

NI CHEN | Curriculum Vitae

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Employment

Seoul National University

Visiting Scholar, Contract Professor

Seoul, Korea

Sep. 2017 ~

Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences

Assistant, Associate Professor

Shanghai, China

Jul. 2016 ~ Sep. 2017

The University of Hong Kong

Research Scientist

Hong Kong

Sep. 2014 ~ Jun. 2016

Education

Ph.D., Seoul National University

Electrical Engineering and Computer Science, 91.3/100

Seoul, Korea

Sep. 2010 ~ Aug. 2014

Dissertation: Full Complex Wave Generation Methods using Multiple Intensity Images

Advisor: Byoung-ho Lee

M.E., Chungbuk National University

Computer and Communication Engineering, 98.44/100

Cheongju, Korea

Sep. 2008 ~ Aug. 2010

Dissertation: Study on 3D Hologram Synthesis based on Integral Imaging and the Resolution Enhancement.

Advisors: Nam Kim, Jae-Hyeung Park

B.E., Harbin Institute Technology University (Weihai)

Software Engineering, 88.83/100 (top 2)

Weihai, China

Sep. 2004 ~ Jul. 2008

Research Fields

My main research topic is computational optical imaging, including:

- **Holography:** 3D holographic imaging, Computer Generated Hologram, Hologram Synthesis
- **Three-Dimensional Display:** Light Field, Holography
- **Phase Imaging:** Phase Retrieval

Publications

Citation Report.....

- Google Scholar: <https://scholar.google.com/citations?user=adQED6IAAAAJ>
 - Sum of the Times Cited: 622
 - h-index: 12

Journal Articles.....

- **In progress (First-authored: 1)**
- 21. **Ni Chen**, Edmund Y. Lam, and Byoung-ho Lee*. "Sectional hologram reconstruction through complex deconvolution". Submitted to Photonics Research, 2019
- **Published (First/corresponding authored: 11, co-authored: 9)**
- 20. Min Wan, Inbarasan Muniraj, Ra'ed Malallah, **Ni Chen**, John J Healy, James P Ryle, and John T. Sheridan*. "Orthographic projection images based photon counted integral Fourier holography". *Applied Optics*, 58(10):2656-2661, Feb. 2019. (IF: 1.791, JCR: Q3, Cited: 0)
- 19. Ping Su, Shu An, Jianshe Ma*, and **Ni Chen**. "Study on the reduction effect of stereo depth caused by lens aberration in lenticular-based autostereoscopic displays". *Applied Science*, 9(3):380, Jan. 2019. (IF: 1.689, JCR: Q3, Cited: 0)
- 18. **Ni Chen**, Chao Zuo, Edmund Y. Lam, and Byoung-ho Lee*. "3D imaging based on depth measurement technologies". *Sensors*, 18(11):3711, Oct. 2018. (IF: 2.677, JCR: Q1, Cited: 3). (Review)
- 17. Ao Zhou, Wei Wang, **Ni Chen***, Edmund Y. Lam, Byoung-ho Lee, and Guohai Situ. "Fast and robust misalignment correction of Fourier ptychographic microscopy for full field of view reconstruction". *Optics Express*, 26(18):23661-23674, Aug. 2018. (IF: 3.356, JCR: Q1, Cited: 1)

16. Ao Zhou, **Ni Chen***, Haichao Wang, and Guohai Situ. "Analysis of Fourier ptychographic microscopy with half of the captured images". *Journal of Optics*, 20(9):095701, Jul. 2018. (IF: 2.323, JCR: Q2, Cited: 2)
15. Haichao Wang, **Ni Chen***, Shanshan Zheng, Jingdan Liu, and Guohai Situ. "Fast and high-resolution light field acquisition using defocus modulation". *Applied Optics*, 57(1):A250–A256, Jan. 2018. (IF: 1.791, JCR: Q3, Cited: 3)
14. Meng Lyu, Wei Wang, Hao Wang, Haichao Wang, Guowei Li, **Ni Chen**, and Guohai Situ*. "Deep-learning-based ghost imaging". *Scientific Reports*, 7(1):17865, Dec. 2017. (IF: 4.122, JCR: Q1, Cited: 26)
13. Caihong Wang, **Ni Chen***, Yingjie Yu, and Guohai Situ. "Phase-only hologram encoding with one-dimensional grating function". *Acta Optica Sinica*, 37(09):0909001–1–0909001–6, Sep. 2017. (Cover Image, Highlight and Outstanding paper in Vol. 37, No. 09 of Acta Optica Sinica)
12. **Ni Chen***, Zhenbo Ren, Dayan Li, Edmund Y. Lam, and Guohai Situ. "Analysis of the noise in back-projection light field acquisition and its optimization". *Applied Optics*, 56(13):F20–F26, Feb. 2017. (IF: 1.791, JCR: Q3, Cited: 10)
11. Zhenbo Ren, **Ni Chen**, and Edmund Y. Lam*. "Automatic focusing for multisectional objects in digital holography using the structure tensor". *Optics Letters*, 42(9):1720–1723, May 2017. (IF: 3.589, JCR: Q1, Cited: 15)
10. **Ni Chen**, Zhenbo Ren, and Edmund Y. Lam*. "High resolution Fourier hologram synthesis from photographic images through computing the light field". *Applied Optics*, 55(7):1751–1756, Mar. 2016. (IF: 1.65, JCR: Q3, Cited: 13). (Top Downloaded Article on Imaging Systems from Applied Optics and Optics Express in 2015-16)
9. Zhenbo Ren, **Ni Chen**, and Edmund Y. Lam*. "Extended focused imaging and depth map reconstruction in optical scanning holography". *Applied Optics*, 55(5):1040–1047, Feb. 2016. (IF: 1.65, JCR: Q3, Cited: 27). (15 of the Most Cited Articles in Applied Optics between 2016 and 2018)
8. **Ni Chen**, Zhenbo Ren, Haiyan Ou, and Edmund Y. Lam*. "Resolution enhancement of optical scanning holography with a spiral modulated point spread function". *Photonics Research*, 4(1):1–6, Feb. 2016. (IF: 5.242, JCR: Q1, Cited: 12)
7. Gang Li, Keehoon Hong, Jiwoon Yeom, **Ni Chen**, Jae-Hyeung Park, Nam Kim, and Byoung-ho Lee*. "Acceleration method for computer generated spherical hologram calculation of real objects using graphics processing unit (invited paper)". *Chinese Optics Letters*, 12(6):060016–60020, Jun. 2014. (IF: 1.851, JCR: Q2, Cited: 9)
6. Soon gi Park, Jiwoon Yeom, Youngmo Jeong, **Ni Chen**, Jong-Young Hong, and Byoung-ho Lee*. "Recent issues on integral imaging and its applications". *Journal of Information Display*, 15(1):37–46, Jan. 2014. JCR: EI, Cited: 48)
5. **Ni Chen**, Jiwoon Yeom, Keehoon Hong, Gang Li, and Byoung-ho Lee*. "Fast-converging algorithm for wavefront reconstruction based on a sequence of diffracted intensity images". *Journal of the Optical Society of Korea*, 18(3):217–224, Jun. 2014. (IF: 1.179, JCR: Q3, Cited: 7)
4. Keehoon Hong, Soon gi Park, Jiwoon Yeom, Jonghyun Kim, **Ni Chen**, Kyungsuk Pyun, Chilsung Choi, Sunil Kim, Jungkwuen An, Hong-Seok Lee, U in Chung, and Byoung-ho Lee*. "Resolution enhancement of holographic printer using a hogel overlapping method". *Optics Express*, 21(12):14047–14055, Jun. 2013. (IF: 3.525, JCR: Q1, Cited: 21)
3. **Ni Chen**, Jiwoon Yeom, Jae-Hyun Jung, Jae-Hyeung Park, and Byoung-ho Lee*. "Resolution comparison between integral-imaging-based hologram synthesis methods using rectangular and hexagonal lens arrays". *Optics Express*, 19(27):26917–26927, Dec. 2011. (IF: 3.587, JCR: Q1, Cited: 28)
2. Jisoo Hong, Youngmin Kim, Hee-Jin Choi, Joonku Hahn, Jae-Hyeung Park, Hwi Kim, Sung-Wook Min, **Ni Chen**, and Byoung-ho Lee*. "Three-dimensional display technologies of recent interest: principles, status, and issues [Invited]". *Applied Optics*, 50(34):H87–H115, Dec. 2011. (IF: 1.748, JCR: Q2, Cited: 306). (ESI Highly Cited Paper)
1. **Ni Chen**, Jae-Hyeung Park*, and Nam Kim. "Parameter analysis of integral Fourier hologram and its resolution enhancement". *Optics Express*, 18(3):2152–2167, Jan. 2010. (IF: 3.753, JCR: Q1, Cited: 40)

Conference Papers.....

First and corresponding authored: 24, co-authored: 12

- In progress

36. **Ni Chen***, Jinsoo Jeong, and Byoung-ho Lee. "Light field compression with holography". In *Digital Holography & 3-D Imaging*, France, May 2019. (Submitted)

- Published

35. **Ni Chen*** and Byoung-ho Lee. "High-resolution light field acquisition without defocus noise". In *The 18th International Meeting on Information Display*, pp. P3–98, Busan, Korea, August 2018
34. Hao Wang*, Meng Lyu, **Ni Chen**, and Guohai Situ. "In-line hologram reconstruction with deep learning". In *Imaging and Applied Optics 2018*, p. DW2F.2, Orlando, USA, Jun. 2018
33. Ao Zhou, Wei Wang, **Ni Chen***, and Guohai Situ. "Fast light source misalignment correction of fourier ptychographic microscopy". In *Imaging and Applied Optics 2018*, p. JTh3A.5, Orlando, USA, Jun. 2018

32. Min Wan, Inbarasan Muniraj, **Ni Chen**, Derek Cassidy, John J Healy, James P Ryle, and John T Sheridan*. "Photon-counted integral holography using orthographic projection images". In *Unconventional Optical Imaging*, p. 106773G, Strasbourg, France, May 2018
31. Ao Zhou, Guohai Situ, and **Ni Chen***. "Analysis of fourier ptychographic microscopy with half reduced images". In *2017 International Conference on Optical Instruments and Technology: Optoelectronic Imaging/Spectroscopy and Signal Processing Technology*, Beijing, China, Jan. 2018
30. **Ni Chen***, Haichao Wang, Ao Zhou, and Guohai Situ. "High performance light field acquisition". In *Digital Holography and Three-Dimensional Imaging*, Jeju, Korea, May 2017
29. Haichao Wang, **Ni Chen***, Jingdan Liu, and Guohai Situ. "Light field imaging based on defocused photographic images". In *Digital Holography & 3-D Imaging*, Jeju, Korea, May 2017
28. Zhenbo Ren, **Ni Chen**, Antony C. S. Chan, and Edmund Y. Lam*. "Extended focused imaging in a holographic microscopy imaging system". In *2015 IEEE International Conference on Imaging System & Techniques*, pp. 1–6, Macau, China, Sep. 2015
27. **Ni Chen**, Zhenbo Ren, Antony Chan, Xing Sun, and Edmund Y. Lam*. "Depth enhancement of optical scanning holography with a spiral phase plate". In *Digital Holography & 3-D Imaging Meeting*, p. DW2A.3, Shanghai, China, May 2015
26. Zhenbo Ren, **Ni Chen**, Antony Chan, and Edmund Y. Lam*. "Autofocusing of optical scanning holography based on entropy minimization". In *Digital Holography & 3-D Imaging Meeting*, p. DT4A.4, Shanghai, China, May 2015
25. Byoung-ho Lee*, Soon-gi Park, **Ni Chen**, Jiwoon Yeom, Keehoon Hong, and Jonghyun Kim. "New technologies and perspective for 3d-imaging". In *2014 IEEE Photonics Conference*, pp. 176–177, San Diego, CA, USA, Oct. 2014
24. **Ni Chen**, Jae-Hyeung Park, Jiwoon Yeom, Jonghyun Kim, Gang Li, and Byoung-ho Lee*. "Fourier hologram synthesis from two photographic images captured at different focal planes". In *Imaging and Applied Optics 2014*, vol. JT4A, p. 6, Seattle, Washington, USA, Jul. 2014
23. **Ni Chen**, Jiwoon Yeom, and Byoung-ho Lee*. "Optimized phase retrieval algorithm with multiple illuminations". In *Fringe 2013*, pp. 337–340, Nürtingen, Germany, Sep. 2014
22. **Ni Chen**, Keehoon Hong, Jiwoon Yeom, and Byoung-ho Lee*. "Wavefront reconstruction using multiple illuminations and single-shot intensity image". In *Photonics Conference 2013*, vol. TP-VI9, pp. 382–384, Jeju, Korea, Nov. 2013
21. Gang Li, Keehoon Hong, **Ni Chen**, Jae-Hyeung Park, Nam kim, and Byoung-ho Lee*. "Acceleration of spherical hologram generation with spherical wavefront recording surface". In *Optics and Photonics Taiwan, the International Conference 2013*, pp. 2013–FRI-S0402–O003, Zhongli, Taiwan, Dec. 2013
20. **Ni Chen** and Byoung-ho Lee*. "Wavefront measurement using intensity images". In *The Optical Society of Korea Annual Meeting 2013*, pp. WP–III4, Daejeon, Korea, Feb. 2013
19. Byoung-ho Lee*, **Ni Chen**, Keehoon Hong, and Jiwoon Yeom. "Hologram generation from intensity images". In *the 2th Korea–Japan Workshop on Digital Holography and Information Photonics (DHIP 2012)*, Tokushima, Japan, Nov. 2012. (Invited paper)
18. **Ni Chen**, Keehoon Hong, Jiwoon Yeom, Jae-Hyun Jung, and Byoung-ho Lee*. "Experiment verification of hologram generation using intensity images". In *Information Optics and Optical Data Storage II*, vol. 8559-15, pp. 85590F–85590F, Beijing, China, Nov. 2012
17. **Ni Chen**, Jiwoon Yeom, and Byoung-ho Lee*. "Hologram recording using one single color intensity image". In *The 12th International Meeting on Information Display*, pp. 660–661, Daegu, Korea, Aug. 2012. (Outstanding poster paper award)
16. **Ni Chen**, Jiwoon Yeom, Gibal Park, Jae-Hyeung Park, and Byoung-ho Lee*. "Digital hologram recording using transport of intensity equation". In *The 4th International Conference on 3D system and Applications*, pp. 94–96, Hsinchu, Taiwan, June 2012
15. Byoung-ho Lee*, Jiwoon Yeom, and **Ni Chen**. "Hologram generation based on incoherent capturing". In *4th International Workshop on Perspectives of Optical Imaging and Metrology*, Utsunomiya, Japan, July 2012. (Invited paper)
14. **Ni Chen** and Byoung-ho Lee*. "Analysis of the resolution of hologram reconstruction related to the lens array shape based on integral imaging". In *the first Korea-Japan Workshop on Digital Holography and Information Photonics*, pp. 87–88, Seoul, Korea, Nov. 2011
13. **Ni Chen**, Jiwoon Yeom, Jae-Hyeung Park, and Byoung-ho Lee*. "High resolution Fourier hologram generation using hexagonal lens array based on integral imaging". In *The 11th International Meeting on Information Display*, pp. P2–05, Seoul, Korea, Oct. 2011
12. **Ni Chen**, Jiwoon Yeom, Jae-Hyeung Park, and Byoung-ho Lee*. "High efficiency computer generated multi-plane phase-only hologram algorithm". In *18th Conference on Optoelectronics and Optical Communication*, vol. F1D-IV3, pp. 314–315, Gyeongju, Korea, May 2011

11. Jiwoon Yeom, **Ni Chen**, Jae-Hyeung Park, and Byoung-ho Lee*. "Depth resolution improvement based on an integrated phase hologram image". In *18th Conference on Optoelectronics and Optical Communication*, vol. T2D-IV5, pp. 180–181, Gyeongju, Korea, May 2011. (Best paper award)
10. **Ni Chen**, Jiwoon Yeom, Keehoon Hong, Jisoo Hong, Jae-Hyun Jung, Jae-Hyeung Park, and Byoung-ho Lee*. "Phase-only hologram generation from multiple defocused images of three-dimensional object". In *Digital Holography and Three-Dimensional Imaging*, p. DMB3, Tokyo, Japan, May 2011
9. **Ni Chen**, Jiwoon Yeom, Keehoon Hong, Jisoo Hong, Jae-Hyeung Park, and Byoung-ho Lee*. "Numerical phase-only Fresnel hologram generation of three-dimensional object". In *The Optical Society of Korea Annual Meeting 2011*, pp. TP-VIII4, Seoul, Korea, Feb. 2011
8. Jae-Hyeung Park*, Seung-Woo Seo, **Ni Chen**, and Nam Kim. "Hologram synthesis from defocused images captured under incoherent illumination". In *Biomedical Optics and 3-D Imaging*, p. JMA29, Miami, Florida, USA, April 2010
7. **Ni Chen**, Meilan Piao, Jae-Hyeung Park*, and Nam Kim. "Color reconstruction of 3d objects from single-plane Fourier hologram based on integral imaging". In *10th International Meeting on Information Display*, pp. 59–4, Ilsan, Korea, Oct. 2010
6. Jae-Hyeung Park*, Seung-Woo Seo, **Ni Chen**, and Nam Kim. "Fourier hologram generation from multiple incoherent defocused images". In *Three-Dimensional Imaging, Visualization, and Display 2010 and Display Technologies and Applications for Defense, Security, and Avionics IV*, vol. 7690, p. 76900F, Orlando, Florida, USA, April 2010
5. **Ni Chen**, Jae-Hyeung Park*, and Nam Kim. "Resolution analysis of fourier hologram using integral imaging and its enhancement". In *Emerging Liquid Crystal Technologies V*, vol. 7618, pp. 76180901–76180908, San Francisco, California, USA, Jan. 2010
4. **Ni Chen**, Jae-Hyeung Park*, and Nam Kim. "Resolution analysis of Fourier hologram using integral imaging". In *20th Anniversary of the Optical Society of Korea, Special Technical Presentation Conference*, pp. WP-III6, Gwangju, Korea, Oct. 2009
3. **Ni Chen**, Jae-Hyeung Park*, and Nam Kim. "Resolution enhanced Fourier hologram using integral imaging". In *14th 3D Display Media Technical Workshop*, vol. P-3, pp. 112–117, Seoul, Korea, June 2009
2. Jae-Hyeung Park*, **Ni Chen**, Ganbat Baasantseren, Min-Young Shin, and Nam Kim. "Hologram generation from orthographic view images of three-dimensional object and its optimization". In *Three-Dimensional Imaging, Visualization, and Display 2009*, vol. 7329, p. 73290D, Orlando, Florida, USA, may 2009
1. **Ni Chen**, Nam Kim, Jae-Hyeung Park*, and Seok-Hee Jeon. "Resolution enhanced Fourier hologram using integral imaging with lens array shifting". In *16th Conference on Optoelectronics and Optical Communication*, vol. TP-51, pp. 183–184, Daechon, Korea, May 2009

Patents

1. Zhimin Xu and **Ni Chen**. "A new type of high resolution light field microscope structure". Submitted, 2018

Funding

Study on multi-dimensional holographic microscopy Shenzhen Science and Technology Innovation Commission Co-PI with Ping Su (Graduate School at Shenzhen, Tsinghua Univ.)	¥ 1,000,000 Jan. 2019 ~ Dec. 2021
Scattering Imaging Shanghai Institute of Optics and Fine Mechanics Participant (PI: Guohai Situ)	¥ 3,090,000 Jan. 2018 ~ Dec. 2020
Sino-German Cooperation Group on Computational Imaging The Sino-German Center, National Science Foundation of China Participant (PI: Xiang Peng, Shenzhen Univ.)	¥ 1,600,000 Jan. 2018 ~ Dec. 2020
Study on hologram synthesis of real 3D objects under incoherent illumination National Science Foundation of China (NSFC), 61705241 PI	¥ 240,000 Jan. 2018 ~ Dec. 2020
Young scientist exchange program between Korea and China National Research Foundation (NRF) of Korea PI	₩ 30,000,000 Sep. 2017 ~ Sep. 2018
Development of photographic based high resolution holographic technologies National Science Foundation of Shanghai (NSFS), 17ZR1433800 PI	¥ 200,000 May. 2017 ~ Apr. 2020
xxxxxx (Confidential) Science & Technology Commission of Ministry of Education Participant (PI: Shensheng Han)	¥ 2,000,000/Y Jan. 2017 ~

Study on ultra-depth imaging in complex medium Key Research Projects of frontier Science of CAS, QYZDB-SSW-JSC002 Participant (PI: Guohai Situ)	¥ 2,500,000 Aug. 2016 ~ Jul. 2021
Coded aperture based multi-view image generation Samsung Group, Experimental setup, Analysis of 3D object's light field in Fourier domain Participant (PI: ByoungHo Lee, Seoul National Univ.)	₩ 900,000,000 May 2012 ~ Apr. 2013
Wearable display/See-through head-mounted display Samsung Group, Experimental setup, Analysis of waveguide efficiency related to the image quality Participant (PI: ByoungHo Lee, Seoul National Univ.)	₩ 800,000,000 Jul. 2012 ~ Jun. 2013

Teaching

Tongji University 3D Display: an overview	Jun. 2017
Shanghai Institute of Optics and Fine Mechanics Co-supervisor of Haichao Wang (Ph.D.), Ao Zhou (M.Sc), Caihong Wang(M.Sc)	Jul. 2016 ~
The University of Hong Kong Co-supervisor of Zhenbo Ren (Ph.D.)	Sep. 2014 ~ May. 2016

Professional Activities

Committee OSA Image Sensing and Pattern Recognition (IR),	Feb. 2018
Conference Secretary Optical Instrument and Technology (OIT 2017),	Oct. 2017
Conference Secretary Xiangshan Science Conference - Fundamental Research of Computational Optical Imaging,	Sep. 2017
Topic Editor Acta Optica Sinica,	Jun. 2017 ~
Reviewer Optics Letters, Optics Express, Applied Optics, Optics Communications, ETRI Journal, Journal of Information Display, Acta Optica Sinica, Chinese Journal of Lasers	2013 ~

Technical and Personal skills

Computer Skills:

Programming Languages: Matlab, Python, C/C++, VB, Excel VBA, Java, PHP, Linux shell, SQL.

Math Tool: Wolfram Mathematica.

Word Processor: L^AT_EX, Microsoft Office, Markdown.

Others: Adobe Photoshop, Adobe Illustrator, Blender.

Languages:

Chinese: Native proficiency

English: Full professional proficiency

Korean: Limited working proficiency

Honors and Awards

Outstanding paper award Chinese Laser Press, China	Sep. 2017
Special awards NCRCAPS Lab., Seoul National University, Korea	Dec. 2012
Outstanding Poster Paper Award 12th International Meeting on Information Display, Korea	Aug. 2012
Outstanding Paper Award 18th Conference on Optoelectronics and Optical Communication, Korea	May 2011
Superior Academic Performance Scholarship (3 times) Seoul National University, Korea	2010 ~ 2012

Brain Korea 21 Outstanding Master Course Student

Chungbuk National University, Korea

Feb. 2010

Outstanding Graduates Award

Harbin Institute Technology University, China

Jul. 2008

National Encouragement Scholarship

Harbin Institute Technology University, China

Sep. 2007

Excellent Student Cadre

Harbin Institute Technology University, China

Sep. 2006

National Scholarship

Harbin Institute Technology University, China

Mar. 2006

Referees

○ **Dr. ByoungHo Lee (Ph.D. Advisor)**

IEEE/OSA/SPIE fellow, Member of Korean Academy of Sciences and Technology

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