

# Alexander N. Alspach

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## education

### Drexel University

Master of Science in Mechanical Engineering & Mechanics  
Bachelor of Science in Mechanical Engineering & Mechanics

**focus** Autonomous Systems and Control

**lab** Drexel Autonomous Systems Lab (DASL), Dr. Paul Oh

**thesis** A Humanoid Robot Pushing Model Inspired by Human Motion

**Philadelphia, PA, USA**

GPA: 3.94 / 4.0

June 2012

## experience

### SimLab Co. Ltd.

Robotics Engineer

- Develop and maintain robotic hand software for Windows (RoboticsLab), Linux (ROS) and Android
- Hardware engineering, manufacturing and repair for robotic hand and quadruped products
- Built and manage user wiki including tutorials, documentation and customer support
- Manage international sales and marketing for robotic hand, Allegro Hand
- Work closely with customers developing applications for Allegro Hand
- Sales and marketing team for robotics simulation and control software, RoboticsLab

**Seoul, South Korea**

August 2012 - Present

### Czech Technical University

Exchange Researcher

- Studied development and usage practices for the internet-accessible multi-robot testbed (SyRoTek)
- Documented challenges and features relevant to a Drexel-based internet accessible HUBO2 humanoid testbed
- Presented user-perspective suggestions for improvements to the system
- Studied and implemented Smooth Nearness Diagram (SND) navigation
- Developed MATLAB interface for the ROS-based SyRoTek system

**Prague, Czech Republic**

April 2012

### KAIST Humanoid Robotics (HUBO) Lab

Robotics Researcher

- Studied the manufacture and assembly process of Korea's most advanced humanoid robot platform, HUBO2
- Designed and developed website for multi-university collaboration and sharing of HUBO related research and tools
- Composed comprehensive assembly and setup manual to accompany HUBOs exported from KAIST to U.S. universities
- Learned troubleshooting, maintenance and repair methods as part of U.S. team of HUBO specialists
- Contributed to international awareness, engagement and collaboration in the field of robotics

**Daejeon, South Korea**

September 2010 - March 2011

### Synthes, Inc.

Product Development Engineering Intern (Spine Division)

- Co-Investigator for a high-priority product biomechanical failure analysis and next generation design requirement consideration
- Designed and supervised mechanical tests and design validation of products for FDA approval
- Designed mechanical tests fixtures and produced engineering drawings for in house manufacturing
- Used Pro/Engineer to produce spinal implant and surgical instrument concepts for design review, failure analysis, prototyping and testing
- Performed cadaveric tests to validate and refine implant and tool prototypes and surgical methods

**West Chester, PA, USA**

September 2009 - March 2010

### Max Levy Autograph, Inc.

Research and Design Engineering Intern

- Designed processes and methodologies for depositing thin film resistors and circuits onto flexible substrates
- Conducted multivariate experiments; collected and analyzed data to refine manufacturing processes and optimize final products
- Designed tooling for mechanical devices and fixtures and created technical drawings for manufacturing
- Assisted in design, maintenance, installation and repair of facility systems and machinery

**Philadelphia, PA, USA**

September 2008 - March 2009

## publication

- Jun, Y., Alspach, A., Oh, P.Y., "Controlling and Maximizing the Humanoid Robot Pushing Force by Postures", Proc. The 9th Int. Conf. on Ubiquitous Robots and Ambient Intelligence (URAI), Daejeon, South Korea, Nov. 2012.
- Ellenberg, R., Sherbert, R., Oh, P.Y., Alspach, A., Gross, R., "A Common Interface for Humanoid Simulation and Hardware", Proc. IEEE-RAS Int. Conf. Humanoid Robotics, Nashville, TN, Dec. 2010.

## skills

**code** C++, MATLAB, Python, MediaWiki, HTML, CSS  
**cad & cam** Inventor, Pro/E, Solidworks, AutoCAD, SketchUp, Mastercam (w/ CNC experience)  
**design** Photoshop, Illustrator, Dreamweaver  
**robotics** ROS, Webots, RoboticsLab, V-rep

Contact Information

