

# CURRICULUM VITAE

## An-An Liu

### Personal Information

Carnegie Mellon University

NSH 4223, 5000 Forbes Avenue, Pittsburgh, PA 15213

Email: [anan0422@gmail.com](mailto:anan0422@gmail.com)

Mobile Phone: (412) 482-4526

Homepage: <http://www.cs.cmu.edu/~liuanan>

### Academic Background:

- *Visiting Scholar*, Robotics Institute, Carnegie Mellon University 09/2008-01/2010  
Adviser: Prof. Takeo Kanade
- *Ph.D.*, Institute of Computing Technology, Chinese Academy of Sciences (ICT,CAS) 09/2005-03/2010  
and School of Electronic Engineering, Tianjin University (TJU)  
Adviser: Researcher and Vice-Director Jintao Li  
Co-adviser: Prof. Zhaoxuan Yang  
Overall Ranking: 1/56;
- *B.S.*, School of Electronic Engineering, Tianjin University 09/2001-07/2005  
First Advanced Class of Tianjin University 09/2001-07/2003  
GPA: 3.5/4.0; Overall Ranking: 6/130

### Research Experience:

- *Research Intern*, Intel Research Pittsburgh, Pittsburgh, PA 04/2009-11/2009
  - Developed algorithms for stem cell behavior recognition;
  - Developed human-cell interaction system, 'Mitosis Analysis System for Stem Cell behavior Discovery'.
- *Visiting Student*, Robotics Institute, Carnegie Mellon University, Pittsburgh, PA, USA 09/2008-01/2010
  - Develop algorithms for stem cell behavior (Mitosis/Apoptosis) analysis and prediction; 09/2008-01/2010
  - Advisor of Mr. Jinyu Liu, undergraduate of CS, CMU, for *Meeting of the Minds Symposium* 02/2009-05/2009  
in CMU with proposal, *Mitosis Analysis System for Stem Cell behavior Discovery*.
- *Research Assistant*, ICT,CAS, Beijing, China 09/2005-present
  - **Group Leader** of Event Detection Team from ICT,CAS for *Event Detection Competition in TRECVID 2008*; among 6 tasks we completed, one ranks the best and three are in top level. 02/2008-11/2008  
Developed algorithms for:
    - a) Human detection and tracking; b) Trajectory-based and statistical model-based event detection methods.
  - **Principal** of the project, *A Hierarchical Framework for Movie Analysis*, 02/2007-02/2008  
Developed algorithms for:
    - a) Video Structuring; b) Low level feature extraction in multiple modalities; c) ASR and OCR; d) Human attention model for movie highlights detection; e) Semantics modeling for scene analysis (e.g. Action, War, Music, Dialogue);f) Personalized highlights recommendation.
  - **Principal** of the project, *Internet harmful information blocking*, 05/2007-05/2008

Developed algorithms for:

a) Content-based pornography image and video blocking; b) Text-based harmful video blocking.

- **Member** of the project, *Audio Classification and Speaker Recognition*, **06/2006-12/2006**  
Developed algorithms for audio classification.
- **Member** of MCG-ICT-CAS team for Rushes Exploitation in TRECVID 2006, **02/2006-10/2006**  
Developed algorithms for: a) Multi-modal Interview Shot Detection; b) High level Concepts detection.
- **Research Assistant**, School of Electric Engineering, Tianjin, China **09/2005- present**
  - Member of the project, Video Vehicle Monitoring System, **09/2005-02/2006**  
Developed algorithm for video vehicle detection algorithm.
- **Research Intern**, Tianjin research center for digital information technology, Tianjin, China **03/2005-09/2005**
  - **Member** of the project, *EPG System for BCM97115-based Digital Television Set-top Box*, **07/2005-09/2005**  
Developed algorithm for PSI/SI analysis.
  - **Member** of the project, *EPG System for STi5518-based Digital Television Set-top Box*, **03/2005-07/2005**  
Developed algorithm for PSI/SI analysis.

## Selected Publications:

- Anan Liu, Yongdong Zhang, Jintao Li, "Personalized Movie Recommendation", ACM Multimedia 2009. (ACM Multimedia Student Participation Grant)
- Anan Liu, Kang Li, Takeo Kanade, Spatiotemporal Mitosis Event Detection in Time-Lapse Phase Contrast Microscopy Image Sequences, 2009 BMES Annual Fall Scientific Meeting, USA, 2009.
- Anan Liu, Jinhao Fei, Jianping Fan, et al., "Confusion Network Based Video OCR Post-processing Approach," Proc. of ICME 2009, Mexico (Oral).
- Anan Liu, Sheng Tang, Yongdong Zhang, et al., "A Hierarchical Framework for Movie Content Analysis: Let Computers Watch Films like Humans," Proc. of CVPR2008 Workshop on Semantic Learning Applications in Multimedia (SLAM2008), America (Oral).
- Anan Liu, Yongdong Zhang, Yan Song, et al., "Human Attention Model for Semantic Scene Analysis in Movies," Proc. of ICME 2008, Germany.
- Anan Liu, Jintao Li, Yongdong Zhang, et al., "An Innovative Model of Tempo and Its Application in Action Scene Detection for Movie Analysis," Proc. of IEEE Workshop on Applications of Computer Vision (WACV2008).
- Anan Liu, Yan Song, Jintao Li, et al., "HMM-Based Sex Shot Modeling and its Application," Proc. of CNCERT/CC, 2008.
- Anan Liu, Sheng Tang, et al, "A Novel Anchorperson Detection Algorithm Based on Spatio-temporal Slice", 14th International Conference on Image Analysis and Processing (ICIAP2007), 2007.
- Anan Liu, Sheng Tang, et al, "Multi-modal Interview Concept Detection for Rushes Exploitation", 8th Conference on Large-Scale Semantic Access to Content (Text, Image, Video and Sound), in conjunction with SIGIR 2007, 2007.
- Anan Liu, Yang Zhaoxuan, "Video Vehicle Detection Algorithm through Spatio-Temporal Slices Processing", Proceedings of the 2nd IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications, Aug. 2006. (EI: 082511322665)

## Thesis:

- Anan Liu. 2009. Perception, Thought, Action: Research on Hierarchical Video Content Analysis Technology.

## Presentation:

- Anan Liu, Kang Li, Takeo Kanade, "Spatiotemporal Mitosis Event Detection in Time-Lapse Phase Contrast Microscopy Image Sequences", 2009 BMES Annual Fall Scientific Meeting, USA, 2009.
- Anan Liu, "Video Mining: from Theory to Application", Oral presentation as Student Delegate for International Conference on Communication 2008 After-Conference Workshop, 2008.
- Jinyu Liu, Anan Liu, et al, "Mitosis Analysis System for Stem Cell behavior Discovery", Meeting of the Minds Symposium by CMU and IFYRE Competition by Intel Research Pittsburgh, 2009.
- Junbo Guo, Anan Liu, et al., "TRECVID 2008 Event Detection by MCG-ICT-CAS", In Proc. TRECVID Workshop 08.
- Sheng Tang, Yong-Dong Zhang, Jin-Tao Li et al., "TRECVID 2006 Rushes Exploitation By CAS MCG," In Proc. TRECVID Workshop, 2006.

## Patents:

- Anan Liu, Jintao Li, Yongdong Zhang et al, "Interview Shot Detection Method based on Multi-modal Fusion" (Pending, Application Number: 200710099725.0);
- Anan Liu, Jintao Li, Yongdong Zhang et al, "Anchorperson Detection Algorithm Based on Spatio-temporal Slice" (Pending, Application Number: 200710099726.5);
- Anan Liu, Jintao Li, Yongdong Zhang et al, "Storyline Model Based Action Scene Detection Method for Movie Analysis" (Pending, Application Number: 200710099727.X).
- Anan Liu, Jintao Li, Yongdong Zhang et al, "A Novel Pornography Video detection Method"(Pending, Application Number: 200710177875.9).
- Anan Liu, Jintao Li, Yongdong Zhang et al, "An Innovative Video Text Extraction Method" (Pending, Application Number: 200710178831.8)

## Professional Activities:

- Reviewer for IEEE Transaction on Multimedia.
- Reviewer for International Conference on Computational Intelligence and Security (2006/2007/2009).
- Reviewer for Chinese Intelligent Automation Conference.

## Selected Honors/Awards:

- |  |           |
|--|-----------|
| ● ACM Multimedia Student Participation Grant   | 2009      |
| ● Scholarship by China Scholarship Council (CSC)   | 2008      |
| ● Nominated Student Science Prize of Tianjin University  | 2008      |
| ● Excellent Research Assistant in ICT,CAS  | 2007      |
| ● "Huawei" Scholarship in Tianjin University   | 2006      |
| ● "Taida-Yingbaoda" Scholarship  | 2004      |
| ● Excellent Student of Tianjin Univeristy (44 qualifiers for joint program of B.S and PhD /3300candidates) | 2004      |
| ● Three A's Student in Tianjin University  | 2002-2006 |