

# Curriculum Vitae

## Rong-Hao Liang

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Dr. Rong-Hao Liang is assistant professor 'sensor technology' in the Department of Industrial Design, Eindhoven University of Technology, the Netherlands. Rong-Hao received his Ph.D. in Computer Science (2014) from National Taiwan University, an M.S. in Electrical Engineering (2010) from National Taiwan University. He also founded a company, GaussToys Inc., in Taiwan (2015). From Dec. 2014 until Sep. 2016 he was an assistant research fellow in Intel-NTU Research Center of Connected Context Computing, National Taiwan University. He has co-chaired the paper track of the 10th International Design and Semantics of Form and Movement (DeSForM '17) conference, co-chaired the poster of the 21st ACM Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI '19) conference and served as a member of ACM CHI, UIST and ACM TEI conference program committees. Rong-Hao has an interest in technical Human-Computer Interaction research, with a specific focus on innovative sensing, ubiquitous computing, and rapid prototyping. Until 2019 he has more than 40 technical research publications and held several user interface hardware patents.

**Outstanding Achievements:** His research awarded ACM UIST 2016 Best Talk Award, IICM 2015 Best Ph.D. Thesis Honorable Mention Award, ACM CHI 2014 Best Paper Honorable Mention Award, ACM CHI 2014 People's Choice Best Talk Award, ACM CHI 2013 Best Paper Award, ACM SIGGRAPH Asia 2012 Emerging Technologies Award.

**Expertise Areas:** User interface software and technologies, human-computer interaction design, Ubiquitous computing, sensor technology, interaction design.

**Google Scholar:** H-index=14, i10-index=15, #citations=647 (until Jun. 2, 2019)

**LinkedIn:** <https://www.linkedin.com/in/rong-hao-liang-33275351/>

## Experiences

- **Assistant Professor** *Oct. 2016 – now*  
Department of Industrial Design, Eindhoven University of Technology, The Netherlands
- **Co-Founder** *Mar. 2015 – now*  
GaussToys Inc., Taiwan
- **Assistant Research Fellow** *Dec. 2014 – Sep. 2016*  
Intel-NTU Connected Context Computing Center, National Taiwan University, Taiwan
- **Research Assistant** *Apr. 2010 – Dec. 2014*  
Institute of Information Science, Academia Sinica, Taiwan

## Education

- **Doctor of Philosophy (Ph.D.)** *Sep. 2011 – Oct. 2014*

**Graduate Institute of Networking and Multimedia, National Taiwan University, Taiwan**

*Thesis: GaussTUIKit - Designing Portable and Seamless Tangible Interactions Using Magnetics*  
(Advisor: Dr. Bing-Yu Chen)

- **Master of Science (M.S.)** *Sep. 2008 – Jun. 2010*

**Department of Electrical Engineering, National Taiwan University, Taiwan**

*Thesis: Utilizing Everyday Objects as Additional, Auxiliary and Instant Tabletop Controllers*  
(Advisor: Dr. Sy-Yen Kuo)

- **Bachelor of Science (B.S.)** *Sep. 2003 – Jun. 2007*

**Department of Computer Science, Chang Gung University, Taiwan**

## Publication

### Selected Publications in Top Conference Proceedings

- **ACM CHI: ACM SIGCHI Conference on Human Factors in Computing Systems - The premier international conference of Human-Computer Interaction (HCI)**
  - **ACM UIST: ACM Symposium on User Interface Software and Technology - The premier forum for innovations in human-computer interfaces**
1. **Rong-Hao Liang**, Meng-Ju Hsieh, Jheng-You Ke, Jr-Ling Guo, Bing-Yu Chen. **2018**. RFIMatch: Batteryless, Distributed Near-Field Identification Using RFID-Tagged Magnet-biased Reed Switches. In *Proc. ACM UIST 2018*, pp.473—483, Berlin, Germany.
  2. **Rong-Hao Liang**, Bin Yu, Mengru Xue, Jun Hu, Loe M.G. Feijs. **2018**. BioFidget: Biofeedback for Respiration Training Using an Augmented Fidget Spinner. In *Proc. ACM CHI 2018*, Article 613, 12 pages, Montreal, Canada.
  3. Meng-Ju Hsieh, **Rong-Hao Liang**, Da-Yuan Huang, Jheng-You Ke, Bing-Yu Chen. **2018**. RFIBricks: Interactive Building Blocks Based on RFID. In *Proc. ACM CHI 2018*, Article 189, 10 pages, Montreal, Canada.
  4. Bin Yu, Jun Hu, Mathias Funk, **Rong-Hao Liang**, Mengru Xue, Loe M.G. Feijs. **2018**. RESonance: Lightweight, Room-Scale Audio-Visual Biofeedback for Immersive Relaxation Training. In *IEEE Access*, pp. 38336--38347.
  5. **Rong-Hao Liang**, Han-Chih Kuo, Bing-Yu Chen. **2016**. *GaussRFID: Reinventing Physical Toys with Magnetic RFID Kits*. In *Proc. ACM CHI 2016*, pp.4233--4237, San Jose, CA, USA.
  6. Han-Chih Kuo, **Rong-Hao Liang**, Long-Fei Lin, Bing-Yu Chen. **2016**. *GaussMarbles: Spherical Magnetic Tangibles for Interacting with Portable Physical Constraints*. In *Proc. ACM CHI 2016*, pp.4228--4232, San Jose, CA, USA.
  7. Da-Yuan Huang, Liwei Chan, Shuo Yang, Fan Wang, **Rong-Hao Liang**, De-Nian Yang, Yi-Ping Hung,

- Bing-Yu Chen. **2016**. *DigitSpace: Designing Thumb-to-Fingers Touch Interfaces for One-handed and Eyes-free Interactions*. In **Proc. ACM CHI 2016**, pp.1526--1537, San Jose, CA, USA.
8. Chiuang Wang, Hsuan-Ming Yeh, Bryan Wang, Te-Yen Wu, Hsin-Ruey Tsai, **Rong-Hao Liang**, Yi-Ping Hung, Mike Y. Chen. **2016**. *CircuitStack: Supporting Rapid Prototyping and Evolution of Electronic Circuits*. In **Proc. ACM UIST 2016**, pp.687--695, Tokyo, Japan. [UIST 2016 Best Talk Award]
  9. Yi-Chi Liao, Yi-Ling Chen, Jo-Yu Jo, **Rong-Hao Liang**, Liwei Chan, Bing-Yu Chen. **2016**. *EdgeVib: Effective Alphanumeric Output Using a Wrist-Worn Tactile Display*. In **Proc. ACM UIST 2016**, pp.595--601, Tokyo, Japan.
  10. Chin-Yu Chien, **Rong-Hao Liang**, Long-Fei Lin, Liwei Chan, Bing-Yu Chen. **2015**. *FlexiBend: Enabling Interactivity of Multi-Part, Deformable Fabrications Using Single Shape-Sensing Strip*. In **Proc. ACM UIST 2015**, pp.659--633, Charlotte, NC, USA.
  11. Liwei Chan, Yi-Ling Chen, Chi-Hao Hsieh, **Rong-Hao Liang**, Bing-Yu Chen. **2015**. *CyclopsRing: Enabling Whole-Hand and Context-Aware Interactions Through a Fisheye Ring*. In **Proc. ACM UIST 2015**, pp.549--556, Charlotte, NC, USA.
  12. **Rong-Hao Liang**, Chao Shen, Yu-Chien Chan, Guan-Ting Chou, Liwei Chan, De-Nian Yang, Mike Y. Chen, Bing-Yu Chen. **2015**. *WonderLens: Optical Lenses and Mirrors for Tangible Interactions on Printed Paper*. In **Proc. ACM CHI 2015**, pp.1281--1284, Seoul, Korea.
  13. Liwei Chan, Chi-Hao Hsieh, Yi-Ling Chen, Shuo Yang, Da-Yuan Huang, **Rong-Hao Liang**, Bing-Yu Chen. **2015**. *Cyclops: Wearable and Single-Piece Full-Body Gesture Input Devices*. In **Proc. ACM CHI 2015**, pp.3001--3010, Seoul, Korea.
  14. **Rong-Hao Liang**, Han-Chih Kuo, Liwei Chan, De-Nian Yang, Bing-Yu Chen. **2014**. *GaussStones: Shielded Magnetic Tangibles for Multi-Token Interactions on Portable Displays*. In **Proc. ACM UIST 2014**, pp.365--372, Honolulu, Hawaii, USA.
  15. **Rong-Hao Liang**, Liwei Chan, Hung-Yu Tseng, Han-Chih Kuo, Da-Yuan Huang, De-Nian Yang, Bing-Yu Chen. **2014**. *GaussBricks: Magnetic Building Blocks for Constructive Tangible Interactions on Portable Displays*. In **Proc. ACM CHI 2014**, pp.3153--3162, Toronto, ON, Canada. [CHI 2014 Best Paper Honorable Mention Award & CHI 2014 People's Choice Best Talk Award]
  16. Liwei Chan, **Rong-Hao Liang**, Ming-Chang Tsai, Kai-Yin Cheng, Chao-Huai Su, Mike Y. Chen, Wen-Huang Cheng, Bing-Yu Chen. **2013**. *FingerPad: Private and Subtle Interaction Using Fingertips*. In **Proc. ACM UIST 2013**, pp.255--260, St Andrews, United Kingdom.
  17. **Rong-Hao Liang**, Kai-Yin Cheng, Liwei Chan, Chuan-Xhyuan Peng, Mike Y. Chen, Rung-Huei Liang, De-Nian Yang, Bing-Yu Chen. **2013**. *GaussBits: Magnetic Tangible Bits for Portable and Occlusion-Free Near-Surface Interactions*. In **Proc. ACM CHI 2013**, pp.1391--1400, Paris, France.
  18. Chao-Huai Su, Liwei Chan, Chien-Ting Weng, **Rong-Hao Liang**, Kai-Yin Cheng, Bing-Yu Chen. **2013**. *NailDisplay: Bringing an Always-Available Visual Display To Fingertips*. In **Proc. ACM CHI 2013**,

pp.1461–1464, Paris, France. [CHI 2013 Best Paper Award]

19. **Rong-Hao Liang**, Kai-Yin Cheng, Chao-Huai Su, Chien-Ting Weng, Bing-Yu Chen, De-Nian Yang. **2012**. *GaussSense: Attachable Stylus Sensing Using Magnetic Sensor Grid*. In *Proc. ACM UIST 2012*, pp.319–326, MA, USA.
20. Shu-Yang Lin, Chao-Huai Su, Kai-Yin Cheng, **Rong-Hao Liang**, Tzu-Hao Kuo, Bing-Yu Chen. **2011**. *PUB - Point Upon Body: Exploring Eyes-Free Interaction and Methods on an Arm*. In *Proc. ACM UIST 2011*, pp.481–488, Santa Barbara, USA.
21. Kai-Yin Cheng, **Rong-Hao Liang**, Bing-Yu Chen, Rung-Huei Liang, Sy-Yen Kuo. **2010**. *iCon: Utilizing Everyday Objects as Additional, Auxiliary and Instant Tabletop Controllers*. In *Proc. ACM CHI 2010*, pp.1155–1164, Atlanta, Georgia, USA.

### International Conference Papers, Demos, and Posters

1. **Rong-Hao Liang**, Bin Yu, Mengru Xue, Jun Hu, Loe M.G. Feijs. **2018**. BioFidget Demo: Biofeedback for Respiration Training Using an Augmented Fidget Spinner. In *ACM CHI 2018 Demo*, to appear, Montreal, Canada.
2. Mengru Xue, **Rong-Hao Liang**, Jun Hu and Loe Feijs. **2017**. ClockViz: Designing Public Visualization for Coping with Collective Stress in Teamwork. In *Proc. DeSForM 2017*, Article 5, Eindhoven, The Netherlands.
3. Meng-Ju Hsieh, **Rong-Hao Liang**, Bing-Yu Chen. **2016**. *NailTactors: Eyes-Free Spatial Output Using a Nail-Mounted Tactor Array*. In *Proc. ACM MobileHCI 2016*, pp. 29--34, Florence, Italy.
4. **Rong-Hao Liang**, Han-Chih Kuo, Miguel Bruns Alonso, Bing-Yu Chen. **2016**. *GaussStudio: Designing Seamless Tangible Interactions on Portable Displays*. In *ACM TEI 2016 Studio Workshop (as organizer)*, to appear, Eindhoven, The Netherlands.
5. Long-Fei Lin, Shan-Yuan Teng, **Rong-Hao Liang**, Bing-Yu Chen. **2016**. *Stylus Assistant: Designing Dynamic Constraints for Facilitating Stylus Inputs on Portable Displays*. ACM SIGGRAPH Asia 2016 Emerging Technologies Demo, Macao.
6. Hung-Yu Tseng, **Rong-Hao Liang**, Liwei Chan, Bing-Yu Chen. **2015**. *LEaD: Utilizing Light Movement as Peripheral Visual Guidance for Scooter Navigation*. In *Proc. ACM MobileHCI 2015*, pp. 323–326, Copenhagen, Denmark.
7. **Rong-Hao Liang**, Han-Chih Kuo, Bing-Yu Chen. **2015**. *GaussStarter: Prototyping Analog Hall-Sensor Grids with Breadboards*. In *ACM UIST 2015 Demo*, Charlotte, NC, USA.
8. Yi-Chi Liao, Shun-Yao Yang, **Rong-Hao Liang**, Liwei Chan, Bing-Yu Chen. **2015**. *ThirdHand: Wearing a Robotic Arm to Experience Rich Force Feedback*. In *ACM SIGGRAPH Asia 2015 Emerging Technologies Demo*, Kobe, Japan.
9. Yi-Ling Chen, Wei-Tse Lee, Liwei Chan, **Rong-Hao Liang**, Bing-Yu Chen. **2015**. *Direct View Manipulation for Drone Photography*. In *ACM SIGGRAPH Asia 2015 Poster*, Kobe, Japan.

10. Chin-Yu Chien, Cheng-Yuan Li, Liwei Chan, Yi-Chi Liao, **Rong-Hao Liang**, Hao-Hua Chu, Bing-Yu Chen. **2015**. *fStrip: A Malleable Shape-Retaining Wearable Strip for Interface On-Demand*. In **ACM Ubicomp 2015 Poster**, Osaka, Japan
11. **Rong-Hao Liang**, Chao Shen, Yu-Chien Chan, Guan-Ting Chou, Liwei Chan, De-Nian Yang, Mike Y. Chen, Bing-Yu Chen. **2015**. *WonderLens: Optical Lenses and Mirrors for Tangible Interactions on Printed Paper*. In **ACM CHI 2015 Interactivity Demo**, Seoul, Korea.
12. Hung-Yu Tseng, **Rong-Hao Liang**, Liwei Chan, Bing-Yu Chen. **2015**. *Utilizing Point-Light Movement as Peripheral Visual Guidance for Scooter Navigation*. In **ACM Augmented Human 2015 Poster**, Singapore.
13. Chi-Chiang Huang, **Rong-Hao Liang**, Liwei Chan, Bing-Yu Chen. **2014**. *Dart-It: Interacting with a Remote Display by Throwing Your Finger Touch*. In **ACM SIGGRAPH 2014 Emerging Technologies Demo and Poster**, Vancouver, BC, Canada.
14. **Rong-Hao Liang**, Liwei Chan, Hung-Yu Tseng, Han-Chih Kuo, Da-Yuan Huang, De-Nian Yang, Bing-Yu Chen. **2014**. *GaussBricks: Magnetic Building Blocks for Constructive Tangible Interactions on Portable Displays*. In **ACM CHI 2014 Demo & Video Showcase**, Toronto, ON, Canada.
15. Liwei Chan, Chien-Ting Weng, **Rong-Hao Liang**, and Bing-Yu Chen. **2014**. *AnyButton: Unpowered, Modeless and Highly Available Mobile Input Using Unmodified Clothing Buttons*. In **ACM Augmented Human 2014 Poster**, Kobe, Japan.
16. **Rong-Hao Liang**. **2013**. *Augmenting the Input Space of Portable Displays Using Add-On Hall-Sensor Grid*. In **ACM UIST 2013 Doctoral Symposium**, St Andrews, United Kingdom.
17. **Rong-Hao Liang**, Kai-Yin Cheng, Liwei Chan, Chuan-Xhyuan Peng, Mike Y. Chen, Rung-Huei Liang, De-Nian Yang, Bing-Yu Chen. **2013**. *GaussBits: Magnetic Tangible Bits for Portable and Occlusion-Free Near-Surface Interactions*. In **ACM CHI 2013 Interactivity Demo & Video Showcase**, Paris, France.
18. **Rong-Hao Liang**, Kai-Yin Cheng, Liwei Chan, Chuan-Xhyuan Peng, Mike Y. Chen, Rung-Huei Liang, De-Nian Yang, Bing-Yu Chen. **2013**. *Tracking Magnetics Above Portable Displays*. In **ACM SIGGRAPH 2013 Poster**, CA, USA.
19. **Rong-Hao Liang**, Chao-Huai Su, Chien-Ting Weng, Kai-Yin Cheng, Bing-Yu Chen, De-Nian Yang. **2012**. *GaussBrush: Drawing with Magnetic Stylus*. In **ACM SIGGRAPH Asia 2012 Emerging Technologies Demo**, Singapore. **[SIGGRAPH Asia 2012 Emerging Technologies Prize]**
20. **Rong-Hao Liang**, Kai-Yin Cheng, Bing-Yu Chen, De-Nian Yang. **2012**. *GaussSketch: Add-On Magnetic Sensing for Natural Sketching on Smartphones*. In **ACM SIGGRAPH 2012 Poster**, CA, USA.
21. **Rong-Hao Liang**, Shu-Yang Lin, Chao-Huai Su, Kai-Yin Cheng, Bing-Yu Chen, De-Nian Yang. **2011**. *SonarWatch: Appropriating the Forearm as a Slider Bar*. In **ACM SIGGRAPH Asia 2011 Emerging Technologies Demo**, Hong Kong, China.
22. Kai-Yin Cheng, **Rong-Hao Liang**, Hung-Jung Lin, Bing-Yu Chen, Rung-Huei Liang, Ming-Yang Yu,

Hao-Hua Chu, Yu-Ming Chu, Sy-Yen Kuo. **2009**. *Memolcon: Using Everyday Objects as Physical Icons*. In *ACM SIGGRAPH Asia 2009 Emerging Technologies Demo*, Yokohama, Japan.

## Awards

1. **ACM UIST 2016 Best Talk Award**, *CircuitStack: Supporting Rapid Prototyping and Evolution of Electronic Circuits*. 2016
2. **Excellent Ph.D. These Award**, **Institute of Information & Computing Machinery, Taiwan**. 2015.
3. **First Prize (\$85,000 Cash Prize)**, **4th MOST FITI Entrepreneur Competition, Taiwan**. *GaussToys*. 2014.
4. **First Prize (\$65,000 Cash Prize)**, **8th Acer Long-Term Entrepreneur Competition, Taiwan**. *GaussToys*. 2014.
5. **ACM CHI 2014 Best Paper Honorable Mention Award**, *GaussBricks: Magnetic Building Blocks for Constructive Tangible Interactions on Portable Displays*. 2014
6. **ACM CHI 2014 People's Choice Best Talk Award**, *GaussBricks: Magnetic Building Blocks for Constructive Tangible Interactions on Portable Displays*. 2014
7. **ACM CHI 2013 Best Paper Award**, *NailDisplay: Bringing Always-Available Visual Display To Fingertips*. 2013.
8. **ACM SIGGRAPH Asia 2012 Emerging Technologies Prize**, *GaussBrush: Drawing with Magnetic Stylus*. 2012.
9. **Second Prize (\$32,000 Cash Prize)**, **7th Long-Term Entrepreneur Competition, Taiwan**. *ArmTech*. 2012.

## Patents (US)

1. US2015/0279096 A1. "Geometric Structure Analyzing Method, Geometric Structure Analyzing System, and Computer Program Product"
2. US2014/0207407 A1. "Near-Surface Object Sensing Device and Sensing Method"
3. US2013/0285940 A1. "Touch Type Control Equipment and Method Thereof"
4. US Patent Pending. "Identification System and Method for Shielded Magnetic Unit"
5. US Patent Pending. "Full-Body Gesture Recognition Device and Sending Method "

## Professional Services (International)

- Paper Program Chair: ACM DeSForM '17
- Poster Chair: ACM MobileHCI '19

- Publicity Chair: ACM UIST '16
- Program Committee: TEI '18 Technical Paper, UIST '17 Technical Paper, ACM SIGGRAPH Asia E-Tech '16, TEI '16 Work-in-Progress, CHI '15 Work-in-Progress
- Paper Reviewer: CHI '13, '14, '15, '16, '17, '18; UIST '15, '16; IMWUT '17, '18; TEI '14, '15, '16, '17; DIS '18; ToCHI '17; ACE '14, '15; IJHCS '14; ACM SIGGRAPH Asia E-Tech '13, '14, '15, '16, '17; CASA '14