Jeongjoo Hong

Software Engineer

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Experience

dmp Inc.
Sendai, Japan

Software Engineer — *Apr. 2014 - Present*

- Developed switching applications which is using wireless signal such as Bluetooth, Wi-Fi, and acoustic tag.
- Developed augmented reality applications which display on optical head-mounted devices such as Google Glass, Sony SmartEye-Glass, and Microsoft HoloLens.
- Implemented a motion planning for Softbank pepper's behavior.
- Implemented applications for Omron HVC, Motorola Moto 360, and so on.
- Implemented image processing algorithms such as feature detection, image blending, photomosaic, and so on.
- Implemented signal processing algorithms such as accelerometer frequency analyzer, dual-tone multi-frequency generator, and so on.
- Implemented time synchronization via wireless communication
- Implemented a gesture recognizer which is accelerometer based real-time dector in android application, and conducted a blackbox testing on sensors of mobile device.
- Implemented a poker game logic, and analyzed probability.
- Maintained a music streaming application which is able to display on car navigation.

Republic of Korea Army
S.Korea

Volunteer for Military Service — *Nov. 2001 - Dec. 2003*

- Served and discharged as combat information, sergeant

Education

Tohoku University, Graduate School of Information Sciences
Sendai, Japan

M.S. in System Information Sciences — *Apr. 2012 - Mar. 2014*

- Thesis : A Study of Multi-focus Scroll and Zoom Interactions using Elastic Metaphor

Tohoku University, Research Institute of Electrical Communication
Sendai, Japan

Participated in Undergraduate Research Opportunities Program — *Oct. 2011 - Mar. 2012*

- Interactive Content Design Laboratory (Prof. Kitamura)

Gwangju University of Graduate School
Gwangju, S.Korea

M.S. in Information and Communications Engineering — *Feb. 2010 - Mar. 2011*

Gwangju University, Computer Electronic and Communications Engineering
Gwangju, S.Korea

Participated in Undergraduate Student Program — *May. 2005 - Feb. 2009*

- Mobile and Communication Laboratory (Prof. Oh)

University of Toronto School, Continuing Studies
Toronto, Canada

Courses Completion — *Mar. 2004 - Jan. 2005*

- Comprehensive English

Gwangju University, Computer Electronic and Communications Engineering
Gwangju, S.Korea

B.S. in Information and Communications Engineering — *Mar. 2000 - Feb. 2009*

- Thesis : Adaptive Channel Equalization Simulation

Extracurricular Activity

Teaching Assistant

Oct. 2012 - Mar. 2013	Advanced Creative Engineering Training	*Tohoku University*
Oct. 2012 - Feb. 2013	Creative Engineering Training	*Tohoku University*
Sep. 2007 - Feb. 2008	C language	*Gwangju University*

Department Office Assistant

Mar. 2006 - Aug. 2006	Department of Computer Electronic and Communications Engineering	*Gwangju University*
Mar. 2010 - Feb. 2011	Department of Computer Electronic and Communications Engineering	*Gwangju University*

Awards & Scholarships

2009	Award, Excellent Bachelor of Engineering	*Gwangju University*
2008 1st	Scholarship, Excellent Student	*Gwangju University*
2007 1st	Award, Excellent Student	*Gwangju University*
2007 1st	Scholarship, Excellent Student	*Gwangju University*
2006 2st	Scholarship, Excellent Student	*Gwangju University*
2006 1st	Scholarship, Excellent Student	*Gwangju University*
2005 2st	Scholarship, Excellent Student	*Gwangju University*
2005 1st	Scholarship, Excellent Student	*Gwangju University*

HONG, Jeongjoo *Engineer*

Last update on December 20, 2016

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Annual Report 2016

The following has been prepared to updated information with the current project.
Through experiences of programming with bluetooth and network communication, there have been many chances to use a lot of new techniques. I have, so far taking part in the 2 business projects and created 8 demo projects. In the projects, I coded using the languages Java on Android, Processing, UWP, and so on.

Business Projects:

Kitasorachi KankouApp (LaPT Inc.)

AndroidPhone Applications *Android, Java*
- Parse JSON data from external server
- Control the camera using the exif tag in jpeg file
- Implement google map, and google analytics

AR HOPE TOUR (Tohoku Univ. IRIDeS)

SmartEyeglass Applications (AR HOPE TOUR in Sendai) *Android, Java*
- Start and end command control using system broadcast with bluetooth signal
- Panorama viewer using magnetic sensor data applications
- Tsunami height display using (one euro filtered) accelerometer data application
- Simple slideshow applications

SmartEyeglass Applications (AR HOPE TOUR in Tagajo) *Android, Java*
- Start and end command control using system broadcast with bluetooth signal
- Panorama viewer using magnetic sensor data applications
- Simple slideshow applications

Demo Projects:

HoloLens Test

Manipulation Test *UWP, Unity, C++, C#*
- Test for input controlling using gestures and voice
- Deploying and debugging 2D app

InfoSound Demo (Yamaha)

Acoustic Data Detector Test *Android, Java*
- Test for detecting the acoustic tag using infosound libraries of Yamaha

Showroom Project

SmartEyeGlass Application *Android, Java*
- Develop the resource reader for panorama images on external storage
- Test for updating bitmap objects of SmartEyeglassAPI

SmartEyeglass Demo (Fukuoka, Koriyama)

AR Photo Demo *Android, Java*
- Develop the Cylinder-coordinate AR systems for Yamakasa, Nakagawa, and Nakasu Yatai contents

Photo Demo *Android, Java*
- Develop the photo displayers for Dontaku, and Kami Kawabata contents

Sensor Demo *Android, Java*
- Develop the data displayer for rotation vector

Pepper for Biz Test

Remote Control Test *Choregraphe, Python*
- Test for controlling the pepper's behaviors and monitoring sensors

SmartEyeglass Demo (SONY)

Audio Slide Demo *Android, Java*

Develop the audio player with a slide

Gear AR Controller Test

TCP Sender Test *Processing, Java*

Develop the TCP message sender using multi-threads
Test for the client's IP monitoring system

Timming-sync Protocol for Sensor Networks(TPSN) Test *Processing, Java*

Develop the 2-way handshake synchronization via TCP Sender
Test for the master and slave communication

SmartEyeglass Test

iBeacon and Eddystone Signal Detection Test *Android, Java*

Test for the iBeancon and Eddystone signal detecting and intents controlling
Test for the the scanning state with reliable timer

SmartEyeglass Test *Android, Java*

Test for playing sound with slideshows and timer

HONG, Jeongjoo *Engineer*

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Annual Report 2015

The following has been prepared to updated information with the current project.
Through experiences of programming with various data and sensors, there have been many chances to use a lot of new techniques. I have, so far taking part in the 2 business projects and created 6 demo projects. In the projects, I coded using the languages C++ and Java on iOS and Windows.
In addition, I adopted and tested new algorithms for filter systems and machine learning techniques.

Business Projects:

FANT4STIC (20th Century Fox)

OpenCV based Dynamic-Link Library(DLL) for Unity *Windows, C++*
- Face Detection : Haar-like feature detection
- Image Blending : Quasi-Poisson image blending

SIG-NATORI (Natori City)

SmartEyeglass Applications *Android, Java*
- Start and end command control using system broadcast with iBeacon
- Simple slideshow applications
- Panorama viewer using accelerometer data applications
- Tsunami height display using accelerometer data application
- Cylinder-coordinate augmented reality using rotation vector applications

Demo Projects:

Beams Name Card Demo

Black-and-White Sketch Effect Demo *Processing, Java / OS X, C++*
- Test for laplacian edge detection filter
- Test for canny edge detection filter

Gear AR Demo

Dial Tone Demo *Processing, Java*
- Develop the Dual-Tone Multi-Frequency generator

UDP Sender Demo *Processing, Java*
- Develop the UDP message sender

UDP Receiver Test *Android, Java*
- Test for receiving messages from sender via UDP

Photomosaic Demo

Tile Image Mapping Demo *OS X, C++*
- Test for reduction pixel information as mosaic image
- Test for finding an euclidean distance each pixel information
- Develop insert-sorting algorithm for on-line
- Develop customized insert-sorting algorithm
- Develop quad-tree quantization algorithm

Face Detection Demo

Object Recognization Demo *Processing, Java / OS X, C++ / Windows, C++*
- Develop the pattern recognization with Haar-like, and lbp algorithms

Optical Flow Demo *Processing, Java / OS X, C++*
- Develop the Lucas–Kanade method

Feature Point Detection Demo *OS X, C++*
- Develop the A-KAZE method

Object Tracking Demo *OS X, C++*
Develop the Lucas–Kanade optical flow, A-KAZE, and Michael's visualization
Test interactive UI, simple game using gestures

Color Histogram Demo *OS X, C++*
Test for detecting skin color using HSV segmentation

OpenCV + IPP + TBB Build *Windows, C++*
Optimize for CPU multicore performance for using 3 webcams concurrently

Firebase Demo

FFT Demo *HTML*
Test for online-measurement of FFT to analyze shaking frequency using accelerometer

SmartEyeglass Demo

Beacon Detection Demo *Android, Java*
Develop the BlueTooth signal detection and control intents in android system

100 Pages Slideshow Test *Android, Java*

Sound Control Test *Android, Java*

Real-time Data Display Test using Firebase *Android, Java*

HONG, Jeongjoo *Engineer*

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Annual Report 2014

The following report has been prepared to provide updated information on the current project since April 2014.

Through the experience of the application development for various devices, there was a chance to use a lot of new languages. I took part in the 3 business projects, and created 8 demo projects so far. In the projects, I coded the language Java, and Objective-C which used on Android, and iOS. I created not only an application for iPhone, and Android Phone, but also wearable devices such as Google glass.
In addition, I analyzed game probability through a simulation, blackbox test for sensor data of a device, and created web pages. MATLAB, Processing, Android NDK, HTML, Javascript languages are used for the projects occasionally.

Business Projects:

Dynamo (Disney Mobile)

Gesture Recognition *Android*
Recognize 4 gestures using real-time linear acceleration method

Blackbox Test *Android*
Test 3 axis accelerometer from the sensor data

music Chef (ET²)

Maintenance *iOS, Android*
Debug the clients

MIYAGI POKERUN (Honda Motor)

Poker Judgement *Java, Android, iOS*
Decide a poker hands, score, and case test

Poker Probability Simulation *MATLAB*
Analyze a poker game probability using a selection algorithm

Demo Projects:

Omron HVC Demo

HappyCam Demo *Android*
Test an auto-camera demo using user's face

SmartEyeglass Demo

Breakout Game *Android*
Develop rotation vector for control

Shooting Game *Android*
Develop rotation vector for control using cylindrical projection

FFmpeg Library Test

Bitmap Player *Android NDK*
Run a FFmpeg library using Native-C, not completed

Moto 360 Demo

Watch Face *Android*
Test an image on display

Dynamo Test

Gesture Recognition, UDP Connection *iOS*
Test dynamo gestures with a computer network

Gesture Recognition *Android*
Test a pattern recognition for non-real-time method

SmartEyeglass Test

Breakout Game *Processing*
Test each game logic, and visualization

Shooting Game *Processing*
Test each game logic, and visualization

Bike Game *Processing*
Test each game logic, and visualization

Google Glass Demo

Virtual Buttons *Android*
Run a Vuforia demo

Firework *Processing*
Display using a sensor data, and test the frame speed

Web Test

Map for MIYAGI POKERUN *HTML, Javascript*
Draw a contour of japan map using d3.js library