MESSAGE FROM DEAN

In 1998, the Graduate School of Automotive Engineering, Kookmin University was established as the only government-accredited graduate school specializing in automotive engineering, in recognition of its unparalleled capabilities for conducting advanced education and R&D in the field of automotive engineering. Currently, 17 full-time professors are serving the graduate school with their extensive expertise and experiences outnumbering any other graduate schools in the field of automotive engineering in Korea. Our research activities cover the full spectrum of automotive engineering areas including engine, chassis, body, electronics, eco-friendly powertrains and future transportation systems and more. Every year, about 100 graduate students are actively pursuing their advanced degrees in our school and the GSAEK alumni - 72 Ph.D.s and 693 M.S. s, as of 2018 - are playing important roles in leading industries and institutions as well. For their technical excellences and highly regarded work ethics, many members from our school are greatly recognized and appreciated by their peers and colleagues within the societies, accordingly.

Since the inception of GSAEK, our school has made significant contributions to educating advanced technologies for the automotive industries. We have made relentless efforts to develop new curriculums covering the state-of-the-art automotive technologies and we have actively involved in incubating and conducting numerous industry and government sponsored research projects. Recently, our school is focusing more and more on the promotion of global collaboration with foreign institutes in both education and research. We have established academic exchange programs with universities in US, China, Japan, Canada, Vietnam and more. Not only that, we are also conducting cooperative research programs with universities and companies in many countries including US, China, Germany, Netherlands, and Australia. We will continue to dedicate ourselves to further advancement of automotive technologies using our excellent human resources, comprehensive facilities, and teaching and research capabilities.

In 1998, the Graduate School of Automotive Engineering, Kookmin University was established as the only government-accredited graduate school specializing in automotive engineering, in recognition of its unparalleled capabilities for conducting advanced education and R&D in the field of automotive engineering. Currently, 17 full-time professors are serving the graduate school with their extensive expertise and experiences outnumbering any other graduate schools in the field of automotive engineering in Korea. Our research activities cover the full spectrum of automotive engineering areas including engine, chassis, body, electronics, eco-friendly powertrains and future transportation systems and more. Every year, about 100 graduate students are actively pursuing their advanced degrees in our school and the GSAEK alumni - 72 Ph.D.s and 693 M.S. s, as of 2018 - are playing important roles in leading industries and institutions as well. For their technical excellences and highly regarded work ethics, many members from our school are greatly recognized and appreciated by their peers and colleagues within the societies, accordingly.

Since the inception of GSAEK, our school has made significant contributions to educating advanced technologies for the automotive industries. We have made relentless efforts to develop new curriculums covering the state-of-the-art automotive technologies and we have actively involved in incubating and conducting numerous industry and government sponsored research projects. Recently, our school is focusing more and more on the promotion of global collaboration with foreign institutes in both education and research. We have established academic exchange programs with universities in US, China, Japan, Canada, Vietnam and more. Not only that, we are also conducting cooperative research programs with universities and companies in many countries including US, China, Germany, Netherlands, and Australia. We will continue to dedicate ourselves to further advancement of automotive technologies using our excellent human resources, comprehensive facilities, and teaching and research capabilities.
LABORATORY FACILITIES

AUTONOMOUS VEHICLES

STEERING HILS (Hardware In-the Loop Simulation)

DRIVING SIMULATOR

ENGINE DYNAMOMETER

AIV’S DIP 240

3-AXIS ROAD SIMULATOR

AI Autonomous Vehicle Computing Platform

NVIDIA DRIVE PX 2

SEMI-ANECHOIC CHAMBER

CORNER MODULE DURABILITY TESTER

CURRICULUM

Common Elective Courses
- Selected Topics in Doctoral Thesis
- Doctoral Thesis I, II
- Design of Experiments
- Automotive Technology Management
- Automotive Convergence Seminar I, II
- Intelligent Safety Control System
- Special Topics in Intelligent Vehicle
- Special Topics in Environmentally Friendly Vehicle
- Entrepreneurship

Major Elective Courses
- Vehicle Body Structural Design
- Computer Aided Vehicle Design
- Computer Aided Vehicle Design
- Special Topics in Vehicle Body Design
- Vehicle Vibration
- Vehicle Dynamics
- Special Topics in Vehicle Chassis Design
- Advanced Mechatronics
- Robotics
- Advanced Mathematics
- Advanced Internal Combustion Engine
- New Energy Vehicles
- Intake & Exhaust Systems
- Digital Signal Processing
- Control Theory in Automotive Engineering
- Modeling and Simulation
- Advanced Artificial Intelligence and Machine Learning
- Deep Learning
- Advanced Deep Learning and IT Convergence
- Powertrain System Dynamics
- Powertrain Tribology
- Power Transfer Controls in Automotive Powertrain
- Study in Powertrain System
- Electrified Powertrain Design
- Engineering Acoustics
- Advanced Hybrid and Electric Vehicle I
- Special Topics in Internal Combustion Engines
- Special Topics in Vehicle Air Pollution
- Linear Control System
- Kalman Filter Application in Automotive Engineering
- Vehicle Body Structural Design
- Special Topics in EV & Its VCUI
- Special Topics in EV & Its VCUI
- Electrical Storage Systems for PHEV/EV
- Electric Motor Theory and Application
- Automotive Power Electronics
- Motor Control
- FEM in Automotive Engineering
- Light Weight Materials Forming Analysis
- Theory of Plasticity
- Carbon Composite Parts Design Theory
- Noise and Vibration Control
- Random Data
- Sound Quality and Its Application
- Vehicles Control Theory and Application
- Automated Driving HMI (Human-machine Interaction)
- Introduction to Vehicle Driver Modeling
- Automotive Human Factors Engineering
- Cyber-physical Systems
- Real-time Embedded Systems
- In-vehicle Computing Systems
- Advanced Transportation Engineering
- Automotive Big Data System
- Autonomous Driving Recognition and Decision
- Vehicle Air Pollution
- System Engineering
- Tire Dynamics
- Vehicle System Engineering
- Vehicle Functional Safety
- Vehicle Safety Analysis

gsae.kookmin.ac.kr
STUDENT ACTIVITIES

COMPETITIONS

1. 2017, 2018 Pangyo Autonomous Motor Show 2017, 2018
2. 2016 KARA Gymkhana Final Round, Overall 1st, 2nd
3. KAIMEE Formula Overall 1st, 2nd, NVH Noise Award, Altair Design Award, Women’s Best Engineer Award
4. Formula SAE Competition in MIS, Overall 11th, Skid 7th
5. Shell Eco Marathon Asia, Urban-battery 4th
6. KAIMEE Formula Overall 1st, 3rd, Women’s Best Engineer Award
7. The Institute of Electronics & Information Engineers Conference Paper Award by Hyundai Motor Group
8. KAIMEE Formula Overall 1st, 2nd, Dassault Systems 3D Experience Champion, Women’s Best Engineer Award
9. Formula SAE Competition in MIS, Overall 35th, Design Event 8th
10. Shell Eco Marathon Asia, Urban-battery 7th

AWARDS

2016
- KAIMEE Formula Overall 1st, 2nd, NVH Noise Award, Altair Design Award, Women’s Best Engineer Award
- Formula SAE Competition in MIS, Overall 11th, Skid 7th
- Shell Eco Marathon Asia, Urban-battery 4th
- KAIMEE Formula Overall 1st, 3rd, Women’s Best Engineer Award
- The Institute of Electronics & Information Engineers Conference Paper Award by Hyundai Motor Group
- Formula SAE Competition in MIS, Overall 20th, ACC 3rd, FEV Powertrain Design Award 2nd
- Shell Eco Marathon Asia, Urban-battery 9th
- KAIMEE Formula Overall 1st, 2nd, Dassault Systems 3D Experience Champion, Women’s Best Engineer Award
- Formula SAE Competition in MIS, Overall 35th, Design Event 8th
- Shell Eco Marathon Asia, Urban-battery 7th

STUDENT ACTIVITIES

ACADEMIC AWARDS

2018
- The Institute of Electronics & Information Eng. Conference Paper Award by Hyundai Motor Group.
- Autumn The Acoustical Society of Korea Conference Su-Ho Cha (Ph.D. Candidates) - Best Presentation Award.

2017
- The Institute of Electronics & Information Eng. Conference Paper Award by Hyundai Motor Group.
- Autumn The Acoustical Society of Korea Conference Young-Sam Lee (M.S. Candidates) - Best Presentation Award.

2016
- Autumn The Acoustical Society of Korea Conference Jun-Bae Heo (M.S. Candidates) - Best Presentation Award.
- Autumn The Acoustical Society of Korea Conference Chan-Ho Kim (M.S. Candidates) - Best Presentation Award.
- Gyeong-gi Big Data Challenge Outstanding Project - Recommendation for Installation of Smoking Booth through Big Data Analysis.
**Educational Background**

- University of Iowa, Mechanical Eng., Ph.D.
- Seoul National University, Mechanical Design, M.S.
- Seoul National University, Mechanical Design, B.S.

**Professional Experience**

- President, Kookmin University. (2019–Present)
- Professor, Kookmin University. (1992–2019)
- Senior Project Engineer, General Motors Co. (1988–1992)

**Research Areas**

- CAE: (Kinematics, Dynamics, NVH, Safety, Optimization)
- Automotive Structure Analysis and Design.
- Nano Micro Fabrication Equipment System Design.
- Humanoid Robot Design and Simulation.

**Research Activities**

- “Bumper Design Optimization for Pedestrian Protection”, Funded by Hyundai-Kia Motors Co.
- “Side Body Structure Design Optimization”, Funded by Hyundai Motors Co.

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**Educational Background**

- Technical University of Aachen in Germany: (IKA in RWTH Aachen): Dr.-Ing in Automotive Eng. (1987)
- Seoul National University: M.S. in Mechanical Design. (1981)
- Seoul National University: B.S. in Mechanical Design. (1979)

**Professional Experience**

- Dean, College of Automotive Eng., Kookmin University. (2014–2017)
- Professor, Kookmin University. (1993–Present)
- Adviser, Maneuver and Firepower Program Department, Defense Acquisition Program Administration. (2015–Present)

**Research Areas**

- Chassis & Body Virtual Durability Simulation.
- Intelligent Vehicle Active Safety Control.
- Vehicle Ride & Handling Test Evaluation.
- Green Car (HEV/EV) Virtual Model Development.
- Vehicle Multi-disciplinary Design Optimization.

**Research Activities**

- A Study on Mathematical Model for Design of System Performance based on Vehicle Dynamics. (2016–Present)
- A Study on Ground Dynamics of Fighter Plane. (2016–Present)
- Development of Target Cascading Process Application Tool for R&H Performance Robustness. (2017–Present)
- Development of Optimization Technology for Reduction of CTBA Type Suspension System Input Load. (2017–Present)
- Development of Integration Technology for Vehicle System Performance based on Virtual Durability Platform. (2017–Present)
PROFESSOR

PROFESSOR PROFILES

Graduate School of Automotive Engineering

EDUCATION
- University of Pennsylvania, Mechanical Eng. & Applied Mechanism, Ph. D.
- University of Cincinnati, Mechanical Eng. & Aerospace Eng., M.S.
- Sungkyunkwan University, Mechanical Eng., B.S.

EXPERIENCE
- Professor, College of Automotive Eng., Kookmin University. (1994~Present)
- Dean, College of Automotive Eng., Kookmin University. (2016~2017)
- CEO, Unmanned Solution. (2007~2012)
- Chairman, Kookmin University, Automobile Technology Research Center. (2009~2012)
- Chairman, Kookmin Unmanned Vehicle Robot Research Center. (2008~2009)
- Postdoc, RIST Robotics Laboratory, POSTECH.

RESEARCH AREAS
- Standardization & Architecture for Autonomous Vehicle.
- Autonomous Vehicle to Infrastructure System.
- System Integration for Autonomous Vehicle.
- Data Processing and Management about Perception/Localization/Planning/Control.
- Advanced Driver Assistance System.
- Sensor Network Technologies about Autonomous System.

RESEARCH ACTIVITIES
- Autonomous Vehicle Competition, Funded by NGV. (2009~Present)
- Steering System Design for Autonomous Driving of Online Electric Vehicle, Funded by KAIST. (2009)

Laboratory
KUL, Unmanned Vehicle Research Lab.
http://kul.kookmin.ac.kr

Jung-ha Kim
Professor

PROFESSOR

PROFESSOR PROFILES

Graduate School of Automotive Engineering

EDUCATION
- Pennsylvania State University, Mechanical Engineering, Ph. D.
- University of Nebraska-Lincoln, Mechanical Engineering, M.S.
- Seoul National University, Mechanical Engineering, B.S.

EXPERIENCE
- Professor, College of Automotive Engineering, Koekmin University (1994~Present)
- Dean, Graduate school of Automotive Engineering, Kookmin University (2011~2012)
- President, Korean Society of Automotive Engineers (2017)
- Vice President, General Affairs and Management at Kookmin University (2006~2007, 2012~2013)
- Member, Automotive Manufacturing Defects Evaluation and Assessment Committee of Ministry of Land, Infrastructure and Transport (2013~2018)
- Member, Korea Auto Forum (2012~Present)
- Member, Strategic Committee for Automotive Component Technology Development at Ministry of Industry and Trade (2012~2016)

RESEARCH AREAS
- Green car technologies
- HSDI diesel & GDI engines
- Alternative energy vehicles
- Gasoline/Diesel after-treatment systems
- Turbulent combustion and applications
- Laser-based combustion analysis
- Numerical analysis for heat & flow

RESEARCH ACTIVITIES
- "Development of the 800 kPa Fuel System of a High Pressure Precision Control for NGV", funded by Ministry of Trade, Industry and Energy (2015~Present)
- "Development of Ethanol Flex-Fuel Vehicle with Turbocharging and Direct Injection Technology", funded by Ministry of Environment (2016~Present)
- "Development of Conversion Technology for Dual Fuel(natural gas/diesel) of Diesel Medium Duty Vehicle", funded by KETEP (2017~Present)

Laboratory
Environmentally-Friendly Engine Lab.
http://enginelab.kookmin.ac.kr

Yong-Seok Cho
Professor
**PROFESSOR PROFILES**

### Kihong Park

**Laboratory**

Intelligent Vehicle Design Lab.

http://control.kookmin.ac.kr

**EDUCATION**

- Cornell University, Mechanical & Aerospace Eng., Ph.D.
- Cornell University, Mechanical & Aerospace Eng., M.S.
- Seoul National University, Mechanical Design & Production Eng., B.S.

**EXPERIENCE**

- Dean, Graduate School of Automotive Eng., Kookmin University. (2018–Present)
- Dean, College of Automotive Eng., Kookmin University. (2018–Present)
- Dean, Graduate School of Automotive Industry, Kookmin University. (2018–Present)
- Council Member & Korea Delegate, FISITA. (2012–2016)
- Director, Industry 4.0 Leading University Project (Autonomous Vehicle), Ministry of Education. (2019–Present)
- Postdoctoral Associate, Department of Computer Science, University of Minnesota. (2014–2015)

**RESEARCH AREAS**

- Integrated Chassis Control System (Brake, Steering, Suspension)
- Advanced Driver Assistance System.
- Autonomous Vehicle and Connected Vehicle.
- Validation and Verification of Vehicle Safety. (ISO 26262, SOTIF)

**RESEARCH ACTIVITIES**

- Collaboration Lab, Hyundai Motor Co. (Test & Validation of Autonomous Vehicles) (2019–Present)
- Truck Platooning with V2X Communication, Ministry of Transportation. (2018–Present)
- Fail Safety Validation for Autonomous Vehicles in Urban Driving, Ministry of Transportation. (2019–Present)
- Design of EV Dynamics Model and HILS Validation, Hyundai Motor Co. (2019–Present)

### Sang Hun Lee

**Laboratory**

Intelligence and Interaction Lab.

http://control.kookmin.ac.kr

**EDUCATION**

- Seoul National University, Mechanical Design & Production Eng., Ph.D. (1993)
- Seoul National University, Mechanical Design & Production Eng., M.S. (1988)
- Seoul National University, Mechanical Design & Production Eng., B.S. (1986)

**EXPERIENCE**

- Kookmin University, Professor. (1996–Present)

**RESEARCH AREAS**

- Artificial Intelligence (AI) for Autonomous Vehicles.
- Human-centered Intelligent or Autonomous Vehicles.
- Human-Machine Interaction (HMI) & Human-vehicle Interaction (HVI).
- Naturalistic Driving Study. (NDS)
- Computer-aided Design & Manufacturing. (CAD/CAM)

**RESEARCH ACTIVITIES**

- Computer-aided Design & Manufacturing. (CAD/CAM)
- Naturalistic Driving Study. (NDS)
- Human-Machine Interaction (HMI) & Human-vehicle Interaction (HVI).
- Human-centered Intelligent or Autonomous Vehicles.
- Artificial Intelligence (AI) for Autonomous Vehicles.

**EDUCATION**

- Seoul National University, Mechanical Design & Production Eng., Ph.D. (1993)
- Seoul National University, Mechanical Design & Production Eng., M.S. (1988)
- Seoul National University, Mechanical Design & Production Eng., B.S. (1986)

**EXPERIENCE**

- Kookmin University, Professor. (1996–Present)

**RESEARCH AREAS**

- Artificial Intelligence (AI) for Autonomous Vehicles.
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**RESEARCH ACTIVITIES**

- Computer-aided Design & Manufacturing. (CAD/CAM)
- Naturalistic Driving Study. (NDS)
- Human-Machine Interaction (HMI) & Human-vehicle Interaction (HVI).
- Human-centered Intelligent or Autonomous Vehicles.
- Artificial Intelligence (AI) for Autonomous Vehicles.
PROFESSOR PROFILES
Graduate School of Automotive Engineering

Si Youl Jang
Professor

EDUCATION
- Seoul National University, Mechanical Design, M.S. (1988)
- Seoul National University, Mechanical Design, B.S. (1986)

EXPERIENCE

RESEARCH AREAS
- Intelligent Electrified Transmission Design (Automatic TM, CVT, DCT, DHT Design & Control)
- Hybrid Power Transfer System in Automobile.
- Sealing System for Fuel Cell Stacking System.
- Electrified Powertrain Dynamics and Tribo-system Control.
- Clutch Torque Transfer Control in Automobile System. (Hyundai Collaborative Research Center)

RESEARCH ACTIVITY
- Frictional Torque Characteristics on the Slip-porous Boundary of Wet Friction Pad. (NRF)
- Lubricated Contact Characteristics of Engineered 3D Tribo-contact Surfaces. (NRF)
- Boundary-Elastohydrodynamic Lubrication System. (Korea-Czech Republic, Int.-collaboration Research)
- Elastohydrodynamic Lubrication System in Automobile Powertrain. (Korea-Urv. of Leeds UK, Int.-collaboration Research)
- Anti-shudder Lock-up Clutch Design in High Performance Torque Converter. (Valeo-KAPEC, Co.)
- Continuously Variable Transmission Design. (Hyundai Dymos-powertec, Co.)
- Wet Type Dual Clutch Transmission (DCT) Development. (Hyundai Dymos-powertec, Co.)
- Torque Converter Development in High-stage Automatic Transmission System. (Valeo-KAPEC, Co.)
- Optimized Lubrication Circuit Design in Powertrain System. (Hyundai Motors Co.)
- Main-Shaft System Design in DCT. (Hyundai Motors, Co.)
- Piston Ring Design for High Fuel Efficiency. (Hyundai Motors, Co.)
- Mutigrade Lubricant Design for Fuel Efficiency in Powertrain System. (GS-caltex, Co.)
- Sealing System for Fuel Cell Stacking System. (Hyundai Motors, Co.)
- Clutch Torque Transfer Control in Electricified Automobile System. (Hyundai Collaborative Research Center)
- Wet Single Clutch Engagement Behaviors in DCT System, IJAT.

Hyung-Seok Kook
Professor

EDUCATION
- Purdue University, Mechanical Eng., Ph.D.
- Seoul National University, Mechanical Design & Production Eng., M.S.
- Seoul National University, Mechanical Design & Production Eng., B.S.

EXPERIENCE
- Professor, Kookmin University. (1998~Present)
- University of Florida, Visiting Scholar. (2006~2007)

RESEARCH AREAS
- Researches on NVH Test & Evaluation Procedures.
- Simulation and Synthesis of Wind, Road Noises. (NVH Simulator)
- Control of Noise and Vibration.
- Sunroof Active Noise Control.
- Development of New NVH Measurement & Test Methods.
- Design of Arrays of Microphones for Acoustic Beamforming.
- Visualizations of Sound Field Using an Array of Microphones.

RESEARCH ACTIVITY
- “Sunroof Active Noise Control Technique” Funded by Hyundai-Kia Motors. (2008~2009)
EDUCATION
· Waseda University, Mechanical Eng., Ph.D.
· Kookmin University, Mechanical Eng., M.S.
· Kookmin University, Mechanical Eng., B.S.

EXPERIENCE
· Kookmin University, Professor. (2005.3)
· Waseda University, Teaching Assistant. (2000~2002)

RESEARCH AREAS
· Thermal Dynamics.
· Spray & Combustion Visualization.
· Internal Combustion Engine & Alternative Fuel Engine.
· PM & NOx emission After-treatment System. (ENT, SCR, DPF)
· Unmanned Aerial Vehicle Reciprocating Engine & Gas Turbine Engine.

RESEARCH ACTIVITIES

LABORATORY
· Green Power Lab.

Phone: +82-2-910-4819
http://greenpower.ac.kr

Seang-Wock Lee
Professor

[Visualization of Fuel Spray & Combustion]
[After-Treatment System for Diesel Engine]

PROFESSOR PROFILES

EDUCATION
· Seoul National University, Naval Architecture and Ocean Eng., M.S. (1999~2001)
· Seoul National University, Naval Architecture and Ocean Eng., B.S. (1993~1999)

CAREER
· Professor, Automotive Eng., Kookmin University. (2010~Present)
· Visiting Scholar, University of California Berkeley. (2016)
· Senior Research Scientist in Center for Cognitive Robotics, Korea Institute of Science & Technology (KIST) (2007~2010)
· Postdoctoral Researcher in Center for Collaborative Control of Unmanned Vehicles in University of California Berkeley. (2006~2007)

RESEARCH AREAS
· Autonomous Driving.
· Advanced Driver Assistance System.
· Automotive Radar Tracking Algorithm.
· Nonlinear Model Predictive Control.
· Probabilistic Data Association Filter.
· Multiple Sensor Fusion.

RESEARCH ACTIVITIES
· 2018 International Student Automated Driving Competition, Ministry of Trade, Industry and Energy.

LABORATORY
· Vehicle Intelligence Laboratory

Phone: +82-2-910-4671
http://vilab.kookmin.ac.kr

Yeonsik Kang
Professor

[Data Driven Model Predictive Control Architecture]
[Autonomous Vehicle Experimental Platform]
PROFESSOR PROFILES

Professor
Woongchul Choi

Graduate School of Automotive Engineering

EDUCATION
- The Ohio State University, Mechanical Eng., Ph.D.
- The Ohio State University, Mechanical Eng., M.S.
- Seoul National University, Mechanical Eng., B.S.

EXPERIENCE
- Full Professor, Kookmin University. (2010~Present)
- Adjunct Professor, The Ohio State University. (2003~2010)

RESEARCH AREAS
- System Integration for xEV Applications.
- Evaluation and Prediction of Battery Performance and Durability Characteristics.
- Energy Storage Modeling for Predictive Durability Analysis.
- Smart E-bus with Battery Swapping Technology.
- Battery Thermal Management System.
- SOC Measurement Technique with Impedance Tracking Algorithm.

RESEARCH ACTIVITIES
- "System Level Benefit Analysis based on the Cell Level Thermal Management System Utilizing Graphite based New Material, SKC. (2017~2018)
- "Renovation of Used 1-Ton Truck Equipped with Bi-Directional OBC to Function as an ESS for Microgrid System", Starion. (2017~2018)
- "Research to Analyze the Effects of Current Flow Improvement Device to a Li-Ion Battery Cells", MSS. (2017~2018)
- "Bi-directional Quasi Z Source Inverter for EV Traction Applications", Joint R&D Project with the Ohio State University. (2011~2012)
- "A Mini-scale Eco-system Modeling Consisting of a (1) EV, (2) a Residential Electric Load Profile, (3) a Wind Turbine, (4) Photovoltaic Panels, (5) Batteries for Residential Applications", Joint R&D Project with the Ohio State University. (2010~2012)

Laboratory
xEV Systems Lab.
http://xev.kookmin.ac.kr

Professor
Geun-Ho Lee

Graduate School of Automotive Engineering

EDUCATION
- Hanyang University Automotive Eng., Ph.D.
- Hanyang University Electric Eng., M.S.
- Hanyang University Electric Eng., B.S.

EXPERIENCE
- Kookmin Univ. Automotive Eng., Dept. (2011~)
- Gyeongnam Provincial College. (2002~2011)

RESEARCH AREAS
- AC Motor Control. (IPMSM, Induction Motor)
- Power Electronics. (Inverter H/W Design)
- Motor Driver S/W.
- DSP Application.
- Motor Control for Hybrid Vehicle & Electric Vehicle.

RESEARCH ACTIVITIES
- Development of IPMSM Drive Logic. (2017, Hyundai Autron)

Laboratory
Electric Motor Control Lab.
http://motor.kookmin.ac.kr
**Heung-Kyu Kim**

**Professor**

**Educaiton**
- Seoul National University, Mechanical and Aerospace Eng., Ph.D.
- Seoul National University, Mechanical Design and Production Eng., M.S.
- Seoul National University, Mechanical Design and Production Eng., B.S.

**Experience**
- Professor, Kookmin University. (2012–Present)
- Senior/Principal Researcher, Korea Institute of Industrial Technology. (2003–2012)

**Research Areas**
- Structural Analysis & Optimal Design of Automotive Components.
- Development of Advanced Finite Element Analysis Technique Using Multi-scale Material Models. (Crystal Plasticity & Strain-gradient Models)

**Research Activities**
- Development of Higher-order Hypoelastic Constitutive Model & Durability Analysis Technology for Reliable Prediction of Rubber Part Life, Funded by Ministry of Education. (2017–)
- Development of Finite Element Program based on Strain Gradient Crystal Plasticity for Prediction of Grain Deformation, Funded by Ministry of Education. (2013–2016)

**Laboratory**

Structure & Forming Design Laboratory

http://forming.kookmin.ac.kr

**Sung-Hwan Shin**

**Professor**

**Educaiton**
- KAIST, Mechanical Eng., M.S. (1999)

**Experience**
- Associate Professor, Kookmin University. (2013–Present)
- Post Doctoral Researcher, Seikei University. (2005–2008)

**Research Areas**
- Product Sound Quality, Psycho-acoustics.
- Noise & Vibration Control (NVH)
- Machinery Monitoring & Diagnostics.
- Signal Processing, Pattern Recognition, Room Acoustics, Reproduction System.

**Research Activities**

**Laboratory**

Applied Acoustics and Vibration Control Lab.

http://a3vc.kookmin.ac.kr
PROFESSOR
PROFILES

Graduate School of Automotive Engineering

EDUCATION
- MIT, Aeronautics & Astronautics, Ph.D.
- MIT, Aeronautics & Astronautics, S.M.
- Seoul National University, Mechanical & Aerospace Eng., B.S.

EXPERIENCE
- Associate Professor, Kookmin University. (2016~Present)
- Assistant Professor, Kookmin University. (2013~2016)
- Research Associate Professor, Naval Postgraduate School. (2011~2013)

RESEARCH AREAS
- Human-Vehicle Interaction.
- Automated Driving HMI. (Human-machine Interaction)
- Active Safety for Ground and Aerial Transportation Systems.
- Fatigue Detection & Analysis.

RECENT R&D ACTIVITIES

Ji Hyun Yang
Professor
Laboratory
Humans and Vehicle Automation Laboratory
http://huva.kookmin.ac.kr/

PROFESSOR
PROFILES

Graduate School of Automotive Engineering

EDUCATION
- Seoul National University, Computer Science and Eng., Ph.D. (2013)
- Seoul National University, Computer Science and Eng., M.S. (2001)
- Seoul National University, Computer Science, B.S. (1999)

EXPERIENCE
- Associate Professor, Kookmin University. (2016~Present)
- Assistant Professor, Kookmin University. (2014~2016)
- Chief Research Engineer, TmaxSoft. (2002~2008)

RESEARCH AREAS
- Real-time Embedded Systems.
- Cyber-physical Systems.
- AUTOSAR Software Architecture Optimization.
- Multicore Software Architecture Optimization

RESEARCH ACTIVITIES
- Development of Safety Driving Control Technology for Platooning Trucks, Funded by Ministry of Land, Infrastructure & Transportation. (2018.4~2021.12)
- Resilient Cyber-physical Systems Research Center, Funded by Ministry of Science and ICT. (2017.3~2021.12)
- Model-based Automotive Software Architecture Optimization for Multicore ECUs, Funded by NRF. (2017.3~2020.2)

Jong-Chan Kim
Professor
Laboratory
Automotive Embedded Software Lab.
http://avees.kookmin.ac.kr
**PROFESSOR PROFILES**

**Graduate School of Automotive Engineering**

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**Professor Sejoon Lim**

**EDUCATION**
- MIT, Electrical Eng. & Computer Science, Ph.D.
- MIT, Electrical Eng. & Computer Science, M.S.
- Seoul National University, Electrical Eng., B.S.

**EXPERIENCE**
- Kookmin University, Associate Professor. (2019~Present)
- Kookmin University, Assistant Professor. (2015~2019)
- Oracle USA, Senior Member of Technical Staff. (2012~2015)

**RESEARCH AREAS**
- Artificial Intelligence Application to Autonomous Driving.
- Vehicle & Mobility Big Data Analysis.
- Prediction & Recognition for Driving Environments.
- Intelligent Transportation Systems.

**RESEARCH ACTIVITIES**
- Development of Collision Risk Assessment Algorithm based on Artificial Intelligence, Funded by Hyundai Autron. (2018~Present)
- Establishment of Development Direction through Discovery of Autonomous Driving Scenarios, Funded by Hyundai NGV. (2018~Present)
- Development of Autonomous Vehicle Control Technology based on Driving Intention Prediction using Artificial Intelligence, Funded by Ministry of Science and ICT. (2017~Present)
- Research of Complexity According to Self-driving Level Mixed Situation, Funded by Hyundai NGV. (2016~2017)

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**Professor Jin Woo Yoo**

**EDUCATION**
- POSTECH, Electronic Electrical Eng., Ph.D.
- POSTECH, Electronic Electrical Eng., M.S.
- POSTECH, Electronic Electrical Eng., B.S.

**EXPERIENCE**
- Assistant Professor, Kookmin University. (2019~Present)
- Senior Engineer, Samsung Research of Samsung Electronics. (2017~2019)
- Senior Engineer, DMC Research Center of Samsung Electronics. (2015~2017)

**RESEARCH AREAS**
- Signal/Image Processing Technologies for Autonomous Driving.
- Simultaneous Localization & Mapping (SLAM)
- Path Generation & Following for Planning.
- Practical Filtering Theories.
- Adaptive Noise/Echo Cancellation & System/Channel Estimation.

**RESEARCH ACTIVITIES**
- Real-time Visual SLAM Algorithm through IMU/GPS Integration.
- Lidar-based Intersection Negotiation Algorithm.
- Improved Version of Pure Pursuit Algorithm.
- IPMSM Inductance Parameter Estimation Via Kalman Filter.
- Online Camber Measurement System based on Feature-based Image Stitching Technique.
FULL-TIME INSTRUCTOR PROFILES

PROFESSORS SPECIALIZING IN LECTURES

Prof. Sang Beom Lee       MAJOR
Vehicle Structural Analysis & Optimum Design

Prof. Kangjun Lee         MAJOR
Digital Image Processing, Computer Vision

Prof. Dongheon Lee        MAJOR
Mechanism and Design

PROFESSORS SPECIALIZING IN INDUSTRIAL COLLABORATION

Prof. Jae Uk Kim          MAJOR
Mechanical Engineering

Prof. Kyung-Hoon Chung    MAJOR
MBA (Master of Business Administration)

Prof. Hyunsoo Jang        MAJOR
Structural Strength Analysis & Optimal Design

Prof. Geon Soo Han        MAJOR
Precision Mechanical Engineering

Prof. Keunhaeng Kim       MAJOR
Information Technology Policy Management

COLLABORATION PARTNERS

Graduate School of Automotive Engineering