Seong Jae Hwang

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Madison, WI 53706

EDUCATION

University of Wisconsin - Madison   Starting Date: Aug 2014
Doctor of Philosophy - Computer Sciences (In Progress)   Madison, WI
Advisor: Prof. Vikas Singh

University of Pennsylvania   Aug 2011 - Dec 2013
Master of Science in Engineering - Robotics   Philadelphia, PA
Thesis Advisor: Prof. Camillo J. Taylor
Thesis Title: *Quadratic Integer Programming approach for MRF-based labeling problems*

University of Illinois at Urbana-Champaign   Aug 2007 - May 2011
Bachelor of Science - Computer Science   Champaign, IL

RESEARCH EXPERIENCE

Graduate Research Assistant   Mar 2015 - Present
University of Wisconsin - Madison   Madison, WI
- Analyze various brain imaging modalities from Alzheimer's disease data using computer vision, machine learning and optimization techniques

Graduate Project Assistant   Sept 2014 - Feb 2015
The Vocal Tract Development Lab - The Waisman Center   Madison, WI
- Performing statistical analyses on cervical spine CT/MRI images
- Analyzing structural differences between sedation groups using various shape models
- Estimating cervical spine development growth models with different regression models

Graduate Research Assistant   Jul 2013 - Mar 2014
University of Pennsylvania   Philadelphia, PA
- Conducted extensive analyses on state-of-the-art optimization and inference methods on Markov Random Field based low-level vision problems using OpenGM framework
- Completed Masters Thesis on quadratic integer programming with global smoothing and its approach on graphical models

WORK EXPERIENCE

Software Engineering Intern   Jun 2018 - Aug 2018
Google AI   Mountain View, CA
- Focused on the large-scale video annotation task with scalable full-batch optimization scheme via MapReduce framework
- Achieved the state-of-the-art performance on the largest video dataset (YouTube-8M) using the frame-pooling Deep-Bag-of-Frames neural network model

Computer Vision Scientist Intern   Jun 2014 - Aug 2014
Zepp Labs, Inc.   Los Gatos, CA
- Collected and processed video data for training an object tracking framework for sports videos using OpenCV and LIBLINEAR in C++ and MATLAB

Software Development Intern   May 2011 - Aug 2011
Yahoo!   Champaign, IL

- Tested and analyzed the compression/decompression of YZip using IPP-Zlib on Hadoop

Android Software Development Intern   May 2010 - Aug 2010
Motorola   Libertyville, IL

- Developed an aggregated video player Android application using hash table and multi-threading

PUBLICATIONS

1. **Seong Jae Hwang**, Nagesh Adluru, Won Hwa Kim, Sterling C. Johnson, Barbara B. Bendlin, Vikas Singh, "Associations between PET Amyloid Pathology and DTI Brain Connectivity in Preclinical Alzheimer's Disease", *Brain Connectivity*, 2018.

2. **Seong Jae Hwang**, Sathya N. Ravi, Nagesh Adluru, Barbara B. Bendlin, Sterling C. Johnson, Vikas Singh, "Data-Driven Propagation Modeling of PET-Derived Alzheimer's Disease Pathology in a Preclinical Cohort", *Alzheimer's Association International Conference (AAIC)*, 2018.

3. **Seong Jae Hwang**, Sathya N. Ravi, Zirui Tao, Hyunwoo J. Kim, Maxwell D. Collins, Vikas Singh, "Tensorize, Factorize and Regularize: Robust Visual Relationship Learning", *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018. [acceptance rate: 29.7%]

4. Won Hwa Kim, **Seong Jae Hwang**, Nagesh Adluru, Sterling C. Johson, Vikas Singh, "Graph Completion: A Generalization of Netflix Prize Problem to Designing Cost Effective Neuroimaging Trials in Preclinical AD", *Alzheimer's Association International Conference (AAIC)*, 2017.

5. Won Hwa Kim, Mona Jalal, **Seong Jae Hwang**, Sterling C. Johnson, Vikas Singh, "Online Graph Completion: Multivariate Signal Recovery in Computer Vision", *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017.

6. Won Hwa Kim, **Seong Jae Hwang**, Nagesh Adluru, Sterling C. Johnson, Vikas Singh, "Adaptive Signal Recovery on Graphs via Harmonic Analysis for Experimental Design in Neuroimaging", *European Conference on Computer Vision (ECCV)*, 2016.

7. **Seong Jae Hwang**, Won Hwa Kim, Barbara B. Bendlin, Nagesh Adluru, Vikas Singh, "Multi-Resolution Analysis of DTI-Derived Brain Connectivity and the Influence of PET-Derived Alzheimer's Disease Pathology in a Preclinical Cohort", *Alzheimer's Association International Conference (AAIC)*, 2016.

8. **Seong Jae Hwang**, Nagesh Adluru, Maxwell D. Collins, Sathya N. Ravi, Barbara B. Bendlin, Sterling C. Johnson, Vikas Singh, "Coupled Harmonic Bases for Longitudinal Characterization of Brain Networks", *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2016. [acceptance rate: 29.9%]

9. **Seong Jae Hwang**, Maxwell D. Collins, Sathya N. Ravi, Vamsi K. Ithapu, Nagesh Adluru, Sterling C. Johnson, Vikas Singh, "A Projection free method for Generalized Eigenvalue Problems with a nonsmooth Regularizer", *International Conference on Computer Vision (ICCV)*, 2015. [acceptance rate: 30.9%]

PREPRINT

1. **Seong Jae Hwang**, Ronak R. Mehta, Hyunwoo J. Kim, Vikas Singh, "Sampling-free Uncertainty Estimation in Gated Recurrent Unites with Exponential Families", *arXiv preprint arXiv:1804.07351*, 2018.

HONORS AND AWARDS

Computation and Informatics in Biology and Medicine (CIBM)   Jul 2015 - Jun 2018
University of Wisconsin - Madison   Madison, WI