

Jun-young Kwak

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HOME ADDRESS

4628 Bayard St.
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WORK ADDRESS

The Robotics Institute, NSH 1604A
Carnegie Mellon University
Pittsburgh, PA 15213
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EDUCATION

Aug. 2006 – Aug. 2007

Carnegie Mellon University

Pittsburgh, PA, USA

The Robotics Institute, School of Computer Science, M.S.

Thesis: *Rough Terrain Navigation for Mars Rovers*

Advisor: *Reid Simmons*

Research: *Path planning and rough terrain navigation*

Coursework: *Planning Execution and Learning, Machine Learning, Computer Vision, Math Fundamentals for Robotics, Kinematics Dynamic Systems and Control, Sensing and Sensors*

Mar. 1999 – Aug. 2006

Seoul National University

Seoul, Korea

(*Military Service:*

Computer Science and Engineering, B.S.

Aug. 2002 – Aug. 2005)

Thesis: *Design and Implementation Issues on AI Editor*

HONORS & SCHOLARSHIPS

Research Assistantships (Full Financial Support), The Robotics Institute, Carnegie Mellon University (*Jan. 2007 – Aug. 2007*)

Cum Laude, Graduation with honor, Seoul National University
(*August 2006*)

Tuition Waiver based on academic excellence, Seoul National University
(*Spring 1999, Fall 1999, Spring 2000, Fall 2000, Fall 2001, Fall 2002*)

EXPERIENCE

Sep. 2007 – present

Agent Dynamics, Inc.

Pittsburgh, PA, USA

Robotics Programmer

(Future Combat System, funded by DoD)

Advisor: *Katia Sycara*

Research: *The ACCAST system (Advanced Command and Control of Autonomous System Teams) project*

Command and Control Tools for Air/Ground Unmanned System Collaboration
Multi-agents coordination and control

Investigate potential solutions to command and control problems and develop a series of metrics for evaluating various C&C techniques

Jun-young Kwak

July 2007 – Aug. 2007

Jet Propulsion Lab, NASA

Pasadena, CA, USA

Affiliated Researcher (Summer Internship)

(Mars Technology Program, funded by JPL, NASA)

Advisor: Issa A.D. Nesnas

Research: *Rover Navigation for Very Rough Terrain*

Integrating testing, and deploying the integrated software on real and simulated planetary rover

Combining cost functions with the pRRT algorithm

Sep. 2006 – Aug. 2007

The Robotics Institute, Carnegie Mellon University

Pittsburgh, PA, USA

Student Researcher

(Mars Technology Program, funded by JPL, NASA)

Advisor: Reid Simmons

Research: *Rover Navigation for Very Rough Terrain*

Planning algorithms with geometric models, dynamic models of the rover and its interaction with terrain

Finding the optimal vehicle models and reducing the execution errors with Learning

Integrating the simulator with ATRV and a JPL Rover (FIDO)

Making the general simulation environment to support various simulators

Oct. 2003 – May 2006

Intelligent Robotics Lab., Bonavision Inc.

Seoul, Korea

Technical Manager

(The International Robotics Development Program, one of the 21st-century Frontier R&D Programs funded by the Ministry of Commerce, Industry and Energy of Korea)

Advisor: Richard H. Shinn, Chief of laboratory

Research: *Organized and managed all research activities*

Designed the architecture of intelligent robot software platform

Developed the details of intelligent robot software platform

Feb. 2004 – Jan. 2006

Intelligent Robotics Lab., Bonavision Inc.

Seoul, Korea

Researcher

(The Intelligent Robot Research Program, one of Ubiquitous Robotics Companion R&D Programs funded by the Ministry of Information and Communication of Korea)

Advisor: Richard H. Shinn, Chief of laboratory

Research: *Designed the architecture of Case-Based Reasoning Engine with intelligent planner*

Developed the details of Case-Based Reasoning Engine with intelligent planner

Jun-young Kwak

Aug. 2002 – Sep. 2003

Intelligent Solution Team, Bonavision Inc.

Seoul, Korea

Project Manager

Work: *Organized and managed all project activities*
Designed and developed Email Response Managing System (ERMS)
Developed e-Contract Manager and e-Bill Manager
Developed BONADEV (Bonavision Framework for Web Application)

PUBLICATIONS

Jun-young Kwak, Mihail Pivtoraiko and Reid Simmons, “**Combining Cost and Reliability for Rough Terrain Navigation**”, *9th International Symposium on Artificial Intelligence, Robotics and Automation for Space (iSAIRAS 2008)*, 2008

Nik A. Melchior, **Jun-young Kwak** and Reid Simmons, “**Particle RRT for Path Planning in Very Rough Terrain**”, *NASA Science Technology Conference 2007 (NSTC 2007)*, 2007

Jun-young Kwak, Ji Young Yoon and Richard H. Shinn, “**An Intelligent Robot Architecture based on Robot Mark-up Language**”, *2006 IEEE International Conference on Engineering of Intelligent Systems (ICEIS 2006)*, 2006

Jun-young Kwak, Ji Young Yoon and Richard H. Shinn, “**Some Design Issues on intelligent Robot Software Platform**”, *2nd IEEE International Conference on Ubiquitous Robots and Ambient Intelligence (ICURAI 2005)*, 2005

Jun-young Kwak, Ji Young Yoon and Richard H. Shinn, “**A Software Platform Architecture for Developing an Intelligent Robot System**”, *6th International Symposium on Advanced Intelligent Systems (ISIS 2005)*, 2005

Ji Young Yoon, **Jun-young Kwak** and Richard H. Shinn, “**Case-Based Reasoning Engine for Intelligent Robot Platform**”, *2nd IEEE International Conference on Ubiquitous Robots and Ambient Intelligence (ICURAI 2005)*, 2005

Ji Young Yoon and **Jun-young Kwak**, “**Case-Based Reasoning Engine for Intelligent Guiding Robot System**”, *1st International Conference on Ubiquitous Robots and Ambient Intelligence (ICURAI 2004)*, 2004

TECHNICAL REPORTS

Jun-young Kwak, “**Rough Terrain Navigation for Mars Rovers**”, Master’s Thesis, The Robotics Institute, Carnegie Mellon University, August, 2007

Richard H. Shinn and **Jun-young Kwak**, “**An Architectural Design of an Integrated Development Environment for Developing an Intelligent Robotic System**”, *The 4th Technical Workshop, Center for Intelligent Robotics*, 2005

Jun-young Kwak

CERTIFICATES

Engineer Information Processing, *Human Resources Development Service of Korea*, 2002

The Academic Culture and Communication (ACC) Program, *Intercultural Communication Center, Carnegie Mellon University*, Aug. 2006

PROFESSIONAL

Programming Languages

SKILLS

Expert in C/C++, Java, MATLAB, SQL, HTML, XML

Familiar with Visual C++, C#, UML

Operating Systems

Familiar with Windows, Linux, VxWorks

Middleware

Familiar with CORBA (TAO, JacORB), Web Services

Database

Expert in MySQL

Familiar with ORACLE, MS-SQL