Bin Liang

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Education

- **Charles Sturt University** — Wagga Wagga, Australia
  PhD in Computer Science — *11/2012 – 09/2016*
  - Research topic: Gesture Recognition with Depth Camera
  - Explore efficient methods for the task of human gesture recognition using depth camera.
- **Taiyuan University of Technology** — Taiyuan, China
  Master of Engineering, Major in Computer Software and Theory — *09/2009 – 07/2012*
  - Research topic: Video-based Face Retrieval
  - Developed a method for face retrieval in video streams.
  - Overall GPA: 3.64/4.0; Major GPA: 3.67/4.0; Ranked 1 out of 75
- **Taiyuan University of Technology** — Taiyuan, China
  Bachelor of Engineering, Majoring in Computer Science and Technology — *09/2005 – 07/2009*
  - Overall GPA: 3.57/4.0; Major GPA: 3.73/4.0; Ranked 2 out of 89

Work Experience

- **Data61-CSIRO**
  Postdoctoral Fellow – Data Analytics — *12/2016 – Present*
  - Conduct research on data analytics for infrastructure and asset management.
  - Develop algorithm and system for intelligent infrastructure/asset management.
  - Conduct data pre-processing, analysis, and necessary tasks related to research problem.
  - Produce scientific and/or engineering papers suitable for publication in quality journals, for client reports and granting of patents.
  - Prepare conference papers and present those at conferences.
- **Data61-CSIRO**
  Engineer — *07/2016 – 11/2016*
  - Participate in software design, prototyping and implementation.
  - Participate in the development and implementation of Web Analytics tools for factor analysis and data visualization.
  - Conduct data pre-processing and analysis for infrastructure and asset management.
- **Data61-CSIRO**
  Research Assistant — *05/2016 – 07/2016*
  - Assisted in Web-based data visualization.
  - Assisted in data pre-processing and analysis.
- **Charles Sturt University**
  Casual Academic Staff — *07/2016 – 10/2016*
  - Teach an online course on Wireless Networking Concepts to graduate students.
- **Charles Sturt University**
  Casual Academic Staff — *05/2013 – 11/2016*

- Develop a gesture recognition system based on deep learning techniques.
- Mark students' assignments and examination papers for the course of computer networking.

Research Experience

- **Gesture Recognition with Depth Camera** Charles Sturt University
  PhD Student *10/2012 – 11/2016*
  - Explore efficient methods for the task of human gesture recognition using depth camera from the perspectives of gesture representation, feature extraction and representation.
  - Participated in 2014 Looking at People Challenge, and ranked 11/17 using the proposed multi-modal gesture recognition framework.
- **Video Based Face Retrieval System (VBFR)** Taiyuan University of Technology
  Graduate Student *05/2011 – 07/2012*
  - Developed a video based face retrieval system named VBFR using Visual C++ and OpenCV based on the proposed approach for face retrieval.
- **Content Based Video Retrieval System (UltraView)** Taiyuan University of Technology
  Graduate Student *03/2010 – 10/2010*
  - Developed a content based video retrieval system named UltraView using Visual C++, Java EE and MySQL based on the proposed method.
- **RIA Based Video Communication Software** Taiyuan University of Technology
  Graduate Student *10/2009 – 07/2010*
  - Led a team of four undergraduate students to develop RIA based video communication software using Flex and Java EE.

Certificates, Awards and Scholarships

- 2015 – Best Poster at Australian Workshop on Video/Image Coding, Processing, and Understanding (VICPU)
- 2015 – Verified Certificate of "Programming Mobile Applications for Android Handheld Systems" authorized by University of Maryland through Coursera
- 2015 – Verified Certificate of "Programming Mobile Services for Android Handheld Systems" authorized by Vanderbilt University through Coursera
- 2014 – International Association of Pattern Recognition travel stipend
- 2013 – International Conference on Multimodal Interaction travel support
- 2012 – Charles Sturt University Postgraduate Research Scholarship (CSUPRS) and International Tuition Payment (ITP)
- 2010 – National Software Qualification Proficiency Test (Software Designer)
- 2009 – Outstanding Graduates of Taiyuan University of Technology
- 2007— Seventh Foxconn Scholarship
- 2005$\sim$2009 – First Class Scholarship of University $\times 6$

Publications

- **Bin Liang** and Lihong Zheng. “Specificity and Latent Correlation Learning for Action Recognition Using Synthetic Multi-View Data From Depth Maps.” *IEEE Transactions on Image Processing (2017)* . (**Impact Factor: 4.828**)
- **Bin Liang**, Lihong Zheng, and Jiwan Han. “Face Retrieval in Video Sequences Using a Single Face Sample.” *2017 International Conference on Digital Image Computing: Techniques and Applications (DICTA)*, IEEE, 2017. (ACCEPTED)
- Lihong Zheng, **Bin Liang**, and Ailian Jiang. “Recent Advance of Deep Learning for Sign Language Recognition.” *2017 International Conference on Digital Image Computing: Techniques and Applications (DICTA)*, IEEE, 2017. (ACCEPTED)
- Jianlong Zhou, Zelin Li, Weiming Zhi, **Bin Liang**, Daniel Moses, and Laughlin Dawes. “Using Convolutional Neural Networks and Transfer Learning for Bone Age Classification.” *2017 International Conference on Digital Image Computing: Techniques and Applications (DICTA)*, IEEE, 2017. (ACCEPTED)
- Jianlong Zhou, Zelin Li, Zongjian Zhang, **Bin Liang**, and Fang Chen. “Visual Analytics of Relations of Multi-Attributes in Big Infrastructure Data.” In *IEEE International Symposium on Big Data Visual Analytics 2016 (BDVA2016)*, pp. 31–32, 2016.
- Lihong Zheng and **Bin Liang**. “Sign Language Recognition using Depth Images.” In *2016 International Conference on Control Automation Robotics & Vision (ICARCV)*. pp. 1–6. IEEE, 2016.
- **Bin Liang** and Lihong Zheng. “A Survey on Human Action Recognition Using Depth Sensors.” In *2015 International Conference on Digital Image Computing: Techniques and Applications (DICTA)*, pp. 1–8. IEEE, 2015.
- **Bin Liang** and Lihong Zheng. “Spatio-Temporal Pyramid Cuboid Matching for Action Recognition Using Depth Maps.” In *2015 IEEE International Conference on Image Processing (ICIP)*, pp. 2070–2074. IEEE, 2015.
- **Bin Liang** and Lihong Zheng. “Multi-modal Gesture Recognition Using Skeletal Joints and Motion Trail Model.” In *Computer Vision–ECCV 2014 Workshops*, pp. 623–638. Springer International Publisher, 2014.
- **Bin Liang** and Lihong Zheng. “3D Motion Trail Model based Pyramid Histograms of Oriented Gradient for Action Recognition.” In *2014 22nd International Conference on Pattern Recognition (ICPR)*, pp. 1952–1957. IEEE, 2014.
- **Bin Liang** and Lihong Zheng. “Three Dimensional Motion Trail Model for Gesture Recognition.” In *Proceedings of the IEEE International Conference on Computer Vision Workshops*, pp. 684-691, 2013.
- **Bin Liang**. “Gesture Recognition Using Depth Images.” In *Proceedings of the 15th ACM on International conference on multimodal interaction*, pp. 353–356. ACM, 2013.
- **Bin Liang** and Lihong Zheng. “Gesture Recognition from One Example Using Depth Images.” *Lecture Notes on Software Engineering*, 1, no. 4 (2013): 339.
- Qiuyong Zhao, **Bin Liang**, and Fu Duan. “Combination of Improved PCA and LDA for Video-based Face Recognition.” *Journal of Computational Information Systems* 9, no. 1 (2013): 273-280.
- **Bin Liang**, Fu Duan. “Method for face retrieval in video using SVD and improved PCA.” *Computer Engineering and Applications* 11 (2013): 044. (Chinese)

- **Bin Liang**, Wenbing Xiao, and Xiang Liu. “Design of video retrieval system using MPEG-7 descriptors.” *Procedia engineering* 29 (2012): 2578-2582.
- Xiaoli Hao, Fu Duan, and **Bin Liang**. “Dynamic Clustering Algorithm Based on Granular Lattice Matrix Space Model.” In *Intelligent Systems and Applications (ISA), 2010 2nd International Workshop on*, pp. 1-4. IEEE, 2010.

Presentations

- (Best Poster) “Multi-modal Spatio-temporal Pyramid Matching for 3D Human Action Recognition”. Presented at the Video/Image Coding, Processing, and Understanding workshop, Bathurst, November 2015.
- “Learning Discriminative and Shared Dictionaries for Multi-View Gesture Recognition”. Presented at School of Computing and Mathematics, Higher Degree by Research Symposium, Wagga Wagga, October 2015.
- “Action Recognition Using Spatial Temporal Pyramid Matching”. Presented at School of Computing and Mathematics, Higher Degree by Research Symposium, Wagga Wagga, October 2014.
- “Gesture Recognition Using Inv-MHI and MHI”. Presented at School of Computing and Mathematics, Higher Degree by Research Symposium, Wagga Wagga, October 2013.

Skills

Programming Languages: Experienced in programming in Java, Python, Matlab, C#, C/C++, PL/SQL, LaTeX, HTML, CSS, PHP, JavaScript

Software Tools/Packages: Android Studio, Java EE, Matlab, MS Visual Studio, OpenCV

Scientific Tools: scikit-learn (machine learning library), Caffe, TensorFlow (deep learning framework)

Operating Systems: Linux (CentOS and Ubuntu), Windows, macOS

Database: Databases design, MS SQL Server, Oracle, MySQL, PostgreSQL

Data Analysis: Strong statistical/data analysis and reporting, web crawler, Pandas (Python data analysis library), Excel

Interests and Activities

Research: Computer vision, pattern recognition, and machine learning

Hobbies: Running (joined in 10km run in 2013, 2014, and 2015 at the events of “Wagga Lake Run and Ride”), drawing, and reading