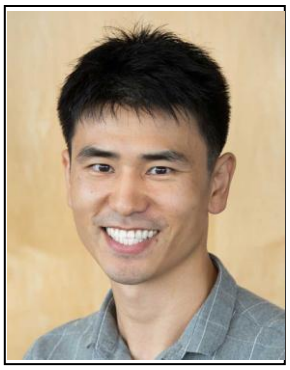

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(국문/영문)강연제목: 라이트싯광학이미징과 생체역학을 이용한 심장발달 과정/ *Light-Sheet Imaging and Biomechanical Effects to Study Cardiac Trabeculation*

Abstract(영문): Congenital heart diseases are one of the most common birth defects in humans, and these arise from developmental defects during embryogenesis. Many of these diseases have a genetic component, but they might also be affected by environmental factors such as mechanical forces. Dr. Lee developed novel in vivo 4-D beating zebrafish heart image throughout the cardiac cycle by a custom-built light-sheet microscope with computational algorithm. Also, his team subsequently assessed cardiac mechanics and hemodynamic effect to quantify intracardiac shear stress by computational fluid dynamics (CFD) or tensor analysis. His research revealed the mechanobiological mechanisms of proper cardiac chamber formation. This multidisciplinary approach to study ventricular morphogenesis via mechanotransduction regulation of Notch signaling advances the field of developmental cardiac mechanics with advanced optical system. In addition, Dr. Lee is interested in cardiac regeneration of zebrafish with novel light-field imaging technique as well.

Brief Biosketch (간단한 이력, 연구/대외활동 소개,국문/영문)

Juhyun Lee, Ph.D., is currently an assistant professor of Bioengineering at UTA. Juhyun completed his B.S. in Biomedical Engineering at the University of Utah in 2010. He then attended USC and UCLA as a Master's and Ph.D. Bioengineering student, respectively. After finishing his academic training, he worked as a biomedical engineer at Edward Lifesciences specializing in artificial heart valves and hemodynamic monitoring device. His research focuses on developing a novel microscopy system to study cardiac development by analyzing biomechanical effects.