# Zhihang Ren

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## Education

**University of California, Berkeley** Aug. 2019 - May 2024
Ph.D. in Vision Science | Advisors: Stella X. Yu,David Whitney ***GPA: 3.98/4.0***
Research in Computer Vision, Medical Imaging, and Vision Science

**University of California, San Diego** Aug. 2017 - June 2019
M.S. in Electrical and Computer Engineering | Advisors: Nuno Vasconcelos, Bhaskar D. Rao ***GPA: 3.77/4.0***
Research in Computer Vision, and Medical Imaging

## Experience

**TikTok Inc.** July. 2024 - Present
***Machine Learning Engineer*** *Python, Pytorch, Multi Modality, LLM*

- Build multi-modal harmful content detection systems for user posts auto-review involving images and videos.
- Leverage Large-Language-Models (LLM) to boost the performance of the auto-review system.

**Meta Reality Labs** May. 2022 - Dec.2022
***Research Scientist Intern*** *Python, Pytorch, GenAI, GAN*

- Contributed to Meta's Generative AI project focused on facial expression editing via VQGAN.
- Proposed a new style transfer task to generate novel style images by modeling popular styles on the Internet.
- Studied a generative method to solve the proposed task by disentangling, contrastive learning, and adversarial learning.

## Projects

**Serial Dependence Study in Diagnostics** Dec. 2019 - Ongoing
***Data analysis of diagnostic data*** *Python, Pytorch, Data Science, Machine Learning, GenAI, GAN*

- Investigating the impact of visual serial dependence, a human visual effect, on diagnostic performance.
- Building generative AI tools for researchers to controllably produce authentic medical image stimuli.
- Proposing, designing, and verifying approaches to alleviate serial dependence influence in real diagnostic scenarios.

**Skin Cancer Classification via Generative Self-Supervised Learning** Feb. 2021 - July. 2021
***Improve the reliability of the classification boundaries*** *Python, Pytorch, Machine Learning, GenAI, GAN*

- Proposed to utilize generative models to enrich the rare case data, increasing the robustness of classification.
- Boosted the accuracy of self-supervised skin cancer image classification by 11.17% on BCN20000.

## Selected Publication

- BEAT: Berkeley Emotion and Affect Tracking Dataset
  **Zhihang Ren**, Jefferson Ortega, Yunhui Guo, Stella X. Yu, David Whitney
  *IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) Workshop, 2024*
- Region-Based Emotion Recognition via Superpixel Feature Pooling
  **Zhihang Ren**, Yifan Wang, Tsung-Wei Ke, Yunhui Guo, Stella X. Yu, David Whitney
  *IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) Workshop, 2024*
- SkinCON: Towards consensus for the uncertainty of skin cancer sub-typing through distribution regularized adaptive predictive sets (DRAPS)
  **Zhihang Ren**, Yunqi Li, Xinyu Li, Xinrong Xie, Erik P. Duhaime, Kathy Fang, Tapabrata Chakraborty, Yunhui Guo, Stella X. Yu, David Whitney
  *the 27th International Conference on Medical Image Computing and Computer Assisted Intervention, MICCAI 2024*
- VEATIC: Video-based Emotion and Affect Tracking in Context Dataset
  **Zhihang Ren***, Jefferson Ortega*, Yifan Wang*, Zhimin Chen, Yunhui Guo, Stella X. Yu, David Whitney
  *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2024*
- Controllable Medical Image Generation via GAN
  **Zhihang Ren**, Stella X. Yu, David Whitney
  *Journal of Perceptual Imaging*, 2022
- Improve Image-based Skin Cancer Diagnosis with Generative Self-Supervised Learning
  **Zhihang Ren**, Yunhui Guo, Stella X. Yu, David Whitney
  *IEEE/ACM Conference on Connected Health Applications, Systems, and Engineering Technologies (CHASE)*, 2021