

Ho Kei (Rex) CHENG

Email hokeikc2@illinois.edu / hkchengrex@gmail.com

Homepage hkchengrex.github.io

Education

PhD in Computer Science, University of Illinois Urbana-Champaign

Aug 2021 – May 2026 (expected)

Advised by Alexander Schwing

MPhil in Computer Science, The Hong Kong University of Science and Technology

Sep 2019 – Aug 2021

Advised by Chi-Keung Tang and Yu-Wing Tai

Thesis: Efficient Video Object Segmentation with Space-Time Correspondence Networks

BEng in Computer Science, The Hong Kong University of Science and Technology

Sep 2015 – Aug 2019

With a minor in Robotics

Publications

Rethinking Space-Time Networks with Improved Memory Coverage for Efficient Video Object Segmentation; **Ho Kei Cheng**, Yu-Wing Tai, Chi-Keung Tang; **NeurIPS 2021** [\[link\]](#)

- Simple yet effective rethinking of the popular STM network used in VOS
- Large performance gain (81.8->85.4), with almost double FPS (10.2->20.2)
- [YouTubeVOS 2021 challenge](#): 1st place in novel classes, 2nd place overall

Modular Interactive Video Object Segmentation: Interaction-to-Mask, Propagation and Difference-Aware Fusion; **Ho Kei Cheng**, Yu-Wing Tai, Chi-Keung Tang; **CVPR 2021** [\[link\]](#)

- Reformulates interactive VOS by decoupling components, beats SOTA by a large margin
- Used by data annotators and movie studios

CascadePSP: Toward Class-Agnostic and Very High-Resolution Segmentation via Global and Local Refinement; **Ho Kei Cheng***, Jihoon Chung*, Yu-Wing Tai, Chi-Keung Tang; **CVPR 2020** [\[link\]](#)

- Generates 4K, pixel-accurate segmentation from low-res segmentation by iterative refinement

Work Experience

Embedded Systems Engineer, HKUST Robotics Team; Dec 2015 – Jun 2018

Embedded programming for STM32 in C: PID control with path planning, byte-level communication protocols, and low-level libraries

Professional Activities

- Reviewer for CVPR, ICCV, ECCV, NeurIPS, ICML, TIP, Pattern Recognition
- TAs for multiple undergraduate and graduate level computer vision and deep learning courses