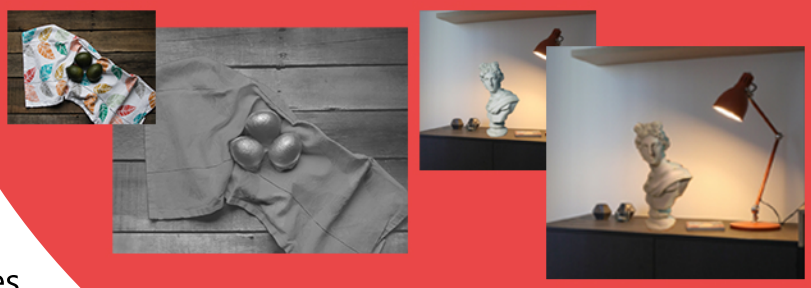
Computational Photography Lab.

At Computational Photography Lab, we specialize in developing next-generation post-production tools using computer vision and machine learning. Our research focuses on understanding the physical world from a single photograph or video. Our works infer the geometry, illumination, and objects in the scene with high fidelity and at high resolutions, creating brand new possibilities for realistic scene editing. By modeling the real world from imagery, our works aim to extend affordable post-production capabilities that are currently only possible by reshooting with camera, grip, lighting, and art department teams. Our works open up a world of new post-production tools that bring the capabilities of CG environments like Blender or Unreal Engine but for editing live-action scenes captured with a single camera.

Ongoing Research

We are focusing on developing cutting-edge methods for understanding the world from a photograph in terms of geometry,

segmentation & matting for object selection and compositing, and shading and reflectance for illumination editing and relighting.



These physical properties extracted from a single view will form the basis for bringing the 2D image into 3D, unlocking CG-like capabilities to altering live action footage with ease.

Research in an active production environment

Our lab features a production studio with high-end consumer cameras and filming equipment. Our aim is to conduct research on Computational Photography in an active production environment together with creatives to develop tools that address the real needs of film-makers.

Our view of AI

Current direction of the field of Artificial Intelligence focuses on generative AI that threatens to undermine the creative roles in film-making. Our research, instead, aims to empower creatives using analytical AI by extending the capabilities of post-production tools to allow better and affordable artistic expression.

Principal Investigator

Dr. Yağız Aksoy. is an assistant professor at SFU. He received his PhD from ETH Zurich. His doctoral work was on compositing and realistic image editing. During his PhD, he worked at Disney Research, developing custom post-production tools for movie studios. He spent a year at MIT as a visiting PhD student. His work led to numerous publications and the development of tools such as Nuke CopyCat. His work received media attention from venues such as BBC News, PetaPixel, and Nature. Learn more about his research and our lab here: http://yaksoy.github.io/

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