

Ni Chen | Curriculum Vitae

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Employment

Researcher

Seoul National University, Korea

Seoul, Korea
Sep. 2017 ~

Assistant, Associate Professor

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

Shanghai, China
Jul. 2016 ~ Sep. 2017

Research Scientist

The University of Hong Kong

Hong Kong SAR, China
Sep. 2014 ~ Jun. 2016

Education

Ph.D., Seoul National University

Electrical Engineering and Computer Science, 91.3/100

Dissertation: Full Complex Wave Generation Methods using Multiple Intensity Images

Advisor: Byoung-ho Lee (IEEE/OSA/SPIE Fellow)

Seoul, Korea
Sep. 2010 ~ Aug. 2014

M.E., Chungbuk National University

Computer and Communication Engineering, 98.44/100

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

Advisors: Nam Kim, Jae-Hyeung Park

Cheongju, Korea
Sep. 2008 ~ Aug. 2010

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:** Computer Generated Hologram, Digital Holography, Hologram Synthesis
- **Three-Dimensional Display:** Integral Imaging, Light Field Photography
- **Phase Imaging:** Phase Retrieval

Publications

Citation Report

- Research ID: <http://www.researcherid.com/rid/C-5537-2012>
 - Sum of the Times Cited: 253
 - Sum of Times Cited without self-citations: 217
 - Average Citations per Article: 13.88
 - h-index: 6
- Google Scholar: <https://scholar.google.com/citations?user=adQED6IAAAAJ>
 - Sum of the Times Cited: 446
 - h-index: 8
 - i10-index: 6

Academic Journal

First and corresponding authored: 10, co-authored: 8.

- In progress

18. A. Zhou, W. Wang, **N. Chen***, B. Lee, and G. Situ. "A fast and robust method to eliminate the global shift of led array in Fourier ptychographic microscopy". 2018. (Submitted to Optics Express)
17. A. Zhou, **N. Chen***, H. Wang, and G. Situ. "Analysis of Fourier ptychographic microscopy with half of the captured images". 2017. Citation: 0). (Submitted to Journal of Optics)
16. M. Lyu, H. Wang, G. Li, **N. Chen**, and G. Situ*. "Exploit imaging through opaque wall via deep learning". 2017. Citation: 0). (Submitted)
 - **Published**
15. H. Wang, **N. Chen***, S. Zheng, J. Liu, and G. Situ. "Fast and high resolution light field acquisition using defocus modulation". *Applied Optics*, 57(1):A250–A256, 2018. (IF: **1.65**, JCR: Q2, Citation: 0)
14. M. Lyu, W. Wang, H. Wang, H. Wang, G. Li, **N. Chen**, and G. Situ*. "Ghost imaging using deep learning". *Scientific Reports*, 7(1):17865, 2017. (IF: **4.259**, JCR: Q1, Citation: 1)
13. C. Wang, **N. Chen***, Y. Yu, and G. Situ. "Phase-only hologram encoding with one-dimensional grating function". *Acta Optica Sinica*, 37(09):0909001–1–0909001–6, 2017. Citation: 0).
(Cover Image, Highlight and Outstanding paper in Vol. 37, No. 09 of Acta Optica Sinica)
12. **N. Chen***, Z. Ren, D. Li, E. Y. Lam, and G. Situ. "Analysis of the noise in back-projection light field acquisition and its optimization". *Applied Optics*, 56(13):F20–F26, 2017. (IF: **1.65**, JCR: Q2, Citation: 7)
11. Z. Ren, **N. Chen**, and E. Y. Lam*. "Automatic focusing in digital holography based on structure tensor". *Optics Letters*, 42(9):1720–1723, 2017. (IF: **3.416**, JCR: Q1, Citation: 1)
10. **N. Chen**, Z. Ren, and E. Y. Lam*. "High resolution Fourier hologram synthesis from photographic images through computing the light field". *Applied Optics*, 55(7):1751–1756, 2016. (IF: **1.65**, JCR: Q2, Citation: 7).
(Top Downloaded Article on Imaging Systems from Applied Optics and Optics Express in 2015-16)
9. Z. Ren, **N. Chen**, and E. Y. Lam*. "Extended focused imaging and depth map reconstruction in optical scanning holography". *Applied Optics*, 55(5):1040–1047, 2016. (IF: **1.65**, JCR: Q2, Citation: 13)
8. **N. Chen**, Z. Ren, H. Ou, and E. Y. Lam*. "Resolution enhancement of optical scanning holography with a modulated point spread function". *Photonics Research*, 4(1):1–6, 2016. (IF: **4.679**, JCR: Q1, Citation: 9)
7. G. Li, K. Hong, J. Yeom, **N. Chen**, J.-H. Park, N. Kim, and B. Lee*. "Acceleration method for computer generated spherical hologram calculation of real objects using graphics processing unit". *Chinese Optics Letters*, 12(6):060016, 2014. (IF: **1.851**, JCR: Q2, Citation: 5). (Invited paper)
6. S.-G. Park, J. Yeom, Y. Jeong, **N. Chen**, J.-Y. Hong, and B. Lee*. "Recent issues on integral imaging and its applications". *Journal of Information Display*, 15(1):37–46, 2014. Citation: 31)
5. **N. Chen**, J. Yeom, K. Hong, G. Li, and B. 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, 2014. (IF: **1.179**, JCR: Q3, Citation: 2)
4. K. Hong, S.-G. Park, J. Yeom, J. Kim, **N. Chen**, K. Pyun, C. Choi, S. Kim, J. An, H.-S. Lee, U. in Chung, and B. Lee*. "Resolution enhancement of holographic printer using a hogel overlapping method". *Optics Express*, 21(12):14047–14055, 2013. (IF: **3.525**, JCR: Q1, Citation: 12)
3. **N. Chen**, J. Yeom, J.-H. Jung, J.-H. Park, and B. Lee*. "Resolution comparison between integral–imaging–based hologram synthesis methods using rectangular and hexagonal lens arrays". *Optics Express*, 19(27):26917–26927, 2011. (IF: **3.587**, JCR: Q1, Citation: 23)
2. J. Hong, Y. Kim, H.-J. Choi, J. Hahn, J.-H. Park, H. Kim, S.-W. Min, **N. Chen**, and B. Lee*. "Three-dimensional display technologies of recent interest: principles, status, and issues [Invited]". *Applied Optics*, 50(34):H87–H115, 2011. (IF: **1.748**, JCR: Q2, Citation: 261). (Invited paper)
1. **N. Chen**, J.-H. Park*, and N. Kim. "Parameter analysis of integral Fourier hologram and its resolution enhancement". *Optics Express*, 18(3):2152–2167, 2010. (IF: **3.753**, JCR: Q1, Citation: 32)

Academic Conference.....

First and corresponding authored: 21, co-authored: 11

- **In progress**

32. A. Zhou, W. Wang, **N. Chen***, and G. Situ. "Fast light source misalignment correction of Fourier ptychographic microscopy". In *Digital Holography & 3-D Imaging*, Orlando, USA, May 2018

- **Published**

31. A. Zhou, **N. Chen***, and G. Situ. "Analysis of fourier ptychographic microscopy with half reduced images". In *International Conference on Optical Instruments and Technology 2017 (OIT17)*, Beijing, China, Jan. 2018
30. **N. Chen***, H. Wang, A. Zhou, and G. Situ. "High performance light field acquisition". In *Digital Holography & 3-D Imaging*, Jeju, Korea, May 2017
29. H. Wang, **N. Chen**, J. Liu, and G. Situ. "Light field imaging based on defocused photographic images". In *Digital Holography & 3-D Imaging*, Jeju, Korea, May 2017
28. Z. Ren, **N. Chen**, A. C. S. Chan, and E. Y. Lam*. "Extended focused imaging in a holographic microscopy imaging system". In *2015 IEEE International Conference on Imaging System & Techniques*, pages 1–6, Macau, China, Sep. 2015
27. **N. Chen**, Z. Ren, A. Chan, X. Sun, and E. Y. Lam*. "Depth enhancement of optical scanning holography with a spiral phase plate". In *Digital Holography & 3-D Imaging*, page DW2A.3, Shanghai, China, May 2015
26. Z. Ren, **N. Chen**, A. Chan, and E. Y. Lam*. "Autofocusing of optical scanning holography based on entropy minimization". In *Digital Holography & 3-D Imaging*, page DT4A.4, Shanghai, China, May 2015
25. B. Lee*, S.-G. Park, **N. Chen**, J. Yeom, K. Hong, and J. Kim. "New technologies and perspective for 3d-imaging". In *Photonics Conference (IPC), 2014 IEEE*, pages 176–177, San Diego, CA, USA, Oct. 2014
24. **N. Chen**, J.-H. Park, J. Yeom, J. Kim, G. Li, and B. Lee*. "Fourier hologram synthesis from two photographic images captured at different focal planes". In *Imaging and Applied Optics 2014, OSA Technical Digest (online)*, volume JTU4A, page 6, Seattle, Washington, USA, Jul. 2014
23. **N. Chen**, J. Yeom, and B. Lee*. "Optimized phase retrieval algorithm with multiple illuminations". In W. Osten, editor, *Fringe 2013–The 7th International Workshop on Advanced Optical Metrology*, pages 337–340, Nurtingen, Germany, Sep. 2013
22. **N. Chen**, K. Hong, J. Yeom, and B. Lee*. "Wavefront reconstruction using multiple illuminations and single-shot intensity image". In *Photonics Conference 2013*, volume TP-VI9, pages 382–384, Jeju, Korea, Nov. 2013
21. G. Li, K. Hong, **N. Chen**, J.-H. Park, N. kim, and B. Lee*. "Acceleration of spherical hologram generation with spherical wavefront recording surface". In *Optics and Photonics Taiwan, the International Conference 2013 (OPTIC 2013)*, pages 2013–FRI–S0402–O003, Zhongli, Taiwan, Dec. 2013
20. **N. Chen** and B. Lee*. "Wavefront measurement using intensity images". In *The Optical Society of Korea Annual Meeting 2013*, pages WP–III4, Daejeon, Korea, Feb. 2013
19. B. Lee*, **N. Chen**, K. Hong, and J. 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. **N. Chen**, K. Hong, J. Yeom, J.-H. Jung, and B. Lee*. "Experiment verification of hologram generation using intensity images". In *Information Optics and Optical Data Storage II, Photonics Asia*, volume 8559-15, pages 85590F–85590F, Beijing, China, Nov. 2012
17. **N. Chen**, J. Yeom, and B. Lee*. "Hologram recording using one single color intensity image". In *The 12th International Meeting on Information Display*, pages 660–661, Daegu, Kore, Aug. 2012. (Outstanding poster paper award)
16. **N. Chen**, J. Yeom, G. Park, J.-H. Park, and B. Lee*. "Digital hologram recording using transport of intensity equation". In *The 4th International Conference on 3D system and Applications (3DSA 2012)*, pages 94–96, Hsinchu, Taiwan, June 2012
15. B. Lee*, J. Yeom, and **N. Chen**. "Hologram generation based on incoherent capturing". In *4th International Workshop on Perspectives of Optical Imaging and Metrology (HoloMet 2012)*, Utsunomiya, Japan, July 2012. (Invited paper)
14. **N. Chen** and B. 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 (DHIP)*, pages 87–88, Seoul, Korea, Nov. 2011
13. **N. Chen**, J. Yeom, J.-H. Park, and B. Lee*. "High resolution Fourier hologram generation using hexagonal lens array based on integral imaging". In *The 11th International Meeting on Information Display (IMID2011)*, pages P2–05, Seoul, Korea, Oct. 2011
12. **N. Chen**, J. Yeom, J.-H. Park, and B. Lee*. "High efficiency computer generated multi-plane phase-only hologram algorithm". In *18th Conference on Optoelectronics and Optical Communication (COOC 2011)*, volume F1D-IV3, pages 314–315, Gyeongju, Korea, May 2011

11. J. Yeom, **N. Chen**, J.-H. Park, and B. Lee*. "Depth resolution improvement based on an integrated phase hologram image". In *18th Conference on Optoelectronics and Optical Communication (COOC 2011)*, volume T2D-IV5, pages 180–181, Gyeongju, Korea, May 2011.
(Best paper award)
10. **N. Chen**, J. Yeom, K. Hong, J. Hong, J.-H. Jung, J.-H. Park, and B. Lee*. "Phase-only hologram generation from multiple defocused images of three-dimensional object". In *OSA Topical Meeting on Digital Holography and Three-Dimensional*, page DMB3, Tokyo, Japan, May 2011
9. **N. Chen**, J. Yeom, K. Hong, J. Hong, J.-H. Park, and B. Lee*. "Numerical phase-only fresnel hologram generation of three-dimensional object". In *The Optical Society of Korea Annual Meeting 2011*, pages TP-VII4, Seoul, Korea, Feb. 2011
8. J.-H. Park*, S.-W. Seo, **N. Chen**, and N. Kim. "Hologram synthesis from defocused images captured under incoherent illumination". In L.-C. Chien, editor, *Digital Holography and Three-Dimensional Imaging (DH)*, page JMA29, Miami, Florida, USA, April 2010
7. **N. Chen**, M. Piao, J.-H. Park*, and N. Kim. "Color reconstruction of 3d objects from single-plane Fourier hologram based on integral imaging". In *10th International Meeting on Information Display (IMID 2010)*, pages 59–4, Ilsan, Korea, Oct. 2010
6. J.-H. Park*, S.-W. Seo, **N. Chen**, and N. Kim. "Fourier hologram generation from multiple incoherent defocused images". In *Three-Dimensional Imaging, Visualization, and Display 2010, SPIE Defense 7690A-14, Security, and Sensing*, volume 7690, page 76900F, Orlando, Florida, USA, April 2010
5. **N. Chen**, J.-H. Park*, and N. Kim. "Resolution analysis of Fourier hologram using integral imaging and its enhancement". In L.-C. Chien, editor, *Proc. SPIE 7618, Emerging Liquid Crystal Technologies V*, volume 7618, pages 76180901–76180908, San Francisco, California, USA, Jan. 2010
4. **N. Chen**, J.-H. Park*, and N. Kim. "Resolution analysis of Fourier hologram using integral imaging". In *20th Anniversary of the Optical Society of Korea, Special Technical Presentation Conference*, pages WP-III6, Gwangju, Korea, Oct. 2009
3. **N. Chen**, J.-H. Park*, and N. Kim. "Resolution enhanced Fourier hologram using integral imaging". In *14th 3D Display Media Technical Workshop*, volume P-3, pages 112–117, Seoul, Korea, June 2009
2. J.-H. Park*, **N. Chen**, G. Baasantseren, M.-Y. Shin, and N. Kim. "Hologram generation from orthographic view images of three-dimensional object and its optimization". In B. Javidi, J.-Y. Son, M. Martinez-Corral, F. Okano, and W. Osten, editors, *Three-Dimensional Imaging, Visualization, and Display 2009*, volume 7329, page 73290D, Orlando, Florida, USA, April 2009
1. **N. Chen**, N. Kim, J.-H. Park*, and S.-H. Jeon. "Resolution enhanced Fourier hologram using integral imaging with lens array shifting". In *16th Conference on Optoelectronics and Optical Communication (COOC 2009)*, volume TP-51, pages 183–184, Daechon, Korea, May 2009

Funding

Scattering Imaging	¥ 3,090,000
<i>Shanghai Institute of Optics and Fine Mechanics</i>	<i>Jan. 2018 ~ Dec. 2020</i>
Participant (PI: Guohai Situ)	
Sino-German Cooperation Group on Computational Imaging	¥ 1,600,000
<i>The Sino-German Center</i>	<i>Jan. 2018 ~ Dec. 2020</i>
Participant (PI: Xiang Peng)	
Study on hologram synthesis of real 3D objects under incoherent illumination	¥ 240,000
<i>National Science Foundation of China (NSFC), 61705241</i>	<i>Jan. 2018 ~ Dec. 2020</i>
Principle Investigator	
Young scientist exchange program between Korea and China	₩ 30,000,000
<i>National Research Foundation (NRF) of Korea</i>	<i>Sep. 2017 ~ Sep. 2018</i>
Principle Investigator	
Development of photographic based high resolution holographic technologies	¥ 200,000
<i>National Science Foundation of Shanghai, 17ZR1433800</i>	<i>May. 2017 ~ Apr. 2020</i>
Principle Investigator	

xxxxxxx (Confidential) Science & Technology Commission of Ministry of Education Participant (PI: Shensheng Han)	¥ 2,000,000/Year 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)	₩ 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)	₩ 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 ~
- **Guest Editor**
Journal of Electrical and Electronic Engineering (JEEE) - Special Issue of 3D Display and Imaging, Mar. 2015 ~
- **Reviewer**
Optics Letters, Optics Express, Applied Optics, Optics Communications, May 2013 ~

Technical and Personal skills

- **Computer Skills:**
Programming Languages: C, C++, VB, Excel VBA, Java, JSP, J2EE, C#.Net, ASP.NET, Linux shell, SQL, PHP.
Programming Tools: Matlab, Visual Studio, .NET, UML modeling.
Database: Oracle, Microsoft Access, SQL server, My sql.
Math Tools: Wolfram Mathematica.
Word Processors: L^AT_EX, Microsoft Office, Markdown.
Others: Adobe Photoshop, Adobe Illustrator.
- **Languages:**
Chinese: Native proficiency
English: Full professional proficiency
Korean: Limited working proficiency

Honors and Awards

Outstanding paper award <i>Chinese Laser Press, China</i>	Sep. 2017
Brain Korea 21 Scholarship (7 times) <i>Seoul National University, Korea</i>	Sep. 2010 ~ Aug. 2014
Special awards <i>NCRCAPS Lab., Seoul National University, Korea</i>	Dec. 2012
Outstanding Poster Paper Award <i>12th International Meeting on Information Display, Korea</i>	Aug. 2012
Outstanding Paper Award <i>18th Conference on Optoelectronics and Optical Communication, Korea</i>	May 2011
Superior Academic Performance Scholarship (3 times) <i>Seoul National University, Korea</i>	2010 ~ 2012
Brain Korea 21 Outstanding Master Course Student <i>Chungbuk National University, Korea</i>	Feb. 2010
Brain Korea 21 scholarship (4 times) <i>Chungbuk National University, Korea</i>	Sep. 2008 ~ Aug. 2010
Outstanding Graduates Award <i>Harbin Institute Technology University, China</i>	Jul. 2008
National Encouragement Scholarship <i>Harbin Institute Technology University, China</i>	Sep. 2007
Advanced Individual of Cultural and sports activities <i>Harbin Institute Technology University, China</i>	Nov. 2006
Excellent Student Cadre <i>School of software, Harbin Institute Technology University, China</i>	Sep. 2006
National Scholarship <i>Harbin Institute Technology University, China</i>	Mar. 2006
First-class People's Scholarship (3 times) <i>Harbin Institute Technology University, China</i>	2004 ~ 2008
Second-class People's Scholarship (2 times) <i>Harbin Institute Technology University, China</i>	2004 ~ 2008
Third-class People's Scholarship <i>Harbin Institute Technology University, China</i>	2004 ~ 2008
Merit Student (3 times) <i>Harbin Institute Technology University, China</i>	2004 ~ 2008