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Last Update: Nov. 2022

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EDUCATION

- **The University of Tokyo** Tokyo, Japan
Ph.D. in Information Science and Technology, advisor: Prof. Yoichi Sato Oct. 2010 – Sept. 2013
- **Tsinghua University** Beijing, China
Master of Engineering in Automation, advisor: Prof. Guihua Er Sept. 2007 – Jul. 2010
- **Tsinghua University** Beijing, China
Bachelor of Engineering in Automation Sept. 2003 – Jul. 2007

WORK & RESEARCH EXPERIENCE

- **Beihang University** Beijing, China
Professor May 2016 – now
- **Beihang University** Beijing, China
Associate Professor Jun. 2015 – Apr. 2016
- **The University of Tokyo** Tokyo, Japan
Research Associate Nov. 2013 – May 2015

RESEARCH INTERESTS

Computer Vision, Human Computer Interaction, Virtual/Augmented Reality, Affective Computing, AI

PUBLICATIONS (*CORRESPONDING AUTHOR)

1. *Zhimin Wang, Yuxin Zhao, **Feng Lu****. Gaze-Vergence-Controlled See-Through Vision in Augmented Reality. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 28(11):3843-3853, 2022. (Presented at ISMAR2022)
2. *Yiwei Bao, Yunfei Liu, Haofei Wang, **Feng Lu****. Generalizing Gaze Estimation with Rotation Consistency. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022.
3. *Mingfang Zhang, Yunfei Liu, **Feng Lu****. GazeOnce: Real-Time Multi-Person Gaze Estimation. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022.
4. *Yunfei Liu, Yu Li, Shaodi You and **Feng Lu****. Semantic Guided Single Image Reflection Removal. *The ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)*, 18(3s):151:1-23, 2022.
5. *Yuhao Niu, Lin Gu, Yitian Zhao, and **Feng Lu****. Explainable Diabetic Retinopathy Detection and Retinal Image Generation. *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 26(1): 44-55, 2022.
6. *Ze Yang, Haofei Wang and **Feng Lu****. Assessment of Deep Learning-based Heart Rate Estimation using Remote Photoplethysmography under Different Illuminations. *IEEE Transactions on Human-Machine Systems (THMS)*, 52(6): 1236-1246, 2022.
7. *Zongji Wang, Yunfei Liu, **Feng Lu****. Discriminative feature encoding for intrinsic image decomposition. *Computational Visual Media (CVMJ)*, accepted 2022.
8. *Heng Guo, Zhipeng Mo, Boxin Shi, **Feng Lu**, Sai Kit Yeung, Ping Tan and Yasuyuki Matsushita*. Patch-based Uncalibrated Photometric Stereo under Natural Illumination. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 44(11): 7809-7823, 2022.
9. *Yihua Cheng, Yiwei Bao and **Feng Lu****. PureGaze: Purifying Gaze Feature for Generalizable Gaze Estimation. *AAAI Conference on Artificial Intelligence (AAAI)*, 2022.
10. *Jiadong Liang, Yunfei Liu, **Feng Lu****. Reconstructing 3D Virtual Face with Eye Gaze from a Single Image. *IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, 2022.

11. *Zhimin Wang, Yuxin Zhao, Feng Lu**. Control with Vergence Eye Movement in Augmented Reality See-Through Vision. IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2022.
12. *Yihua Cheng, Feng Lu**. Gaze Estimation using Transformer. International Conference on Pattern Recognition (ICPR), 2022.
13. *Bo Liu, Xuanqian Wang, Jingjin Dong, Di Li, Feng Lu**. ATC-WSA: Working State Analysis for Air Traffic Controllers. CAAI International Conference on Artificial Intelligence (CICAI), 2022.
14. *Mingfang Zhang, Yinqiang Zheng, Feng Lu**. Optical Flow in the Dark. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), accepted 2021.
15. *Feifan Lv, Yu Li and Feng Lu**. Attention Guided Low-light Image Enhancement with a Large Scale Low-light Simulation Dataset. International Journal of Computer Vision (IJCV), 129(7): 2175-2193, 2021.
16. *Sijia Wen, Yinqiang Zheng and Feng Lu**. Polarization Guided Specular Reflection Separation. IEEE Transactions on Image Processing (TIP), 30: 7280-7291, 2021.
17. *Sijia Wen, Yinqiang Zheng* and Feng Lu**. A Sparse Representation Based Joint Demosaicing Method for Single-Chip Polarized Color Sensor. IEEE Transactions on Image Processing (TIP), 30: 4171-4182, 2021.
18. *Xingjun Ma, Yuhao Niu, Lin Gu, Yisen Wang, Yitian Zhao, James Bailey and Feng Lu**. Understanding Adversarial Attacks on Deep Learning Based Medical Image Analysis Systems. Pattern Recognition (PR), 110: 107332, 2021.
19. *Zhimin Wang, Haofei Wang, Huangyue Yu, and Feng Lu**. Interaction with Gaze, Gesture and Speech in a Flexibly Configurable Augmented Reality System. IEEE Transactions on Human-Machine Systems (THMS), 51(5): 524-534, 2021.
20. *Yunfei Liu, Ruicong Liu, Haofei Wang, Feng Lu**. Generalizing Gaze Estimation with Outlier-guided Collaborative Adaptation. IEEE International Conference on Computer Vision (ICCV), 2021.
21. *Zhimin Wang, Yuxin Zhao, Yunfei Liu, Feng Lu**. Edge-Guided Near-Eye Image Analysis for Head Mounted Displays. IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2021.
22. *Yunfei Liu, Sijia Wen, Feng Lu**. 3D Photography with One-shot Portrait Relighting. IEEE International Symposium on Mixed and Augmented Reality (ISMAR), Poster, 2021.
23. *Yunfei Liu, Haofei Wang, Yang Yue, Feng Lu**. Separating Content and Style for Unsupervised Image-to-Image Translation. British Machine Vision Conference (BMVC), 2021.
24. *Huangyue Yu, Minjie Cai, Yunfei Liu and Feng Lu**. First- And Third-person Video Co-analysis By Learning Spatial-temporal Joint Attention. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), accepted 2020.
25. *Yihua Cheng, Xucong Zhang, Feng Lu* and Yoichi Sato*. Gaze Estimation by Exploring Two-Eye Asymmetry. IEEE Transactions on Image Processing (TIP), 29(1): 5259-5272, 2020.
26. *Zongji Wang and Feng Lu**. VoxSegNet: Volumetric CNNs for Semantic Part Segmentation of 3D Shapes. IEEE Transactions on Visualization and Computer Graphics (TVCG), 26(9): 2919-2930, 2020.
27. *Yifei Huang, Minjie Cai, Zhenqiang Li, Feng Lu, Yoichi Sato*. Mutual Context Network for Jointly Estimating Egocentric Gaze and Action. IEEE Transactions on Image Processing (TIP), 29: 7795-7806, 2020.
28. *Yunfei Liu, Yu Li, Shaodi You and Feng Lu**. Unsupervised Learning for Intrinsic Image Decomposition from a Single Image. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020.
29. *Yinqiang Zheng, Mingfang Zhang and Feng Lu**. Optical Flow in the Dark. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020.
30. *Minjie Cai*, Feng Lu* and Yoichi Sato*. Generalizing Hand Segmentation in Egocentric Videos with Uncertainty-Guided Model Adaptation. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020.
31. *Yunfei Liu and Feng Lu**. Separate In Latent Space: Unsupervised Single Image Layer Separation. AAAI Conference on Artificial Intelligence (AAAI), 2020.
32. *Feifan Lv, Yinqiang Zheng, Yicheng Li and Feng Lu**. An Integrated Enhancement Solution for 24-hour Colorful Imaging. AAAI Conference on Artificial Intelligence (AAAI), 2020.

33. *Yihua Cheng, Shiyao Huang, Fei Wang, Chen Qian and Feng Lu**. A Coarse-to-Fine Adaptive Network for Appearance-Based Gaze Estimation. AAAI Conference on Artificial Intelligence (AAAI), 2020.
34. *Jiadong Liang, Wenjie Pei and Feng Lu**. CPGAN: Content-Parsing Generative Adversarial Networks for Text-to-Image Synthesis. European Conference on Computer Vision (ECCV), 2020.
35. *Yunfei Liu, Xingjun Ma, James Bailey and Feng Lu**. Reflection Backdoor: A Natural Backdoor Attack on Deep Neural Networks. European Conference on Computer Vision (ECCV), 2020.
36. *Feifan Lv, Bo Liu and Feng Lu**. Fast Enhancement for Non-Uniform Illumination Images using Light-weight CNNs. ACM International Conference on Multimedia (ACM MM), 2020.
37. *Haiyang Si, Zhiqiang Zhang and Feng Lu**. Real-Time Semantic Segmentation via Multiple Spatial Fusion Network. British Machine Vision Conference (BMVC), 2020.
38. *Yiwei Bao, Yihua Cheng, Yunfei Liu and Feng Lu**. Adaptive Feature Fusion Network for Gaze Tracking in Mobile Tablets. International Conference on Pattern Recognition (ICPR), 2020.
39. *Zhimin Wang, Huangyue Yu, Haoifei Wang, Zongji Wang and Feng Lu**. Comparing Single-modal and Multimodal Interaction in an Augmented Reality System. International Symposium on Mixed and Augmented Reality (ISMAR), Poster, 2020.
40. *Chong Cao, Feng Lu*, Chen Li, Stephen Lin and Xukun Shen*. Makeup Removal via Bidirectional Tunable De-makeup Network. IEEE Transactions on Multimedia (TMM), 21(11): 2750-2761, 2019.
41. *Minjie Cai, Feng Lu*, and Yue Gao*. Desktop Action Recognition From First-Person Point-of-View. IEEE Transactions on Cybernetics (TC), 49(5): 1616-1628, 2019.
42. *Sijia Wen, Yinqiang Zheng, Feng Lu* and Qinqing Zhao*. Convolutional demosaicing network for joint chromatic and polarimetric imagery. Optics Letters, 44(22), 5646-5649, 2019.
43. *Feifan Lv, Yinqiang Zheng, Bohan Zhang and Feng Lu**. Turn a Silicon Camera into an InGaAs Camera. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019.
44. *Huangyue Yu, Minjie Cai, Yunfei Liu and Feng Lu**. What I See Is What You See: Joint Attention Learning for First and Third Person Video Co-analysis. ACM International Conference on Multimedia (ACM MM), 2019.
45. *Yuhao Niu, Lin Gu, Feng Lu*, Feifan Lv, Zongji Wang, Imari Sato, Zijian Zhang, Yangyan Xiao, Xunzhang Dai and Tingting Cheng*. Pathological Evidence Exploration in Deep Retinal Image Diagnosis. AAAI Conference on Artificial Intelligence (AAAI), 2019.
46. *Bo Liu, Lin Gu and Feng Lu**. Unsupervised Ensemble Strategy for Retinal Vessel Segmentation. Medical Image Computing and Computer Assisted Intervention (MICCAI), 2019.
47. *Zongji Wang and Feng Lu**. Single Image Intrinsic Decomposition with Discriminative Feature Encoding. IEEE International Conference on Computer Vision Workshop (ICCVW), 2019.
48. *Zhixiang Hao, Shaodi You, Yu Li, Kunming Li and Feng Lu**. Learning From Synthetic Photorealistic Raindrop for Single Image Raindrop Removal. IEEE International Conference on Computer Vision Workshop (ICCVW), 2019.
49. *Feng Lu*, Xiaowu Chen*, Imari Sato and Yoichi Sato*. SymPS: BRDF Symmetry Guided Photometric Stereo for Shape and Light Source Estimation. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 40(1): 221-234, 2018.
50. *Feixiang Lu, Bin Zhou, Feng Lu, Yu Zhang, Xiaowu Chen and Qinqing Zhao*. Reconstructing non-rigid object with large movement using a single depth camera. Computer Aided Geometric Design (CAGD), 64: 15-26, 2018.
51. *Yihua Cheng, Feng Lu* and Xucong Zhang*. Appearance-Based Gaze Estimation via Evaluation-Guided Asymmetric Regression. European Conference on Computer Vision (ECCV), 2018.
52. *Zhipeng Mo, Boxin Shi, Feng Lu, Sai-Kit Yeung, and Yasuyuki Matsushita*. Uncalibrated Photometric Stereo under Natural Illumination. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018.
53. *Feifan Lv, Feng Lu*, Jianhua Wu, and Chongsoon Lim*. MBLLEN: Low-light Image/Video Enhancement Using CNNs. British Machine Vision Conference (BMVC), 2018.
54. *Zhixiang Hao, Yu Li, Shaodi You and Feng Lu**. Detail Preserving Depth Estimation from a Single Image Using Attention Guided Networks. International Conference on 3D Vision (3DV), 2018.

55. **Feng Lu***, Xiaowu Chen*, and Yoichi Sato. Appearance-based gaze estimation via uncalibrated gaze pattern recovery. *IEEE Transactions on Image Processing (TIP)*, Vol. 26, Issue 4, pp. 1543-1553, 2017.
56. **Feng Lu***, Lei He, Shaodi You, Xiaowu Chen*, and Zhixiang Hao. Identifying Surface BRDF from a Single 4D Light Field Image via Deep Neural Network. *IEEE Journal of Selected Topics in Signal Processing (JSTSP)*, 11(7): 1047-1057. 2017.
57. Weiwei Wan, **Feng Lu**, Zepei Wu, Kensuke Harada. Teaching Robots to Do Object Assembly using Multi-modal 3D Vision. *Neurocomputing (NC)*, 259: 85-93, 2017.
58. Xiaowu Chen, Anlin Zheng, Jia Li, **Feng Lu** . Look, Perceive and Segment: Finding the Salient Objects in Images via Two-Stream Fixation-Semantic CNNs. *IEEE International Conference on Computer Vision (ICCV)*, 2017.
59. **Feng Lu**, Yue Gao, Xiaowu Chen. Estimating 3D Gaze Directions Using Unlabeled Eye images via Synthetic Iris Appearance Fitting. *IEEE Transactions on Multimedia (TMM)*, 2016.
60. Weiwei Wan, **Feng Lu***, and Rui Fukui. Error-tolerant Manipulation by Immobilization and Caging. *Signal Processing (SP)*, 120: 721-730, 2016.
61. **Feng Lu**, Xiaowu Chen. Person-independent eye gaze prediction from eye images using patch-based features. *Neurocomputing (NC)*, 2016.
62. Lumei Su, and **Feng Lu***. Visual Facial Expression Modeling and Early Predicting from 3D Data via Subtle Feature Enhancing. *Multimedia Tools and Applications (MTA)*, 75(20): 12563–12580, 2016.
63. Jingfan Fan, Jian Yang, **Feng Lu**, Danni Ai, Yitian Zhao, Yongtian Wang. 3-Points Convex Hull Matching (3PCHM) for Fast and Robust Point Set registration. *Neurocomputing (NC)*, 194: 227-240, 2016.
64. **Feng Lu***, Yasuyuki Matsushita, Imari Sato, Takahiro Okabe, Yoichi Sato. From intensity profile to surface normal: photometric stereo for unknown light sources and isotropic reflectances. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2015.
65. **Feng Lu***, Takahiro Okabe, Yusuke Sugano, Yoichi Sato. Gaze Estimation from Eye Appearance: A Head Pose-Free Method via Eye Image Synthesis. *IEEE Transactions on Image Processing (TIP)*, 2015.
66. **Feng Lu***, Imari Sato, and Yoichi Sato. Uncalibrated Photometric Stereo Based on Elevation Angle Recovery from BRDF Symmetry of Isotropic Materials. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2015)*, June 2015.
67. **Feng Lu***, Yusuke Sugano, Takahiro Okabe, and Yoichi Sato. Adaptive Linear Regression for Appearance-Based Gaze Estimation. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol. 36, No. 10, pp. 2033-2046, October 2014.
68. **Feng Lu***, Takahiro Okabe, Yusuke Sugano, and Yoichi Sato. Learning gaze biases with head motion for head pose-free gaze estimation. *Image and Vision Computing (IVC)*, vol 32, issue 3, pp. 169-179, March 2014.
69. **Feng Lu***, Yasuyuki Matsushita, Imari Sato, Takahiro Okabe and Yoichi Sato. Uncalibrated photometric stereo for unknown isotropic reflectances. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2013)*, July 2013.
70. **Feng Lu***, Yusuke Sugano, Takahiro Okabe and Yoichi Sato. Head Pose-Free Appearance-Based Gaze Sensing via Eye Image Synthesis. *IAPR International Conference on Pattern Recognition (ICPR 2012)*, pp. 1008-1011, November 2012.
71. **Feng Lu***, Yusuke Sugano, Takahiro Okabe, and Yoichi Sato. Inferring Human Gaze from Appearance via Adaptive Linear Regression. *IEEE International Conference on Computer Vision (ICCV2011)*, November 2011.
72. **Feng Lu***, Yusuke Sugano, Takahiro Okabe, and Yoichi Sato. A Head Pose-free Approach for Appearance-based Gaze Estimation. *British Machine Vision Conference (BMVC2011)*, August 2011.
73. **Feng Lu***, Xiangyang Ji, Qionghai Dai, Guihua Er. Multi-view stereo reconstruction with high dynamic range texture. *Asian Conference on Computer Vision (ACCV)*, 2010.
74. **Feng Lu***, Haoqian Wang, Xiangyang Ji, and Guihua Er. Bit-depth scalable coding using a perfect picture and adaptive neighboring filter. *3DTV-Conference*, 2009.
75. **Feng Lu**, Guihua Er, Qionghai Dai, Hongjiang Xiao. Quality assessment of 3D asymmetric view coding using spatial frequency dominance model. *Tsinghua Science & Technology*, 2009.

ACADEMIC SERVICES

- **Conference Committee:**

- **MVA 2018&2019**, Publicity Chair
- **IGTA 2022**, Publicity Chair
- **BMVC 2019&2020**, Area Chair
- **ICPR 2020&2022**, Associate Editor
- **ACM Multimedia 2021&2022**, Area Chair
- **CVPR 2023**, Area Chair
- **ICCV 2021&2023**, Area Chair

- **Professional Organization:**

- **IEEE**, Senior Member
- **IET**, Senior Member
- **CCF/CSIG/CAAI/CICC**, Senior Member