

Rocku Oh

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EDUCATION

Ulsan National Institute of Science and Technology (UNIST) **Ulsan, Korea**
Ph.D. Candidate of Management Engineering Sep 2017–Present
• Research Interest: Market microstructure, High frequency trading, Machine learning and Big data analytics
• Academic Performance Scholarship Recipient for every semester
• Core course: Statistical Learning, Financial Engineering(금융공학), Multivariate Analysis(다변량 분석), Econometrics(계량경제학)

Ulsan National Institute of Science and Technology (UNIST) **Ulsan, Korea**
M.S. of System Design and Control Engineering Sep 2013–Aug 2017
• Research Interest: Self-resilient process control, Data(signal) analytics, and Machine learning
• Thesis Title: In-Process Laser Welding Monitoring by Fusing the Uncertain Signal Information of Multi-Photodiode Sensors
• Academic Performance Scholarship Recipient for every semester
• Core course: BCI(Brain-Computer Interaction), Advanced Machine Learning(고급기계학습), Advanced Multivariate Statistics and Data Mining(고등다변량기법과 데이터마이닝), Advanced Engineering System Design(고등공학디자인기법), Signals and Systems(공학 및 시스템디자인 특론 I), Optimization(공학 및 시스템디자인 특론 II), Root Cause Analysis(근본원인분석), Image Processing(영상처리)

Ulsan National Institute of Science and Technology (UNIST) **Ulsan, Korea**
B.S. of Engineering & Systems Design and Electrical Engineering Mar 2009–Aug 2013
• Academic Performance Scholarship Recipient for every semester; Semester Award for a semester

PUBLICATIONS

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- **R. Oh**, K. Bae, & D. Kim; Text-based Industry Classification by Autoencoder, Proceedings of The Korean Finance Association, 2018, 1450-1468.
 - **R. Oh**, D. -Y. Kim, & D. Ceglarek; The Effects of Laser Welding Direction on Joint Quality for Non-Uniform Part-to-Part Gaps, Metals, 2016, 6(8), 184.
 - **R. Oh**, J. Park, & D. -Y. Kim; LaserWel: A Laser Welding Process Monitoring & Fault Classification System, Proceedings of the Society of CAD/CAM Conference, 2016, 934-937.
 - S. J. Back, **R. Oh**, & D. -Y. Kim; Defect Detection in Laser Welding Using Multidimensional Discretization and Event-Codification, Journal of the Korean Society for Precision Engineering, 2015, 32(11), 989-995.
 - **R. Oh**, & D.-Y. Kim; A Fault Detection Method of Laser Welding based on PDF Estimation and Dempster-Shafer Theory, Proceedings of the Society of CAD/CAM Conference, 2014, 1011-1016.

PROFESSIONAL EXPERIENCE

Smart Factory Lab., UNIST **Ulsan, Korea**
Researcher Aug 2015–Mar 2016
BSR noise detection from car door trims using composite sensing information of acoustic emission and vibration
• Worked with SEOYON E-HWA, RECTUSON and KIAT(PI)
• Surveyed on RSR noise characteristics of car door trim
• Identified key features from door trim noise
• Developed noise signal reference guide in frequency domain

Smart Factory Lab., UNIST*Researcher***Ulsan, Korea**
Aug 2013–Feb 2015**Remote Laser Welding Process Control for Eco-Automotive Factories**

- Worked with PNU, SUNGWOONG Hitech, ILSHIN Tech, SIS, and KIAT(PI).
- Managed the project as a staff in charge including research, related events, and schedule
- Conducted experiments on laser welding quality by varying the key characteristic indicators
- Developed an on-line weld fault detection algorithm based on the Dempster-Shafer theory
- Developed a sensor system for monitoring the remote laser welding
- Developed an integrated(C#-based) process monitoring software

Smart Factory Lab., UNIST*Researcher***Ulsan, Korea**
Aug 2013–Aug 2015**RLW Navigator: Remote Laser Welding System Navigator for Eco & Resilient Automotive Factories**

- The project is funded by European Commission (FP7)
- Worked with Univ. of Warwick(PI), EPFL, COMAU, PRECITEC, JAGUAR and LANDROVER, other 7 companies and research institutes
- Conducted over 800 coupon tests on laser welding quality for laser parameter adjustment system to compensate for output parameter deviation from required performance profile
- Developed Matlab-based weld defect detection software
- Attended annual review on the project: Budapest in Hungary (Nov 2013), London in U.K. (Mar 2014 and June 2015)
- Hosted consortium iRLW 2014 in Ulsan, Korea

UNIST*Teaching Assistant***Ulsan, Korea**
Sep 2013–Dec 2015**Courses: System Control, Computational Tools for Engineers, Intro to Engineering System Design, Design IT, and Design for X(Introduction to PLM)**

- Created lab session material and conducted lab sessions
- Graded quiz, term project, assignment and exam
- Guided over 220 students

CSI Lab under professor Duck-Young Kim, UNIST*Research Assistant***Ulsan, Korea**
Jan 2013–June 2013

- Conducted experiments for gathering vehicle engine data
- Determined control limits for vehicle engine fault and pre-processed engine data
- Developed database connection module for MATLAB

Dong-AH Electric*Research Intern, R&D center***Hwaseong-si, Korea**
Jan 2012–Feb 2012

- Developed electric testing multi-jig for HVAC controller
- Evaluated and tested new HVAC controller prototypes

UCIM Lab under professor Nam-Hun Kim, UNIST*Research Assistant***Ulsan, Korea**
Jun 2011– Aug 2011

- Survey and studied on concepts of affordance and its implementation to the robotics
- Implemented the obstacle detection algorithm to LabView robotics kit

AWARD & EXTRACURRICULAR ACTIVITIES**The Ergonomics Society of Korea Capstone Competition, Second Prize***Team Head***Korea**
Nov 2012

- GPS-embedded Autonomous Campus Tour Vehicle: Ergonomic design and system configuration
- Developed control system and software using LabView
- Developed remote driving system using gyro sensor in smartphone
- Conducted ergonomic experiments and analyzed gathered data in case of the emergency condition

Graduate School of Design and Human Engineering, UNIST

President

Undergraduate school of Design and Human Engineering, UNIST

Engineering & Systems Design track leader

Ulsan, Korea

Feb 2015–Aug 2015

Ulsan, Korea

Apr 2011–Dec 2011

LANGUAGES & COMPUTER SKILLS

- English(fluent), Korean(native)
- Proficient in Python (Keras, Pandas, and Django), Database (SQL), MATLAB, LabView, and Linux (Ubuntu)
- Intermediate knowledge in SAS, Stata, and AWS
- Experience with C#, JavaScript, HTML and CSS