

# Dr. Xucong Zhang

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## Research Interests

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My research is about computer vision, machine learning, and human-computer interactions. My core research interest is human-centred computing as developing techniques for sensing, understanding, and serving the human user.

## Academic Positions

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- **Assistant Professor** Since Aug. 2021  
Computer Vision group TU Delft  
Delft, Netherlands
- **Postdoctoral Researcher** Nov. 2018 - July 2021  
Advanced Interactive Technologies (AIT) Lab, ETH Zürich  
Zürich, Switzerland  
Led by Prof. Otmar Hilliges
- **PhD Student** Oct. 2013 - Nov. 2018  
Max Planck Institute for Informatics,  
Saarbrücken, Germany  
Supervisor: Prof. Andreas Bulling
- **Research Intern** July. 2011 - Sep. 2013  
Institute of Automation, Chinese Academic of Sciences,  
Beijing, China  
Led by Prof. Stan Z. Li

## Education

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- **Doctor of Engineering (summa cum laude)** Oct. 2018  
Saarland University  
Saarland informatics campus  
Saarbrücken, Germany  
Thesis title: Gaze Estimation and Interaction in Real-World Environments.
- **Master of Science** July 2013  
Beihang University  
Beijing, China  
Thesis title: The Visual Internet of Things Based on Kinect.
- **Bachelor of Engineering (Honors program)** July 2010  
China Agricultural University  
Beijing, China  
Thesis title: Image Preprocessing

## Teaching

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- **Co-supervised Master theses and semester projects**  
Aoming Liu: Gaze Estimation with Multi-view Images. 2020  
Valentin Venzin: Person-Specific Human EyeGaze-Base Interactions. 2020  
Yufeng Zheng: Accurate and Photo-realistic person-specific gaze re-direction. 2020

Marcel Bühler: Feature Preserving Image Translation for Gaze Estimation. 2019

- **Lectures**

Backpropagation, Machine Perception, ETH Zurich, 2019

Introduction to Gaze Estimation, Machine Perception, ETH Zurich, 2019

Gaze Estimation in Ubiquitous Computing, ETH Zurich, 2021

## Awards

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- The winner of OpenEDS Challenge 2019 at ICCV 2019
- Best paper honourable mention award, ACM Symposium on User Interface Software (UIST 2017)
- Best paper honourable mention award, ACM Symposium on User Interface Software (UIST 2016)
- International Max Planck Research School for Computer Science Scholarship, 2013-2017

## Professional activity

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- **Reviewing**

Journals: TPAMI, MM.

Conferences: CVPR, ICLR, NeurIPS, CHI, WACV, ETRA, ACCV, UIST, IMWUT

- **Organizing committee**

“Gaze Estimation and Prediction in the Wild” workshop at CVPR 2022

“Gaze Estimation and Prediction in the Wild” workshop at CVPR 2021

“Eye Gaze in AR, VR, and in the Wild” workshop at ECCV 2020

“Gaze Estimation and Prediction in the Wild” workshop at ICCV 2019

- **Invited talks**

ETH Zurich, Switzerland. Hosted by Prof. Otmar Hilliges, May 2018

The University of Tokyo, Japan. Hosted by Prof. Yoichi Sato, Mar. 2018

Osaka University, Japan. Hosted by Prof. Yusuke Sugano. Mar. 2018

Keio University, Japan. Hosted by Prof. Kai Kunze, Mar. 2018

## Publications

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- **Journal**

- [1] Gaze Estimation by Exploring Two-Eye Asymmetry.

Y. Cheng, **X. Zhang**, Feng Lu, and Yoichi Sato.

IEEE Transactions on Image Processing (**TIP**), 2020.

- [2] MPIIGaze: Real-world Dataset and Deep Appearance-based Gaze Estimation.

**X. Zhang**, Y. Sugano, M. Fritz, and A. Bulling.

IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), 2017.

- **Conference full paper**

- [1] Self-Supervised 3D Hand Pose Estimation from monocular RGB via Contrastive Learning.

Adrian Spurr\*, Aneesh Dahiya\*, Xi Wang, **Xucong Zhang**, and Otmar Hilliges.

International Conference on Computer Vision (**ICCV**), 2021.

*Accepted as oral.*

- [2] Self-Learning Transformations for Improving Gaze and Head Redirection.  
Y. Zheng, S. Park, **X. Zhang**, S. D. Mello, and O. Hilliges.  
Conference on Neural Information Processing Systems (**NeurIPS**), 2020.
- [3] Learning-based Region Selection for End-to-End Gaze Estimation.  
**X. Zhang**, Y. Sugano, A. Bulling and O. Hilliges.  
The British Machine Vision Conference (**BMVC**), 2020.
- [4] ETH-XGaze: A Large Scale Dataset for Gaze Estimation under Extreme Head Pose and Gaze Variation.  
**X. Zhang**, S. Park, T. Beeler, D. Bradley, S. Tang, and O. Hilliges.  
European Conference on Computer Vision (**ECCV**), 2020.  
*Accepted as spotlight.*
- [5] Towards End-to-end Video-based Eye-tracking.  
S. Park, E. Aksan, **X. Zhang**, and O. Hilliges.  
European Conference on Computer Vision (**ECCV**), 2020.
- [6] Evaluation of Appearance-Based Methods for Gaze-Based Applications.  
**X. Zhang**, Y. Sugano, and A. Bulling.  
CHI Conference on Human Factors in Computing Systems (**CHI**), 2019.
- [7] Photo-realistic Monocular Gaze Redirection using Generative Adversarial Networks.  
Z. He, A. Spurr, **X. Zhang**, and O. Hilliges.  
Proceedings of the IEEE International Conference on Computer Vision (**ICCV**), 2019.
- [8] Content-Consistent Generation of Realistic Eyes with Style.  
M. Buhler, S. Park, S. D. Mello, **X. Zhang**, and O. Hilliges.  
Proceedings of the IEEE International Conference on Computer Vision Workshops (**ICCVW**), 2019.
- [9] Training Person-Specific Gaze Estimators from User Interactions with Multiple Devices.  
**X. Zhang**, M.X. Huang, Y. Sugano, and A. Bulling.  
CHI Conference on Human Factors in Computing Systems (**CHI**), 2018.
- [10] Revisiting Data Normalization for Appearance-based Gaze Estimation.  
**X. Zhang**, Y. Sugano, and A. Bulling.  
Proceedings of the ACM Symposium on Eye Tracking Research & Applications (**ETRA**), 2018.
- [11] Learning to Find Eye Region Landmarks for Remote Gaze Estimation in Unconstrained Settings.  
S. Park, **X. Zhang**, A. Bulling, and O. Hilliges.  
Proceedings of the ACM Symposium on Eye Tracking Research & Applications (**ETRA**), 2018.
- [12] Robust Eye Contact Detection in Natural Multi-Person Interactions Using Gaze and Speaking Behaviour.  
P. Müller, **X. Zhang**, M. X. Huang, and A. Bulling.  
Proceedings of the ACM Symposium on Eye Tracking Research & Applications (**ETRA**), 2018.
- [13] Everyday Eye Contact Detection Using Unsupervised Gaze Target Discovery.  
**X. Zhang**, Y. Sugano, and A. Bulling.

- Proceedings of the ACM Symposium on User Interface Software and Technology (**UIST**), 2017.  
*Best paper honorable mention award.*
- [14] It's Written All Over Your Face: Full-face Appearance-based Gaze Estimation.  
**X. Zhang**, Y. Sugano, M. Fritz, and A. Bulling.  
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition Workshops (**CVPRW**), 2017.
- [15] AggreGaze: Collective Estimation of Audience Attention on Public Displays.  
Y. Sugano, **X. Zhang**, and A. Bulling.  
Proceedings of the 29th Annual Symposium on User Interface Software and Technology (**UIST**), 2016.  
*Best paper honorable mention award.*
- [16] Labelled Pupils in the Wild: A Dataset for Studying Pupil Detection in Unconstrained Environments.  
M. Tonsen, **X. Zhang**, Y. Sugano, and A. Bulling.  
Proceedings of the ACM Symposium on Eye Tracking Research & Applications (**ETRA**), 2016.
- [17] Rendering of Eyes for Eye-shape Registration and Gaze Estimation.  
E. Wood, T. Baltrusaitis, **X. Zhang**, Y. Sugano, P. Robinson, and A. Bulling.  
Proceedings of the IEEE International Conference on Computer Vision (**ICCV**), 2015.
- [18] Appearance-based Gaze Estimation in the Wild.  
**X. Zhang**, Y. Sugano, M. Fritz, and A. Bulling.  
Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.
- [19] Robust Multi-resolution Pedestrian Detection in Traffic Scenes.  
J. Yan, **X. Zhang**, Z. Lei, S. Liao, and S.Z. Li.  
Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2013.  
*Accepted as oral.*