analysis for enhancing internal IT services for help desk and critical systems. *Summer 2016*
- **Software Engineering Intern** **Hututa Technologies Limited**
Test and development of a system for efficient big data processing. *Summer 2015*

Teaching and Mentorship

- **Graduate Teaching Assistant** **Stanford University**
MED277/CS337 - AI-Assisted Health Care *Fall 2018*

- **Graduate Teaching Assistant**
CS231N - Convolutional Neural Networks for Visual Recognition
- **AI4ALL**
Research mentor of the NLP team. [[website](#)]
- **Girls teach Girls to Code**
Mentor lead for the AI track. [[website](#)]

Stanford University
Spring 2018

Stanford University
Summer 2018

Stanford University
Spring 2018

Projects

- **Intensive Care Unit Clinical Pathway Support** *PAC, Stanford University*
Building a system for vision-based automated documentation of ICU care activities for analyzing patient mobilization. Ongoing project; joined since October 2017.
- **Stacked Attention for Visual Question Answering** *CS224N, Stanford University*
Use LSTM as the language model and applied stacked spatial attention layers to capture the interaction between words and visual region for VQA tasks on the Visual7W dataset.
- **Automatic Melody Transcription** *CS229, Stanford University*
Pre-process input audios into different types of spectrograms for timbre-invariant features; apply CNN on the spectrograms to predict music notes, and post-process with HMM for melody tracking.
- **Cell Classification and Counting** *Summer research (2017), The University of Hong Kong*
Use MSER and CNN to classify and count bacteria in microscopic images to improve efficiency and reliability of BV diagnosis.
- **Object Recognition in Videos** *Final Year Project, The University of Hong Kong*
Base on T-CNN (Caffe) and use volumetric convolution (torch) and post-processing (MATLAB and Python) to leverage temporal and contextual information to handle complexities such as motion blur and occlusion.
- **Compiler (Undergraduate Research)** *UC Santa Barbara*
Build a compiler in Haskell for a research project which aims at devising a functional ISA for simplified formal verification at the programming language lab. Student volunteer at PLDI 2016.

Awards

- **Women in Computer Vision Travel Grant** *WiCV 2018*
- **Powering a Sustainable Generation Scholarship by CLP** *2015*
- **HKU World Wide Scholarship** *2015*
- **Dean's Honours List** *2013 - 2017*
- **Entrance Scholarship for Outstanding Mainland Students** *2013 - 2017*