

# SEUNG CHUL LEE

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## EDUCATION

- 2005 - present **Ph.D. in Mechanical Engineering**, University of Michigan (expected Aug, 2009)  
Dissertation: *Modeling of Degradation Processes to Obtain an Optimal Solution for Maintenance and Performance*  
It has been recognized that maintenance is not an isolated technical discipline but an integral part of the competitive plant operations. To examine the trade-offs between maintenance and operation costs, a mathematical model has been developed to estimate an appropriate maintenance policy and relevant system performance measurements. This research has presented an approach where Markov process represents equipment degradation and also incorporates various maintenances. Having available model representing both deterioration and maintenance processes, it is possible to obtain an optimal maintenance policy to minimize overall costs for different configurations.  
  
Passed the ME Ph.D. Qualifying Examination, cumulative GPA of 8.380/9
- 2003-2005 **B.S. in Electrical Engineering and Computer Sciences**, Seoul National University  
Thesis: *3D MOUSE Implementation Using the MEMS Gyroscope technology*, Aug. 2005  
Cumulative GPA of 4.08/4.3
- 1997-2001 **B.S. in Mechanical and Aerospace Engineering**, Seoul National University  
Thesis: *Kinematics Calibration for Serial Robot including Closed loops*, Dec. 2000  
Cumulative GPA of 3.47/4.3

## EXPERIENCE

- 2006 - present **Research Assistant**, S.M. Wu Manufacturing Research Center Ann Arbor, MI  
Research on *the Enhanced Maintenance Decision Support in Semiconductor Fabs*  
In semiconductor fabrication, dynamic interactions among chamber deterioration, operation characteristics, and wafer yield necessitate an intelligent decision making policy for maintenance. However, only simple heuristic rules for maintenance scheduling are currently employed in semiconductor fabs. Therefore, there is a clear need for a more formal framework for maintenance decision making. I have developed a condition-based maintenance decision making tool based on a model incorporating chamber degradations and their effects on expected yield. Simulations are evaluated to show the benefits of the newly proposed methodology.
- 2006 University of Michigan, Ann Arbor, MI  
Research on modeling the vehicle dynamics and designing a built-in-hardware for the power train of a scaled version of car in multi-distributed mobile transportation system
- 2005 KAIST Daejeon, Korea  
Participated in the International Winter School in Humanoid Robotics
- 2004 **Internship**, SAMSUNG Electronics, Mechatronics Division Suwon, Korea  
Participated in performance test by measuring the response times of Robot Arms

