

Scott Workman

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Education

2012–Present	Ph.D. in Computer Science Adviser: Nathan Jacobs	University of Kentucky
2010–2011	M.S. in Computer Science <i>Completed Coursework (4.0 GPA)</i>	University of Kentucky
2006–2010	B.S. in Computer Science <i>Magna Cum Laude with Honors</i>	University of Kentucky

Research Interests

Computer vision: image geocalibration, outdoor scene understanding, analysis of large-scale image collections
Machine learning: deep learning, unsupervised learning

Research Experience

Research Assistant Center for Visualization and Virtual Environments, University of Kentucky
2011–Present *Lexington, KY*

- Leveraging aerial imagery to support ground-level image localization [12].
- Estimating 3D scene geometry for a static outdoor camera, or network of cameras, using videos from several partly cloudy days [2, 17].
- Using a single image of a rainbow for camera calibration and geolocalization [15].
- Using observations of an outdoor scene over days and weeks to estimate radial distortion, focal length, and geo-orientation [18].

Research Assistant Center for Educator Preparation Information Systems, University of Kentucky
2010–2011 *Lexington, KY*

- Engaged in research and development on information systems applied to educator preparation.
- Developed an advising management system used by students and faculty of the College of Education.

Other Appointments

Software Engineer Intern CorrectCare - Integrated Health
Summer 2010 *Lexington, KY*

Network Engineer Intern NEMOC, University of Kentucky
2008–2010 *Lexington, KY*

Help Desk Technician ECS, University of Kentucky
2007–2010 *Lexington, KY*

Family Business Deer Run Stables & Horseman's Retreat
1997–Present *Richmond, KY*

Publications

Refereed Journal Publications

- [1] Nathan Jacobs, Scott Workman, and Richard Souvenir. Cloudmaps from Static Ground-View Video. *Image and Vision Computing (IVC)*, 52:154–166, August 2016.
- [2] Scott Workman, Richard Souvenir, and Nathan Jacobs. Scene Shape Estimation from Multiple Partly Cloudy Days. *Computer Vision and Image Understanding (CVIU)*, 134:116–129, May 2015.

Refereed Conference Publications

- [3] Scott Workman, Menghua Zhai, David J. Crandall, and Nathan Jacobs. A Unified Model for Near and Remote Sensing. In *IEEE International Conference on Computer Vision (ICCV)*, 2017.
- [4] Scott Workman, Richard Souvenir, and Nathan Jacobs. Understanding and Mapping Natural Beauty. In *IEEE International Conference on Computer Vision (ICCV)*, 2017.
- [5] Menghua Zhai, Zach Bessinger, Scott Workman, and Nathan Jacobs. Predicting Ground-Level Scene Layout from Aerial Imagery. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017.
- [6] Scott Workman, Menghua Zhai, and Nathan Jacobs. Horizon Lines in the Wild. In *British Machine Vision Conference (BMVC)*, 2016.
- [7] Menghua Zhai, Scott Workman, and Nathan Jacobs. Camera Geo-Calibration using an MCMC Approach. In *International Conference on Image Processing (ICIP)*, 2016.
- [8] Menghua Zhai, Scott Workman, and Nathan Jacobs. Detecting Vanishing Points using Global Image Context in a Non-Manhattan World. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2016.
- [9] R. Paul Mihail, Scott Workman, Zach Bessinger, and Nathan Jacobs. Sky Segmentation in the Wild: An Empirical Study. In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2016.
- [10] Ryan Baltenberger, Menghua Zhai, Connor Greenwell, Scott Workman, and Nathan Jacobs. A Fast Method for Estimating Transient Scene Attributes. In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2016.
- [11] Tawfiq Salem, Scott Workman, Menghua Zhai, and Nathan Jacobs. Analyzing Human Appearance as a Cue for Dating Images. In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2016.
- [12] Scott Workman, Richard Souvenir, and Nathan Jacobs. Wide-Area Image Geolocalization with Aerial Reference Imagery. In *IEEE International Conference on Computer Vision (ICCV)*, 2015.
- [13] Scott Workman, Connor Greenwell, Menghua Zhai, Ryan Baltenberger, and Nathan Jacobs. DeepFocal: A Method for Direct Focal Length Estimation. In *International Conference on Image Processing (ICIP)*, 2015.
- [14] Mohammad T. Islam, Scott Workman, and Nathan Jacobs. Face2GPS: Estimating Geographic Location from Facial Features. In *International Conference on Image Processing (ICIP)*, 2015. Oral.
- [15] Scott Workman, R. Paul Mihail, and Nathan Jacobs. A Pot of Gold: Rainbows as a Calibration Cue. In *European Conference on Computer Vision (ECCV)*, 2014.
- [16] Mohammad T. Islam, Scott Workman, Hui Wu, Richard Souvenir, and Nathan Jacobs. Exploring the Ge-Dependence of Human Face Appearance. In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2014.

- [17] Nathan Jacobs, Scott Workman, and Richard Souvenir. Scene Geometry from Several Partly Cloudy Days. In *ACM/IEEE International Conference on Distributed Smart Cameras (ICDSC)*, 2013.
- [18] Nathan Jacobs, Mohammad Islam, and Scott Workman. Cloud Motion as a Calibration Cue. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2013.

Refereed Workshop Publications

- [19] Nathan Jacobs, Scott Workman, and Menghua Zhai. Cross-view Convolutional Networks. In *IEEE Applied Imagery Pattern Recognition Workshop (AIPR)*, 2016.
- [20] Scott Workman and Nathan Jacobs. On the Location Dependence of Convolutional Neural Network Features. In *IEEE/ISPRS Workshop: Looking from above: When Earth observation meets vision (EARTHVISION)*, 2015. Acceptance rate = 30 %.

Other Publications

- [21] Scott Workman, Richard Souvenir, and Nathan Jacobs. Quantifying and Predicting Image Scenicness. *arXiv preprint arXiv:1612.03142*, 2016.

Abstracts

- [22] Scott Workman and Nathan Jacobs. Scene Understanding using Clouds. In *International Computer Vision Summer School (ICVSS)*, 2014.
- [23] J. David Smith, Ryan Baltenberger, Scott Workman, and Nathan Jacobs. User-in-the-Loop Calibration and Mensuration. In *National Conference on Undergraduate Research (NCUR)*, 2014.
- [24] Ryan Baltenberger, James Knochelmann, Scott Workman, Mohammad Islam, Nathan Jacobs, and James Griffioen. Constructing a High-Resolution Mosaic of Kentucky Lake. In *Kentucky GIS Conference*, 2013. Best Student Presentation.
- [25] XuZi Zhou, Scott Workman, Mohammad Islam, Nathan Jacobs, and James Griffioen. Cyber Infrastructure for the VOEIS Project. In *Symposium in the Mathematical, Statistical and Computer Sciences*, 2013. Best Student Presentation.
- [26] Scott Workman, James Knochelmann, Nathan Jacobs, David S. White, and Richard Hauer. Registration and Visualization of Scientific Aerial Imagery at Kentucky Lake. In *Kentucky EPSCoR Conference*, 2012.

Talks

- “Computer Vision Applications of Deep Convolutional Neural Networks”, Nov. 2015, Keeping Current Seminar, Computer Science Department, University of Kentucky
- “Activity Forecasting”, Nov. 2013, Birds of a Feather, Computer Science Department, University of Kentucky
- “Camera Calibration using Atmospheric Cloud Motion”, Feb. 2013, Keeping Current Seminar, Computer Science Department, University of Kentucky

Teaching

Teaching Assistant

- *Special Topics in Computer Science: Learning Based Methods for Computer Vision*, CS 685, (S2015), University of Kentucky
- *Introduction to Machine Learning*, CS 485, (F2013, F2014), University of Kentucky

Service and Affiliations

- Program Committee for:
 - ACM Workshop on Geotagging and Its Applications in Multimedia (GeoMM) (2014)
- Reviewer for:
 - Journals
 - * IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI) (2015-)
 - * IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS) (2015)
 - * EURASIP Journal on Image and Video Processing (IIVP) (2015)
 - Conferences
 - * IEEE Conference on Computer Vision and Pattern Recognition (CVPR) (2013-)
 - * IEEE International Conference on Computer Vision (ICCV) (2013)
 - * European Conference on Computer Vision (ECCV) (2014)
 - Workshops
 - * ACM Workshop on Geotagging and Its Applications in Multimedia (GeoMM) (2013)
- Volunteer/Presenter:
 - Graduate Student Representative, Association for Computing Machinery, UK Student Chapter (2014-2015)
 - Engineers Day (E-Day), University of Kentucky (2013-2014)
- Member:
 - Association for Computing Machinery (ACM)
 - Institute of Electrical and Electronics Engineers (IEEE)

Honors and Awards

- 5th Heidelberg Laureate Forum (HLF), 2017
- Outstanding Ph.D. Student in Computer Science, University of Kentucky, 2017
- Burton E. Heard Graduate Fellowship, 2016-2017
- ICCV Student Volunteer Support Grant, 2015
- Graduate School Travel Grant, University of Kentucky, 2015
- NVIDIA Academic Hardware Grant (Tesla K40), 2015

- Presidential Fellowship (nominated), University of Kentucky, 2015
- International Computer Vision Summer School (ICVSS), 2014
- Computer Science Department Travel Grant , University of Kentucky, 2014
- Graduate School Travel Grant, University of Kentucky, 2014
- Dean's List, University of Kentucky, 2008-2010
- Alltel/Windstream Scholarship, University of Kentucky, 2008-2010