



Serena Yeung

Assistant Professor of Biomedical Data Science and, by courtesy, of Computer Science and of Electrical Engineering

Department of Biomedical Data Science

CONTACT INFORMATION

- **Administrative Contact**

Julie Kline - Faculty Administrator

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Bio

BIO

Dr. Serena Yeung is an Assistant Professor of Biomedical Data Science and, by courtesy, of Computer Science and of Electrical Engineering at Stanford University. Her research focus is on developing artificial intelligence and machine learning algorithms to enable new capabilities in biomedicine and healthcare. She has extensive expertise in deep learning and computer vision, and has developed computer vision algorithms for analyzing diverse types of visual data ranging from video capture of human behavior, to medical images and cell microscopy images.

Dr. Yeung leads the Medical AI and Computer Vision Lab at Stanford. She is affiliated with the Stanford Artificial Intelligence Laboratory, the Clinical Excellence Research Center, the Center for Artificial Intelligence in Medicine & Imaging, the Center for Human-Centered Artificial Intelligence, and Bio-X. She also serves on the NIH Advisory Committee to the Director Working Group on Artificial Intelligence.

ACADEMIC APPOINTMENTS

- Assistant Professor, Department of Biomedical Data Science
- Assistant Professor (By courtesy), Computer Science
- Assistant Professor (By courtesy), Electrical Engineering
- Member, Bio-X
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)
- Member, Wu Tsai Human Performance Alliance
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Harvard Technology for Equitable and Accessible Medicine Fellowship, Harvard University (2018 - 2019)

PROFESSIONAL EDUCATION

- Postdoctoral Fellow, Harvard University (2019)
- Ph.D., Stanford University (2018)

Teaching

COURSES

2022-23

- Artificial Intelligence in Healthcare: BIODS 220, BIOMEDIN 220, CS 271 (Aut)
- Configuration of the US Healthcare System and the Application of Big Data/Analytics: BIODS 210 (Spr)
- Facial Plastic and Reconstructive Surgery: OTOHNS 209 (Spr, Sum)

2021-22

- Artificial Intelligence in Healthcare: BIODS 220, BIOMEDIN 220, CS 271 (Aut)
- Configuration of the US Healthcare System and the Application of Big Data/Analytics: BIODS 210 (Spr)
- Facial Plastic and Reconstructive Surgery: OTOHNS 209 (Spr, Sum)

2020-21

- Artificial Intelligence in Healthcare: BIODS 220, BIOMEDIN 220, CS 271 (Aut)
- Stakeholder Competencies for Artificial Intelligence in Healthcare: BIODS 388, BIOMEDIN 388 (Aut)
- Workshop in Biostatistics: BIODS 260A, STATS 260A (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Rachael Kretsch, Stefania Moroianu, Kevin Thomas

Postdoctoral Faculty Sponsor

Anita Rau, Xiaohan Wang, Zeyu Wang

Doctoral Dissertation Advisor (AC)

James Burgess, Jeffrey Gu, Ali Mottaghi, Jen Weng, Yuhui Zhang, Orr Zohar

Master's Program Advisor

Maya Czeneszew, Isaac Gorelik, Hannah Park, Elena Recalchini, Jennifer Xu, Orr Zohar

Doctoral (Program)

Sanket Gupte, Elana Simon, Yuhui Zhang

Publications

PUBLICATIONS

- **Ethical and Legal Aspects of Ambient Intelligence in Hospitals.** *JAMA*
Gerke, S. n., Yeung, S. n., Cohen, I. G.
2020
- **A computer vision system for deep learning-based detection of patient mobilization activities in the ICU.** *NPJ digital medicine*
Yeung, S., Rinaldo, F., Jopling, J., Liu, B., Mehra, R., Downing, N. L., Guo, M., Bianconi, G. M., Alahi, A., Lee, J., Campbell, B., Deru, K., Beninati, et al
2019; 2: 11
- **Every Moment Counts: Dense Detailed Labeling of Actions in Complex Videos** *INTERNATIONAL JOURNAL OF COMPUTER VISION*
Yeung, S., Russakovsky, O., Jin, N., Andriluka, M., Mori, G., Li Fei-Fei
2018; 126 (2-4): 375–89
- **Scaling Human-Object Interaction Recognition through Zero-Shot Learning**

- Shen, L., Yeung, S., Hoffman, J., Mori, G., Li Fei-Fei, IEEE
IEEE.2018: 1568–76
- **Temporal Modular Networks for Retrieving Complex Compositional Activities in Videos** *European Conference on Computer Vision*
Liu, B., Yeung, S., Chou, E., Huang, D., Fei-Fei, L., Niebles, J.
2018: 569–86
 - **3D Point Cloud-Based Visual Prediction of ICU Mobility Care Activities** *Machine Learning in Healthcare*
Liu, B., Guo, M., Chou, E., Mehra, R., Yeung, S., Downing, N. L., Salipur, F., Jopling, J., Campbell, B., Deru, K., Beninati, W., Milstein, A., Fei-Fei, et al
2018
 - **Computer Vision-based Descriptive Analytics of Seniors' Daily Activities for Long-term Health Monitoring** *Machine Learning in Healthcare*
Hsieh, J., Luo, Z., Balachandar, N., Yeung, S., Pusiol, G., Luxenberg, J., Li, G., Li, L., Downing, N. L., Milstein, A., Fei-Fei, L.
2018
 - **Dynamic Task Prioritization for Multitask Learning** *European Conference on Computer Vision*
Guo, M., Haque, A., Huang, D., Yeung, S., Fei-Fei, L.
2018
 - **Neural Graph Matching Networks for Fewshot 3D Action Recognition** *European Conference on Computer Vision*
Guo, M., Chou, E., Song, S., Huang, D., Yeung, S., Fei-Fei, L.
2018
 - **Bedside Computer Vision - Moving Artificial Intelligence from Driver Assistance to Patient Safety.** *The New England journal of medicine*
Yeung, S. n., Downing, N. L., Fei-Fei, L. n., Milstein, A. n.
2018; 378 (14): 1271–73
 - **Tool Detection and Operative Skill Assessment in Surgical Videos Using Region-Based Convolutional Neural Networks**
Jin, A., Yeung, S., Jopling, J., Krause, J., Azagury, D., Milstein, A., Li Fei-Fei, IEEE
IEEE.2018: 691–99
 - **Learning to Learn from Noisy Web Videos**
Yeung, S., Ramanathan, V., Russakovsky, O., Shen, L., Mori, G., Li Fei-Fei, IEEE
IEEE.2017: 7455–63
 - **Towards Vision-Based Smart Hospitals: A System for Tracking and Monitoring Hand Hygiene Compliance** *Machine Learning in Healthcare*
Haque, A., Guo, M., Alahi, A., Yeung, S., Luo, Z., Rege, A., Jopling, J., Downing, N. L., Beninati, W., Singh, A., Platchek, T., Milstein, A., Fei-Fei, et al
2017
 - **Jointly Learning Energy Expenditures and Activities using Egocentric Multimodal Signals**
Nakamura, K., Yeung, S., Alahi, A., Li Fei-Fei, IEEE
IEEE.2017: 6817–26
 - **End-to-end Learning of Action Detection from Frame Glimpses in Video** *Computer Vision and Pattern Recognition*
Yeung, S., Russakovsky, O., Mori, G., Fei-Fei, L.
2016: 2678–87
 - **Towards Viewpoint Invariant 3D Human Pose Estimation** *European Conference on Computer Vision*
Haque, A., Peng, B., Luo, Z., Alahi, A., Yeung, S., Fei-Fei, L.
2016
 - **Learning hierarchical invariant spatio-temporal features for action recognition with independent subspace analysis** *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*
Le, Q. V., Zou, W. Y., Yeung, S. Y., Ng, A. Y.
IEEE.2011