Seong Jae Hwang

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JOB OBJECTIVE

An internship position in computer vision and machine learning technology development that pursues both innovation and practicality by utilizing industry and research experiences.

EDUCATION

University of Wisconsin - Madison — Starting Date: Aug 2014
Doctor of Philosophy - Computer Sciences (In Progress) — Madison, WI

University of Pennsylvania — Aug 2011 - Dec 2013
Master of Science in Engineering - Robotics — Philadelphia, PA
GPA: 3.67/4.00
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
GPA: 3.57/4.00

RELATED COURSEWORK

Computer Vision
Computer Vision and Computational Photography, Machine Perception, Medical Imaging Analysis

Machine Learning
Machine Learning, Advanced Robotics

Optimization
Linear Programming, Convex Optimization, Nonlinear Optimization

Mathematic
Applied Network Analysis, Applied Linear Algebra and Optimization, Numerical Analysis

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

Graduate Research Assistant Sept 2012 - Mar 2014
University of Pennsylvania Philadelphia, PA

- Aided a professor on a camera pose estimation and localization project
- Extracted SIFT feature descriptors and correspondences from a set of overlapping images for estimating camera poses using RANSAC on five-point algorithm

Graduate Research Assistant Jan 2012 - May 2012
University of Pennsylvania Philadelphia, PA

- Assisted a PhD student on a hand drawn sketch recognition project
- Implemented a feature descriptor based on histogram of orientations called BiCE

WORK EXPERIENCE

Computer Vision Scientist Intern Jun 2014 - Aug 2014
Zepp Labs, Inc. Los Gatos, CA

- Involved in a team building an object tracking framework for sports videos
- Collected and processed video data for training offline learning models using OpenCV and LIBLINEAR in C++ and MATLAB

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

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

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

- Developed Android applications using Eclipse and Android SDK that requires maximum optimization using hash table and multi-threading

PUBLICATIONS

1. 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.

2. **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.

3. **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%]

4. **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%]

PRESENTATIONS

Oral Presentations

1. Computation and Informatics in Biology and Medicine (CIBM) Seminar — Oct 2015
   University of Wisconsin - Madison — Madison, WI
   A Projection free method for Generalized Eigenvalue Problems with a nonsmooth Regularizer

Poster Presentations

1. International Conference on Computer Vision (ICCV) 2015 — Dec 2015
   Santiago, Chile

   A Projection free method for Generalized Eigenvalue Problems with a nonsmooth Regularizer

   Hwang, Seong Jae, Collins, Maxwell D., Ravi, Sathya N., Ithapu, Vamsi K., Adluru, Nagesh, Johnson, Sterling C., and Singh, Vikas.
   Proceedings of International Conference on Computer Vision (ICCV), December 2015

2. Computation and Informatics in Biology and Medicine (CIBM) Annual Retreat — Oct 2015
   University of Wisconsin - Madison — Madison, WI

   A Projection free method for Generalized Eigenvalue Problems with a nonsmooth Regularizer

   Hwang, Seong Jae, Collins, Maxwell D., Ravi, Sathya N., Ithapu, Vamsi K., Adluru, Nagesh, Johnson, Sterling C., and Singh, Vikas.
   Proceedings of International Conference on Computer Vision (ICCV), December 2015

PROFESSIONAL ACTIVITIES

Memberships

Korean-American Scientists and Engineers Association (KSEA) — Aug 2015 - Present

HONORS AND AWARDS

Fellowships

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

- Full tuition coverage and stipend support for 3 years