

## Education

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### Academic Qualifications.....

- **Nanyang Technological University** **Singapore**  
○ *PhD in Interdisciplinary Graduate School, Computer Engineering* *Aug 2013–July 2017*
- **Harbin Institute of Technology** **China**  
○ *Bachelor in School of Software, Software Engineering* *Aug 2009–July 2013*

### PhD Projects.....

- **Gaze Estimation:** *'Tracking what people are looking at'*
  - Developing an eye gaze estimation system with a simple and flexible webcam, which can be integrated with existing interaction applications.
- **Eye Typing:** *'Text entry only using eye movement'*
  - Developed a dwell-free eye-based text entry system, GazeTry, which allows people to type a word by gazing sequentially at the letters of intended words.
- **Brain-computer Interaction:** *'Development of mobile applications controlled by brainwaves'*
  - Developed a mobile application controlled by brainwaves using a low-cost, non-invasive, headband type of device.
- **Parkinson's Disease:** *'Analysis of Visually Guided Tracking Performance in Parkinson's Disease'*
  - Investigated the motor performance of Parkinson's Disease patients who have L-dop induced dyskinesias, when on and off of L-dopa medication. This project is collaborated with Dr. Martin Mckeown, The University of British Columbia.

## Work Experience

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- **Hewlett Packard Enterprise** **Singapore**  
○ *Data Scientist* *July 2017–Present*
- **Beijing Sino-agri Sinda Information Technology Co. Ltd** **China**  
○ *Software Engineer Intern, Group Leader* *Mar 2011–Oct 2011*

## Awards

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- Research Proposal 'Eye Gaze Estimation using Deep Appearance in Natural Environment' is granted S\$80K by Ministry of Education, Singapore, 2017-2018.
- Full Research Scholarship (S\$200K) from IGS NTU, 2013-2017.
- The People Scholarship of Harbin Institute of Technology, First Prize, Second Prize, 2009-2012.

## Technical skills

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- **Focused Areas:** Computer Vision, Machine Learning, Data Mining, Human-Computer Interaction.
- **Programming Languages:** Proficient in: Java, C/C++, OpenCV, Matlab, SQL, Python  
Also basic ability with: C#, Android.
- **Database System:** MySQL, SQL Server, Oracle.
- **Industry Software Skills:** Eclipse (Advanced), Matlab (Advanced), Visual Studio (Advanced), Code Blocks (Intermediate), Android Studio (Intermediate), NetBeans (Intermediate).

## Publications

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### Journal Papers.....

- o **Yi Liu**, Bu-Sung Lee, Deepu Rajan, Andrzej Sluzek, and Martin J. Mckeown, "CamType: Assistive Text Entry Using Gaze with an Off-the-shelf Webcam" *Computer Vision and Image Understanding (CVIU)*, 2017 (Under Review).
- o **Yi Liu**, Bu-Sung Lee, and Martin J. Mckeown, "Robust Eye-Based Dwell-Free Typing" *International Journal of Human-Computer Interaction (IJHCI)*, 2016.

### Conference Papers.....

- o **Yi Liu**, Bu-Sung Lee, and Martin Mckeown, "A New Reconstruction Method in Gaze Estimation with Natural Head Movement" In *IAPR Conference on Machine Vision Applications*, 2017. (Oral, 36/194 = 18.5%)
- o **Yi Liu**, Bu-Sung Lee, Andrzej Sluzek, Deepu Rajan, and Martin Mckeown, "Feasibility Analysis of Eye Typing with a Standard Webcam" In *ECCV Workshop on Assistive Computer Vision and Robotics*, 2016. (Oral, 12/64 = 18.7%)
- o **Yi Liu**, Bu-Sung Lee, Martin J. Mckeown and Chonho Lee, "A Robust Recognition Approach in Eye-Based Dwell-Free Typing," In *2015 International Conference on Progress in Informatics and Computing (PCI)*, 2015.
- o **Yi Liu**, Chi Zhang, Chonho Lee, Bu-Sung Lee and Alex Q. Chen, "GazeTry: Swipe Text Typing Using Gaze," In *The 27th Australian Conference on Human-Computer Interaction (OzCHI)*, 2015.
- o **Yi Liu**, Chonho Lee, Bu-Sung Lee, James K. R. Stevenson, and Martin J. Mckeown, "Analysis of Visually Guided Tracking Performance in Parkinson's Disease," in *IEEE 16th International Conference on e-Health Networking, Applications and Services (Healthcom)*, 2014.

### Co-Authored Papers.....

- o Chonho Lee, Jinyao Chin, **Yi Liu**, and Bu-Sung Lee, "Feasibility analysis and adaptive thresholding for mobile applications controlled by EEG signals," In *23rd European Signal Processing Conference (EUSIPCO)*, 2015.
- o Chonho Lee, **Yi Liu**, Li-Hau Tan, Weihang Goh, Bu-Sung Lee and Chai-Kiat Yeo, "A Wavelet Entropy-Based Change Point Detection on Network Traffic: A Case Study of Heartbleed Vulnerability," In *IEEE 6th International Conference on Cloud Computing Technology and Science (CloudCom)*, 2014.
- o Chonho Lee, Yu Terada, **Yi Liu**, and Bu-Sung Lee, "A motion accuracy evaluator based on body parts movement by MapReduce video processing," *IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI)*, 2014.

## Hobbies

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- o Soccer is my favourite sport. I was the captain of school of software. During the four years at NTU in Singapore, we have won three champions. Besides soccer, I also like Swimming, Cycling, and Hiking. At the weekends, I prefer reading at home with soft music. Delicious food can always refresh me, and I enjoy cooking Chinese dishes with friends.