

# Zheng Rui

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## EDUCATION

- Hong Kong University of Science and Technology, Hong Kong** 2013 - 2016  
*Thesis: Context-aware visual privacy control*  
M.Phil. in Computer Science and Engineering
- Institute of Physics, Chinese Academy of Sciences, Beijing** 2006 - 2012  
*Thesis: Monte Carlo methods and applications on magnetic models*  
Ph.D. in Computational Physics
- Huazhong University of Science and Technology, Wuhan** 2002 - 2006  
*Thesis: Colossal magnetoresistance in Perovskite Oxide*  
B.S. in Applied Physics

## WORK EXPERIENCE

- Hong Kong University of Science and Technology** Aug 2013 - Present  
**Research / Teaching Assistant** Hong Kong
- ❖ Lead development in multiple research projects, including *OCR on Google Glass*, *Mean First Passage Time and Cover Time of random walks on different graphs*, *Context-aware visual privacy control*. Deploy state-of-the-art deep learning models on mobile for tasks including scene classification, face recognition, gesture recognition.
  - ❖ Develop multiple tools and libraries, including group discussion website, image annotation tool, mobile streaming multiplexing / demultiplexing tool, face alignment library on Android, Caffe mobile library on Android.
  - ❖ Administration of lab servers. Provide consultancies for other projects on problems related to machine / deep learning, computer vision and Linux.
  - ❖ Teaching assistant of Courses *Operating System*, *Python Bridging Course*, *Social Network Analysis*.
  - ❖ Skills: *C++, Python, Java, Android, Bash, Linux, Caffe, Torch7, Matlab, TeX*.
- Beijing Zhong Ruan Co.** Apr 2013 - Aug 2013  
**Back End Developer** Beijing
- ❖ Develop a web based monitoring system for nuclear power plants in Shandong province.
  - ❖ Set up development environment for the team and lead back end development.
  - ❖ Skills: *Spring, Struts, Hibernate, JSP, Javascript, Html, CSS*.
- ENIN Tech. Inc.** Aug 2012 - Oct 2012  
**R&D Engineer** Beijing
- ❖ Design data reconciliation and flow optimization algorithms.
  - ❖ Skills: *GAMS, linear optimization*.
- Institute of Physics, Chinese Academy of Sciences** Sep 2006 - Jun 2012  
**Research Assistant** Beijing
- ❖ Design and implement algorithms for the study of phase transitions in both classical and quantum magnetic models. Focused on Monte Carlo methods and density matrix renormalization group based methods.
  - ❖ First principle calculations of band structure and magnetic properties of half-metal materials.
  - ❖ Skills: *Fortran, C++, Matlab, Python, ALPS, TeX, Linux*.

## PROJECTS

### Side Projects

- ❖ **Cardea** - A context aware privacy control system which can enhance users' visual privacy based on their context specific privacy settings. Context includes location, surrounding scene and people. Users can also temporarily overwrite their settings using gestures. [Code](#).
- ❖ **Caffe Mobile Lib** - An extension from [Caffe-android-lib](#), now supports running multiple deep neural networks in Android and batch feature extraction. [Code](#).
- ❖ **Android Face Alignment Lib** - A JNI library which enables android phones to not only detect faces, but also detect facial landmarks and thus do face alignment. [Code](#).
- ❖ **Annota** - Two versions: one is a Flask Web App and another is a PyQt App. Both enable users to annotate images. The annotated images can be used to train detection models. [Flask App Code](#), [Qt App Code](#).
- ❖ **Grp-Meeting** - A Flask App which supports publishing contents and posting comments with Markdown syntax. Math symbols are well rendered both in contents and comments thus it is helpful for inner research group discussion. [Code](#).
- ❖ **Arabic Audio Book** - An audio pdf for learning Arabic. Pronunciation, pictures, and short sentences are used together to help understanding and memorizing each word. [Download](#).

### Course Projects

- ❖ **Single View Metrology** - Stereo from single image based on prior knowledge about few scene coordinates. [Blog Post](#).
- ❖ **Dense Light Stereo** - Stereo from massive images densely sampled with different light sources. [Blog Post](#).
- ❖ **Image Scissor** - Implement lasso function which most image editing tools have. [Blog Post](#).

## COMPUTER SKILLS

OS	Ubuntu, OSX, CentOS, Android
Languages	C++, Python, Bash, Javascript, Java, Matlab, Lua, Fortran, SQL
Tools	TeX, Vim, WingIDE, Android Studio, Xcode, Inkscape, Omnigraffle
Libs	OpenCV, Caffe, Torch7, TensorFlow
Frameworks	Flask, Node

## PUBLICATIONS

- ❖ Jiayu Shu, Rui Zheng and Pan Hui, *Cardea: Context-Aware Visual Privacy Protection from Pervasive Cameras*. [arXiv](#).
- ❖ Jiayu Shu, Rui Zheng and Pan Hui, *Interactive Visual Privacy Control with Gestures*, MobiSys'16 Demo. [Code](#).
- ❖ Tongfeng Weng, Jie Zhang, Moein Khajehnejad, Michael Small, Rui zheng, and Pan Hui, *Navigation by anomalous random walks on complex networks*. [arXiv](#), accepted in Scientific Reports. [Code](#).
- ❖ Carlos Bermejo, Rui Zheng and Pan Hui, *An empirical study of human altruistic behaviors in opportunistic networks*, HOTPOST'15 Workshop. [PDF](#).
- ❖ Zheng Rui and Liu Bang-Gui, *Stable two-dimensional ferromagnets made of regular single-layered lattices of single-molecule nanomagnets with perpendicular anisotropy*, J. Appl. Phys. 106, 054316 (2009). [PDF](#).
- ❖ Zheng Rui and Liu Bang-Gui, *Quantum Monte Carlo study of the phase transition for a generalized Two-Dimensional Staggered Dimerized Heisenberg Model*, Chin. Phys. B. 21, 116401 (2012). [PDF](#).

## MISCELLANEOUS

- ❖ Language levels: native *Chinese*, full professional proficient *English*.
- ❖ Course records: *Machine Learning* [A](#), *Computer Vision* [A+](#), *Bayesian Network* [A-](#), *Algorithm Design and Analysis* [A](#).
- ❖ Hobbies: excellent at *table tennis* and *basketball*, good at *billiards*.