

Changjiang Cai

Ph.D. Candidate – Department of Computer Science
Stevens Institute of Technology

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Objective

To seek research internship for Ph.D. students, in the field of computer vision, machine learning and deep learning.

Education

- **Stevens Institute of Technology** **Hoboken, NJ, USA**
Doctor of Philosophy in Computer Science , anticipated 2020 *Jan 2015 - Present*
Research Interests: Computer Vision and Machine Learning. Specifically, stereo matching and semantic segmentation. Advisor: Philippos Mordohai
- **Stevens Institute of Technology** **Hoboken, NJ, USA**
Master of Engineering in Electrical Engineering *Aug 2013 - Feb 2016*
Concentration: Computer Vision and Machine Learning. Advisor: Gang Hua
- **Xi'an Jiaotong University** **Xi'an, Shaanxi, China**
Mechanical Engineering, no degree earned *Aug 2009 - Jul 2013*
Research Area: Digital Image Processing. Advisor: Dehong Yu
- **Northwestern Polytechnical University** **Xi'an, Shaanxi, China**
B.E. in Automobile Engineering *Aug 2005 - Jul 2009*
Thesis: Structural Design and 3D Modeling of an Assistive Robot. Advisor: Renping Shao

Skills

- **Programming Languages:** Python& C++ Hybrid, C/C++, Python, Matlab
- **Library & APIs:** PyTorch, Tensorflow, Keras, Caffe, CUDA, OpenCV, Boost C++, Cython
- **Database:** MySQL, PostgreSQL
- **Tools:** Vim, Git, CMake, Bash, Tmux
- **OS Platforms:** Linux, macOS, Windows

Languages

- Chinese (native), English (proficient)

Research Projects

- **Project (Ongoing): Human Mesh Recovery (HMR) from a Single RGB(D) Image**
 - To end-to-end recovery a 3D human model (SMPL) from a single RGB or RGBD image.
- **Project (Ongoing): Exploiting Segmentation-aware CNN to Disparity Estimation**
 - To leverage segmentation cues via mapping the raw image intensities into embeddings which are used to generated local attention masks for disparity estimation.
- **Project (Submitted to Conference): Generalization and Robustness in Deep Learning Based Stereo Depth Estimation**
 - Our project aims at improving the generalization and robustness performance of deep learning based depth estimation.
- **The CBMV_ROB Entry in the Robust Vision Challenge: Workshop in CVPR 2018**
 - Finished the CBMV_ROB entry in the stereo challenge, leveraging CBMV volume as in our previous work and local expansion algorithm for optimization.
- **CBMV: A Coalesced Bidirectional Matching Volume for Disparity Estimation**
 - Generated a matching volume by coalescing diverse evidence from a bidirectional matching process via random forest classifiers
- **RankCrowdsourcing: Budget-conscious Ranking by Non-interactive Crowdsourcing**
 - Designed a crowdsourced ranking algorithm enabling task requester to obtain a good full ranking result from the crowdsourced pairwise comparison, with a limited budget.

Teaching Experience

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| ○ CS442 - Database Management Systems | Stevens Institute of Technology |
| ○ <i>Teaching Assistant</i> | <i>Aug 2016 – Dec 2016</i> |

Intern Experience

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| ○ Summer intern | UII Ameracia in Cambridge, MA |
| ○ <i>Research Intern</i> | <i>May 2019 – Aug 2019</i> |

Publications

- Konstantinos Batsos, **Changjiang Cai**, Philippos Mordohai. *CBMV: A coalesced bidirectional matching volume for disparity estimation*. IEEE Conference on Computer Vision and Pattern Recognition (CVPR'2018), Salt Lake City, Utah, June 2018.
- **Changjiang Cai**, Haipei Sun, Boxiang Dong, Bo Zhang, Ting Wang, Hui Wang. *Pairwise Ranking Aggregation by Non-interactive Crowdsourcing with Budget Constraints*. The 37th IEEE International Conference on Distributed Computing (ICDCS) 2017, June, 2017, Atlanta, GA.
- Haoxiang Li, Mohammed Kutbi, Xin Li, **Changjiang Cai**, Philippos Mordohai, Gang Hua, *An Egocentric Computer Vision based Co-Robot Wheelchair*. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2016.