

Ho Kei (Rex) Cheng

Ph.D. candidate at University of Illinois Urbana-Champaign
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hkchengrex.com
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Education

Ph.D. in Computer Science

University of Illinois Urbana-Champaign, Illinois, United States
Advised by Alexander Schwing.

Aug 2021 - May 2026 (expected)

MPhil in Computer Science

The Hong Kong University of Science and Technology, Hong Kong
Advised by Chi-Keung Tang and Yu-Wing Tai.

Aug 2019 - Aug 2021

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

BEng in Computer Science

The Hong Kong University of Science and Technology, Hong Kong
With a minor in Robotics.

Sep 2015 - Aug 2019

Research

I worked on various image and video processing algorithms, including segmentation, tracking, and generation. I am particularly interested in studying temporal relations in videos to construct efficient and scalable models. I embrace open-source research and actively make all my research available to the community. I am glad that some of my research has been adopted by the academics and the industry. *Paper titles link to respective project pages.*

Putting the Object Back into Video Object Segmentation

Highlight, CVPR 2024

Ho Kei Cheng, Seoung Wug Oh, Brian Price, Joon-Young Lee, Alexander Schwing. *Used by iMotions and Annolid.*

Tracking Anything with Decoupled Video Segmentation

ICCV 2023

Ho Kei Cheng, Seoung Wug Oh, Brian Price, Alexander Schwing, Joon-Young Lee.

XMem: Long-Term Video Object Segmentation with an Atkinson-Shiffrin Memory Model

ECCV 2022

Ho Kei Cheng, Alexander Schwing. *Used by supervisely, Track-Anything, and more.*

Rethinking Space-Time Networks with Improved Memory Coverage for Efficient Video Object Segmentation

Ho Kei Cheng, Yu-Wing Tai, Chi Keung Tang. *Used by Trioscope and BURST.*

NeurIPS 2021

Modular Interactive Video Object Segmentation: Interaction-to-Mask, Propagation and Difference-Aware Fusion

Ho Kei Cheng, Yu-Wing Tai, Chi Keung Tang. *Used by Sieve.*

CVPR 2021

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

Work Experience

Research Intern, Kaiber AI

Working on diffusion-based video generation and editing models.

Nov 2023 - Now

Research Scientist Intern, Adobe Research

Worked closely with Seoung Wug Oh, Brian Price, and Joon-Yong Lee. Significantly contributed to Video Background Removal in Adobe Express and Next-Gen Roto Brush in After Effects.

May 2022 - Nov 2022

Invited Talks

- Segmenting Videos in the Open World @ IBM Zurich, Accelerated Discovery
- Large-Scale Decoupled Video Segmentation @ Apple

Professional Activities

- Reviewed for CVPR, ICCV, ECCV, NeurIPS, ICML, IEEE TIP, IEEE PR, IEEE TPAMI, IEEE TCSVT.
- Outstanding reviewer in ICML 2022.
- TAs for multiple undergraduate and graduate level computer vision and deep learning courses.