

Introduction to 3D Dimensional Optical Technology

Research theme: Future technologies in 3D camera and 3D display

3D depth extraction camera



3D holographic display

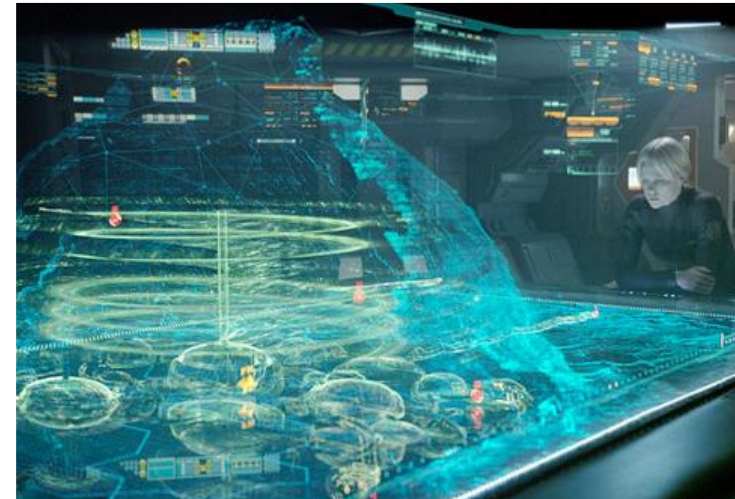
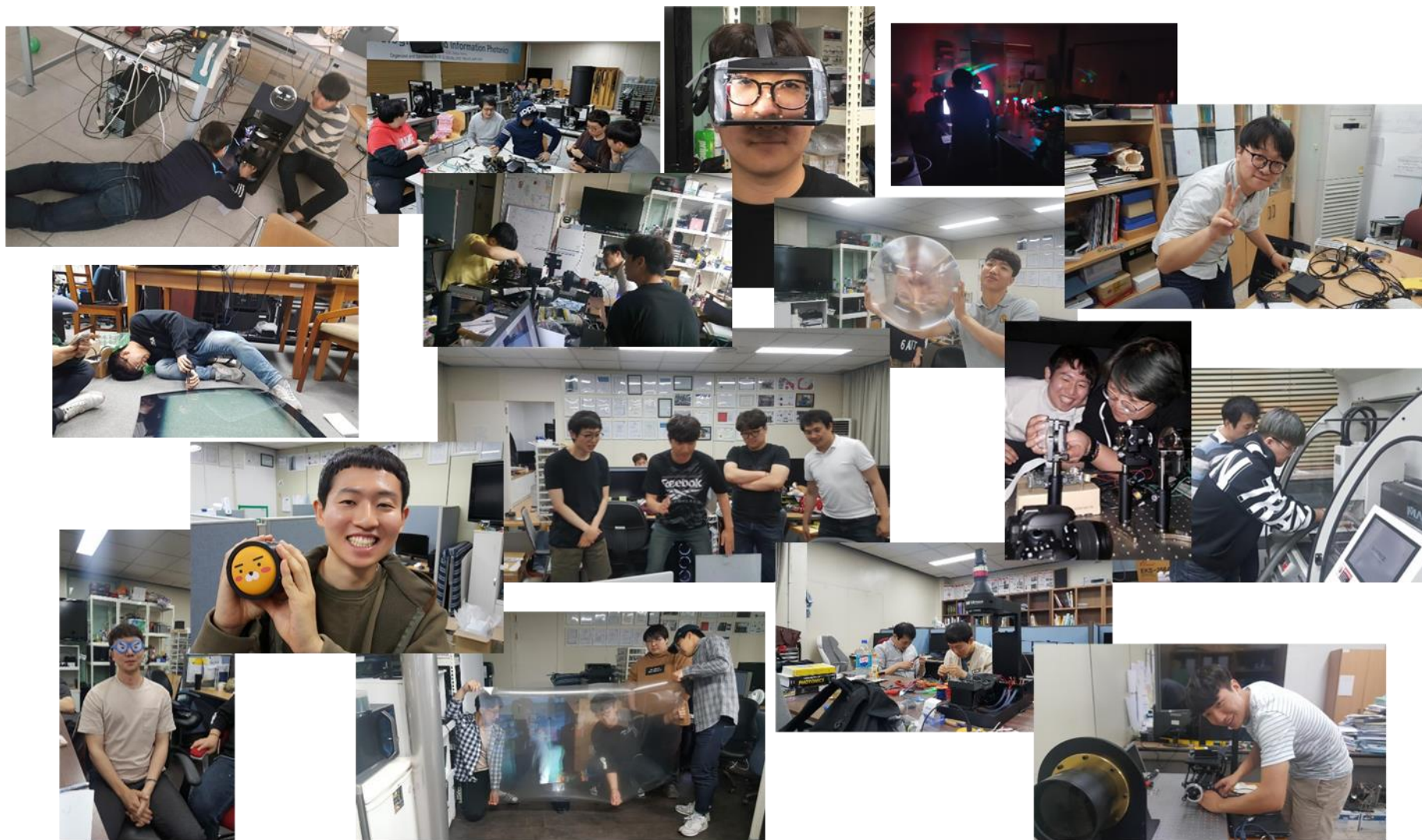


Image source: Prometheus (by Ridley Scott, 2012)

1. Introduction to 3DOT

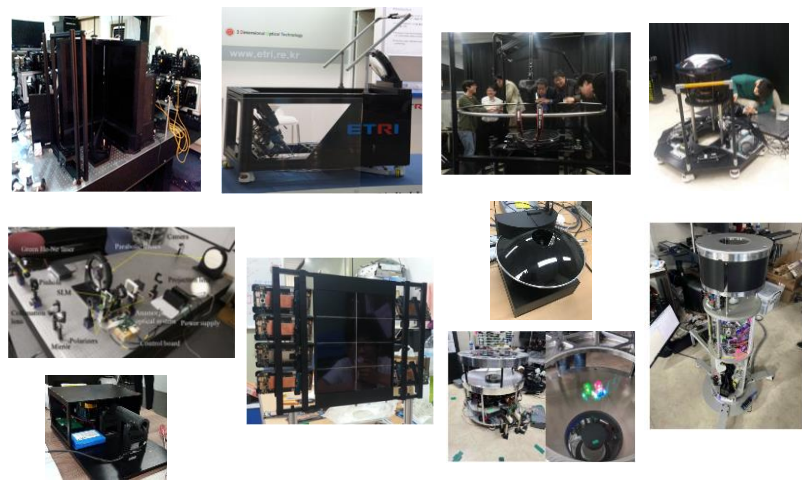
3DOT Moto: Fun & Happiness



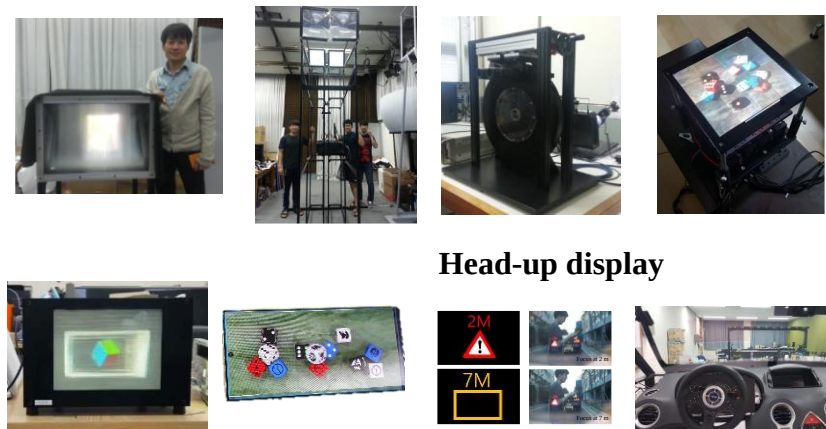
1. Introduction to 3DOT

Pieces of work in 3DOT

Holographic display



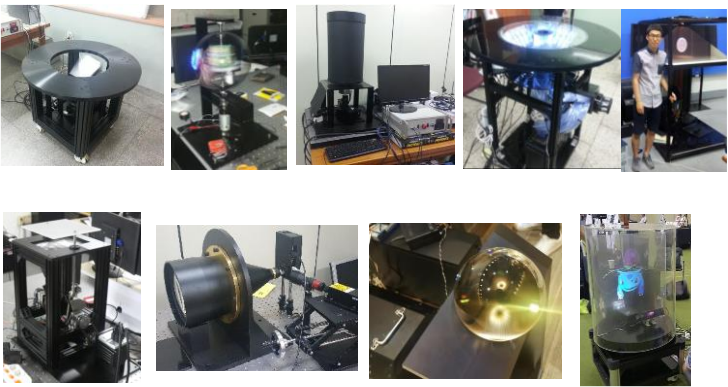
Projection 3D display



Head-up display



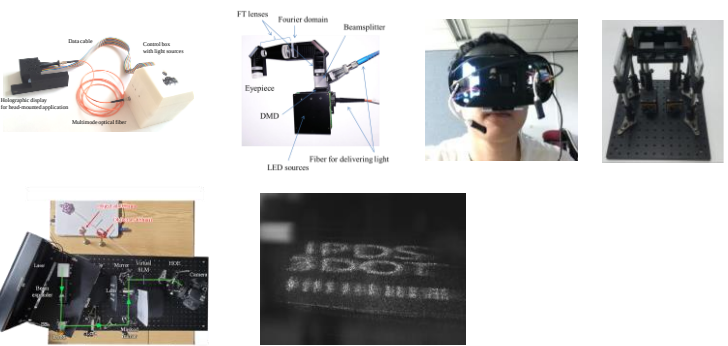
Volumetric display



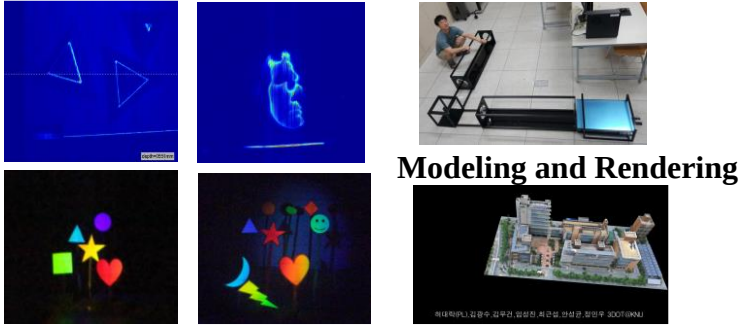
Structural Color DOE



Near-eye display



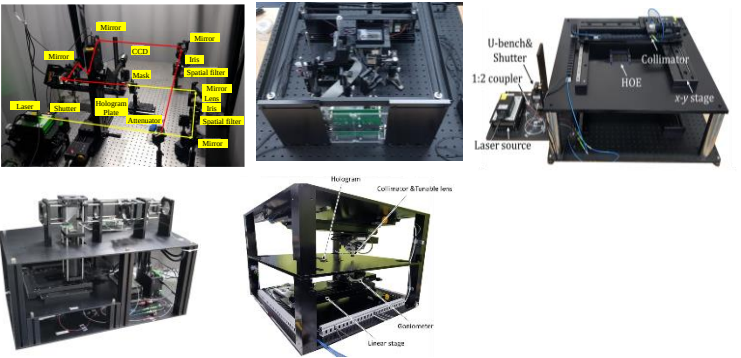
Depth sectioning and coloring Pixel-matched pick-up



Modeling and Rendering



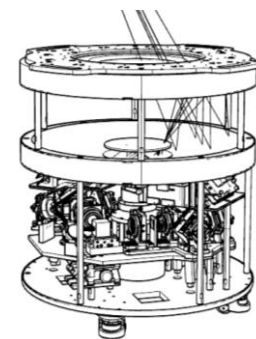
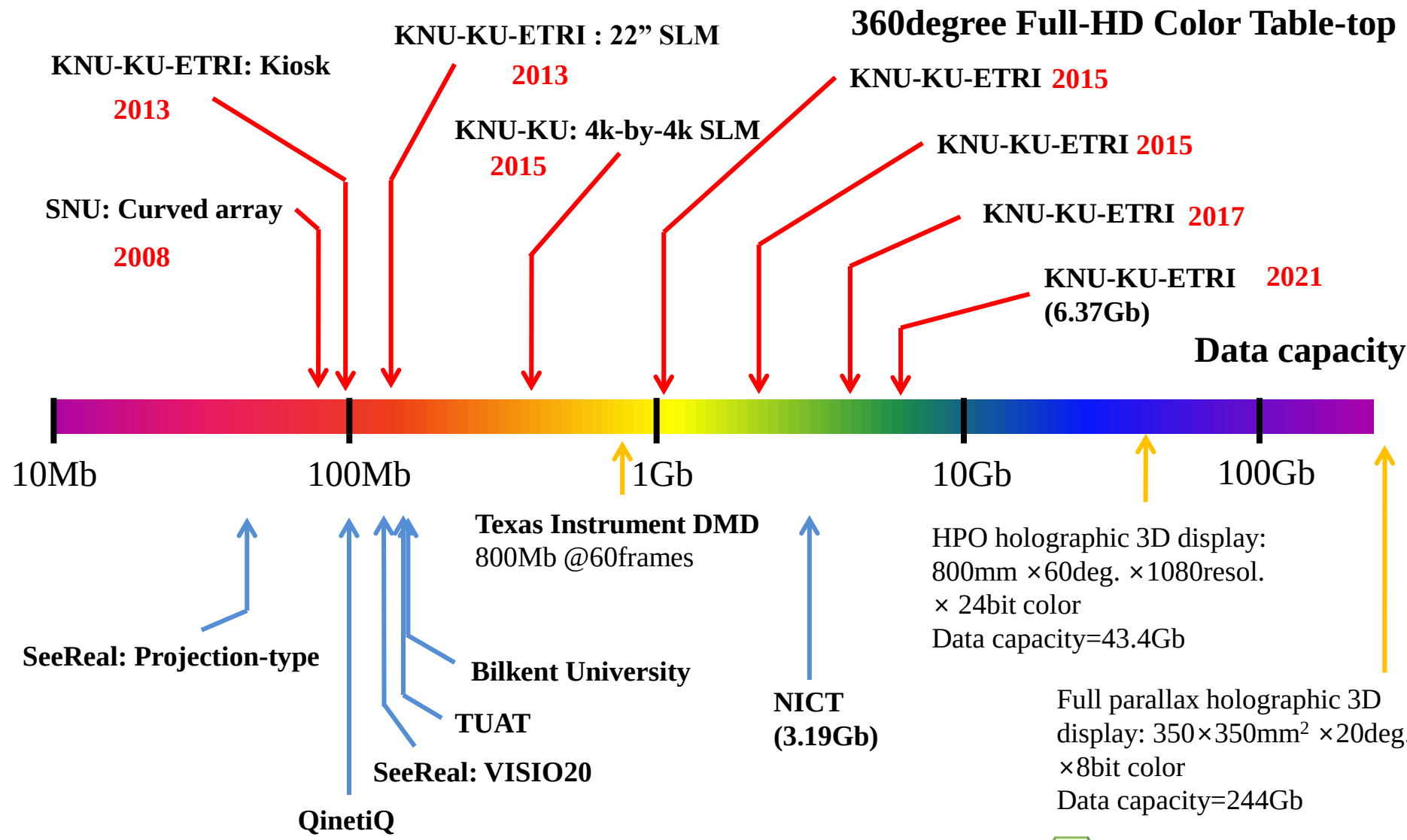
Hologram printing



Holographic metrology



Data capacity of holographic display



Honors and Awards

NAEC

2017 - 412

2025년, 대한민국을 이끌 100대 기술과 주역

한준구
핵심기술

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경이로운 경제 성장의 원동력은
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2017년 12월 19일
한국공학한림원 회장 권오경



삼성미래기술육성센터
2014.01~2017.12
2018.03~2021.02

THE OPTICAL SOCIETY

Presents a

2014 OSA OUTSTANDING REVIEWER AWARD

TO

Prof. Joonku Hahn

In recognition of your indispensable contribution as a peer reviewer to the success and stature of OSA's journal publishing program

OSA
The Optical Society

Dr. Martin De Sterke
Chair, Board of Editors

DHIP2013

Outstanding Poster Award

presented to

Sungmin Kim and Joonku Hahn

Kyungpook National University

for the paper entitled

Compact holographic microscope without imaging lens

13th International Meeting on Information Display (IMID 2013)

Daegu, Republic of Korea

August 28, 2013

President of the Korean Information Display Society

KIDS

IMiD 2014

Outstanding Poster Paper Award

This certificate is awarded to:

Wanshan Moon, Joonku Hahn (Kyungpook Nat'l Univ., Korea), Joonku Hahn, Joonku Hahn (Kyungpook Nat'l Univ., Korea)

For the paper:

13-Inch 4k by 4k Resolution Holographic Display

The 14th International Meeting on Information Display (IMID 2014)

Daegu, Republic of Korea

August 28, 2014

President of the Korean Information Display Society

DHIP2014

THE FOURTH JAPAN-KOREA WORKSHOP ON DIGITAL HOLOGRAPHY AND INFORMATION PHOTONICS

Outstanding Poster Award

PRESENTED TO

Wanshan Moon

Osamu Matsuba
General Chair
Chungbuk National University

Nam Kim
General Co-Chair
Chungbuk National University

18th DECEMBER, 2014
OKINAWA, JAPAN

DHIP 2015

The Fifth Korea-Japan Workshop on Digital Holography and Information Photonics

Outstanding Poster Award

PRESENTED TO

"Super multi-view display with a digital micro-mirror device"

Changyong Lee, Hoonwon Jeon, Joonku Hahn, and Joonku Hahn

Yoon Kim
General Chair
Chungbuk National University

Osamu Matsuba
General Co-Chair
Chungbuk National University

17th September, 2015
Gangneung, Korea

CLEO Pacific Rim 2015

Best Student Paper Award

PRESENTED TO

Kwang Sun Kim, Hoonwon Jeon, Joonku Hahn, and Joonku Hahn

Kyungpook National University, Korea

For their paper titled

Pull-color Table-top Display with Rotating Transmissive Screens

Conference Chair: Yung Hae Lee

Program Chair: Chul Min Kim

Hyungsoo Lee

August 24, 2015

KIDS

IMiD 2016

Outstanding Poster Paper Award

This certificate is awarded to:

Jinsung Shin, Gwangyeop Choi, Kyungsoo Hahn, and Joonku Hahn (Kyungpook Nat'l Univ., Korea)

For the paper:

Volume: Table Display with Linear Reciprocating Motion

The 16th International Meeting on Information Display (IMID 2016)

Jeju, Korea

August 28, 2016

President of the Korean Information Display Society

Photonics Conference 2016

우수논문상

논문제목: 광학 및 전기 회로의 광학 제어를 이용한 광학 회로 구현

저자: 김지현, 김지현, 황준하(김천대)

상기 논문은 한국광학회 광학기술학회, 한국광학회 광학정보학회, 대한광학회 광학 및 광전자공학부, 대한광학회 광학 및 광전자공학부 및 IEEE Photonics Society 한국(한국)이 주최 공동 주최하여 2016년 11월 30일 ~ 12월 2일 열린 한국광학회에서 개최된 Photonics Conference 2016에서 발표되었으며 우수논문으로 선정되었습니다.

2016년 12월 1일

제25회 광학기술 학술회의 조직위원회 장

DHIP 2017

The Seventh Korea-Japan Workshop on Digital Holography and Information Photonics

Outstanding Poster Award

PRESENTED TO

"Hybrid light field display"

Danuk Hahn, Myoung Kim and Joonku Hahn

Kyungpook National University

Sung-Wook Min
General Chair
Kyungpook University

Takanori Nomura
General Co-Chair
Wakayama University

22nd December, 2017
Daegu, Korea

Optics and Photonics Congress 2019

OSK-OSA-OSJ Joint Symposia

Best Paper Award

This certificate is awarded to:

Seungwon Lee, Joonku Hahn, Joonku Hahn, Joonku Hahn

For the paper titled:

Optimization of spatial coherence for digital holographic display

2019년 04월 04일

President of the Korean Information Display Society

DHIP 2019

The 9th Korea-Japan Workshop on Digital Holography and Information Photonics

Outstanding Poster Award

PRESENTED TO

"The wide-viewing angle portable holographic tabletop display"

Danuk Hahn, Gwangyeop Choi, Hoonwon Jeon, Yungmin Lim, Joonku Hahn, and Joonku Hahn

Kyungpook National University

Hoonwon Jeon
General Chair
Wakayama University

Yoon Kim
General Co-Chair
Chungbuk National University

20th December, 2019
Gwangju, Korea

한국광학회 2020년도 학술평의회

우수논문상

논문제목: 광학 및 전기 회로의 광학 제어를 이용한 광학 회로 구현

저자: 김지현, 김지현, 황준하(김천대)

상기 논문은 한국광학회가 주관하는 한국광학회 2020년도 학술평의회에서 우수논문으로 선정되었으며 시상합니다.

2020년 01월 15일

한국광학회 장 박승환

한국광학회 2021년도 학술평의회

우수논문상

논문제목: 광학 및 전기 회로의 광학 제어를 이용한 광학 회로 구현

저자: 김지현, 김지현, 황준하(김천대)

상기 논문은 한국광학회가 주관하는 한국광학회 2021년도 학술평의회에서 우수논문으로 선정되었으며 시상합니다.

2021년 03월 18일

한국광학회 장 박승환

상장

우수상

소속: 경북대학교

성명: 김지현

취하는 제비리언트유선통신에서 주최하는 2021 Zemax OpticStudio 대학원 온라인 설계 경진대회에서 최우수상 수상자로서 이 상장을 드립니다.

2021년 09월 16일

제비리언트유선통신 대표이사 김지현

DHIP 2021

The 11th Japan-Korea Workshop on Digital Holography & Information Photonics

Student Presentation Award

PRESENTED TO

"Expressible depth of digital holographic display using light-emitting diode light source"

Sungmin Kim, Hoonwon Jeon, Joonku Hahn, and Joonku Hahn

Yoon Kim
General Chair
Chungbuk National University

Jae-Hyun Park
General Co-Chair
Johai University

December 23, 2021
Online workshop

1. Introduction to 3DOT

Activities for publicizing our researches



2013 IMID at Ilsan



2014 KES at Ilsan



2015 KES at Ilsan



2015 Open Lab.



2016 IMID at Jeju



2017 GHIF at Gumi



2017 DH at Jeju



2017 IMID at Busan



2017 DHIP at Daegu



2018 Nano Korea at Ilsan



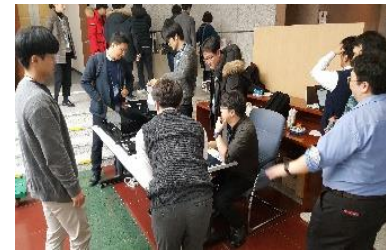
2018 IMID at Busan



2018 DHIP at Osaka



2019 IDIF at Istanbul



2019 DHIP at Gwangju



2020 OSK Summer at Busan



2021 IMID at Seoul

1. Introduction to 3DOT

3DOT Moto: Fun & Happiness

KNU OSA Student Chapter



The Optical Society

100

Since 1916

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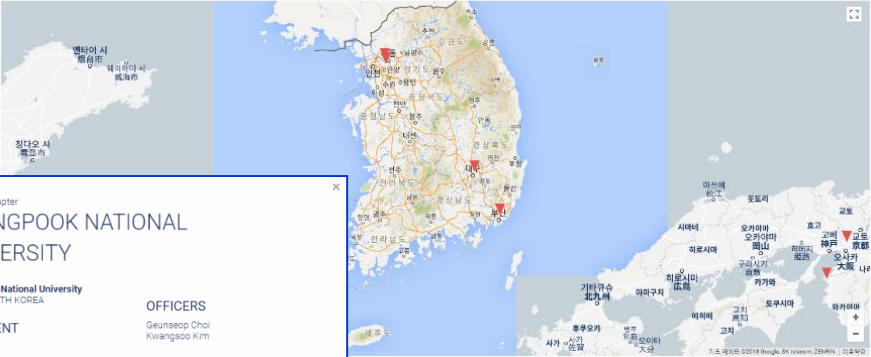
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KYUNGPOOK NATIONAL UNIVERSITY

Kyungpook National University

Daegu, SOUTH KOREA

Contact

PRESIDENT

Slungin Lim

ADVISOR

Joonku Hahn

OFFICERS

Geunseop Choi

Kwangsoo Kim



KNU SPIE Student Chapter



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Map

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Electronics Engineering

80 Daehak-ro Buk-gu

Daegu,

Korea, Republic of 41566

Phone: 82 53 950 6556



STUDENT CHAPTER

KYUNGPOOK NATIONAL UNIV.



KNU 경북대학교

KYUNGPOOK NATIONAL UNIVERSITY



3 Dimensional **O**ptical **T**echnology

산업부, '초실감 입체영상' '노화 역전' 등 알키미스트 신규 테마 선정

발행일 : 2022.01.13 11:00 지면 : 2022-01-14 5면

미래가치

2022년 산업기술 알키미스트 프로젝트

삶의 질 향상
(고령화 대응)

테마명
①노화 역전

세포 노화 전, 노화 유전
인자를 규명·검출·진단
하고 이의 발현을 조절하는
노화 프로세스 역전

무경계
(초현실)

②초실감
메타버스 시각화

인간 시각인지 한계를
뛰어넘는 초실감 입체영상
구현

탄소중립
(지속가능)

③생체모방
탄소 자원화

생명(자연)현상, 생체 구조
원리를 모방한 탄소 포집·
저장·전환 및 탄소 자원화

