# Sangwoo Cho

PHD STUDENT

HEC 215, Department of Computer Science, University of Central Florida, Orlando FL 32816, USA

🛛 1-919-360-8133 | 🔤 swcho@knights.ucf.edu | 🏘 cs.unc.edu/~cswno | 🛅 chosangwoo | Google Scholar

## Research Interests

**Computer Vision, Machine Learning, Natural Language Processing:** Deep learning, Action recognition, Video summarization, Text summarization

## Education \_\_\_\_

University of Central Florida	Orlando, Florida, USA
PhD student in Computer Science	Aug. 2015 - PRESENT
Advisor: Prof. Hassan Foroosh	
University of North Carolina	Chapel Hill, North Carolina, USA
M.S IN COMPUTER SCIENCE	Dec. 2014
Advisor: Prof. Jan-Michael Frahm	
Korea University	Seoul, S. Korea
M.E IN ELECTRONICS AND COMPUTER ENGINEERING	Feb. 2007
<ul> <li>Thesis: Generating 2D and 3D indoor environment models for enabling interactive robot service</li> <li>Advisors: Dr. Yong-Moo Kwon and Prof. Hanseok Ko</li> </ul>	
Sogang University	Seoul, S. Korea
B.E IN ELECTRONIC ENGINEERING	Feb. 2005
Thesis: Height measurement of arbitrary objects using a single image	

## **Computing Skills**

LanguageC, C++, MFC, Python, Matlab, Android, Java, LEXLibraryMatConvNet, Keras, Tensorflow, OpenCV, OpenGL, Eigen, Qt, Protoco BuffersApplicationsVisual Studio, Git, Eclipse

## Experience \_\_\_\_\_

## **University of Central Florida**

### **RESEARCH ASSISTANT**

- Human action recognition using videos [UCF101: 95.4%, HDMB51: 72.1%] with a spatio-temporal fusion network which utilizes temporal dynamic information. (Python, Keras, Tensorflow, Matlab)
- 3D Localization of target aerial objects using images and IMU data taken from an airplane based on two methods: two-view temporal reconstruction, trajectory based 3D motion measurement (C++, OpenCV, Eigen, Qt)

### Google

Software Engineer Intern

• Developed a prototype software that calibrates between a stereo camera (mimics eyes) and a VR/AR device in order to render proper images from the point of view of two eyes. (C++, Python, OpenCV, Bash, Eigen, Ceres, Tango)

## **University of North Carolina**

### **Research Assistant**

- Camera orientation estimation based on cloud image tracking (C++, Android)
- Query-based large scale image retrieval system: FINDER (C++, Python, CUDA)

### TEACHING ASSISTANT

- Data Structure
- Introduction to Scientific Programming (Lab Session)

### Mountain View, California, USA

May. 2017 - Aug. 2017

Orlando, Florida, USA

Aug. 2015 - PRESENT

## Chapel Hill, North Carolina, USA

Aug. 2013 - Jul. 2014

Aug. 2012 – May 2013

### SANGWOO CHO · RÉSUMÉ

## **Samsung Electronics**

### **RESEARCH ENGINEER**

- Developed a stereo camera rectification software. (C++, OpenGL)
- Developed an intermediate viewpoint image generation software using stereo images for reducing stereo fatigue. (C++, MFC)
- Developed a stereoscopic image generation software based on 2D street-view image. (C++, MFC, Android)

## Associate Research Engineer

- Developed a LTE network connection software module for a dongle device. (C, C++)
- Developed a 3D Scratch using VRML. (C++, MFC)

## Korea Institute of Science and Technology (KIST)

STUDENT RESEARCHER

- Implemented an indoor 3D reconstruction software and designed an apparatus for data gathering consisting of a wide-view camera and a laser scanner. (C++, MFC)
- Implemented an eye gaze tracking system software. (C++, MFC)

## 602d Aviation Support Battalion, 2nd ID

PRODUCTION CONTROL OPERATOR, KATUSAS (KOREAN AUGMENTATION TO U.S. ARMY)

• Honor Graduation (9th place) of Primary Leadership Development Course (PLDC)

## Publications

Sangwoo Cho and Hassan Foroosh. "Spatio-Temporal Fusion Networks for Action Recognition". In Asian Conference on Computer Vision (ACCV), 2018, Accepted [UCF101: 95.4%, HDMB51: 72.1%]

Sangwoo Cho and Hassan Foroosh. "A Temporal Sequence Learning for Action Recognition and Prediction". In IEEE Winter Applications of Computer Vision Conference (WACV), 2018 [UCF101: 92.5%, HDMB51: 66.3%]

Sangwoo Cho, Enrique Dunn, and Jan-Michael Frahm. "Rotation Estimation from Cloud Tracking". In IEEE Winter Conference on Applications of Computer Vision (WACV), Steamboat Springs, CO, USA, March 24-26, 2014

Sangwoo Jo, Jungsuk Ki, Kyeongwon Jun, Yong-Moo Kwon, and Sang Chul Ahn. "Human – Robot Interaction with Indoor Virtual Model". In IEEE International Symposium on Robot Human Interactive Communication (ROMAN), 2007

Yong-Moo Kwon, Kyeong-Won Jeon, Jeongseok Ki, Qonita M Shahab, Sangwoo Jo, and Sung-Kyu Kim. "3D Gaze Estimation and Interaction to Stereo Dispaly". In International Journal of Virtual Reality (IJVR), 2006

Sangwoo Jo, Yong-Moo Kwon, and Hanseok Ko. "Indoor Environment Modeling for Interactive VR-Based Robot Security service". In International Conference on Artificial Reality and Telexistence (ICAT), 2006

Sangwoo Jo, Qonita M. Shahab, Yong-Moo Kwon, Sang Chul Ahn, and Hanseok Ko. "Research on Virtual URS and Its Service on Mobile Phone". In Ubiquitous Robots and Ambient Intelligence (URAI), 2006

## Patents\_

### KOREAN

Sangwoo Cho, Yong-Moo Kwon, Sung-Kyu Kim, Jeon Kyeong Won, Ki Jeongseok, "System And Method For 3-Dimensional Interaction Based On Gaze System And Method For Tracking 3-Dimensional Gaze", Patent No. 1008206390000, 2008

Sangwoo Cho, Yong-Moo Kwon, "Apparatus And Method For Creating A Circumstance Map Of An Indoor Circumstance", Patent No. 1007577510000, 2007

Sangwoo Cho, Yong-Moo Kwon, Sung-Kyu Kim, Jai Kyung Shul, Jinwoo Park, "Gaze-based Computer Interface Apparatus and Method of Using the Same", Patent No. 100651104000, 2006

## Awards

2018	Graduate Presentation Fellowship, University of Central Florida	USA
2006	Brain Korea 21 Program Scholarship, Korean Research Foundation	S. Korea
2004	1st Place, Grand Award for Micromouse Competition at Sogang University	S. Korea
2003	1st Place, Grand Award for Academic Competition at Sogang University (Autonomous Mobile Robot)	S. Korea
2000	3rd Place, 1st National Intelligent Robot Competition	S. Korea

# Feb. 2009 - Jun. 2012

Suwon, S. Korea

Feb. 2007 - Jan. 2009

### Seoul, S. Korea

### Feb. 2005 - Jan. 2007

## Uijeongbu, S. Korea

Nov. 2000 - Jan. 2003