

College Of Engineering

Gangneung-Wonju National University

The best in the central region
Leading University for Education and Industry Cooperation
Gangneung-Wonju National University



Welcome Message from the Dean of the College of Engineering



Dear Prospective Graduate Students,

Warm greetings from the College of Engineering at Gangneung-Wonju National University in South Korea.

It is a great honor and sincere pleasure to welcome talented students from Chiang Mai University who are considering graduate studies and academic exchange with us. Our college is deeply committed to fostering global partnerships, and we are especially excited to strengthen academic collaboration with one of Thailand's leading institutions.

At Gangneung-Wonju National University, the College of Engineering offers diverse and forward-looking graduate programs supported by state-of-the-art facilities and dedicated faculty members. Whether your passion lies in advanced technologies, sustainable development, or interdisciplinary innovation, we provide an environment where you can grow, lead, and make meaningful contributions to your field.

We place great value on international exchange, and we believe that the perspectives and creativity of students from Chiang Mai University will enrich our academic community. Together, we can address the challenges of the future and build lasting academic and cultural connections.

I warmly invite you to explore the Master's or Ph.D. opportunities that await you at our college. We look forward to welcoming you to our campus and supporting your academic journey here in Korea.

Warm regards,

Dr. WooYoung Jung

Dean, College of Engineering
Gangneung-Wonju National University
Gangneung, 25457, South Korea



College of Engineering

The College of Engineering aims to train science and engineering talents who will lead the development of the country's industries and equip them with international competitiveness through our engineering education courses. Today, we live in a time where 4th Industrial Revolution is at our doorstep, and the development of science and technologies is being pursued at an accelerated pace. In the present scenario, it is crucial to ensure harmony between the original technologies and practical engineering technologies. The College of Engineering at Gangneung-Wonju National University provides opportunities for practical education and participation in R&D projects. Furthermore, we encourage our students to study at overseas graduate schools to further advance their careers as global engineers or scientists.



Department of Advanced Materials and Biochemical Engineering

- Major in Advanced Ceramic and Materials Engineering
- Major in Advanced Metals and Materials Engineering
- Major in Advanced Biochemical Engineering

Department of Electronics and Semiconductor Engineering

- Major in Electronics Engineering
- Major in Semiconductor Engineering

Department of Smart Infrastructure Engineering

- Major in Civil and Environmental Engineering
- Major in Smart Spatial Information





Department of Advanced Materials and Biochemical Engineering

· Major in Advanced Ceramic and Materials Engineering

Our Advanced Ceramic and Materials Engineering Major program aims to educate professional ceramic materials engineers who are equipped with a sound understanding of the basics of materials engineering. For this, we provide courses in materials thermodynamics, materials science, physical properties of materials, phase transformation of materials, and other areas of expertise. In addition, we have an active cooperation program with tenant companies in the Gangneung Science Industrial Complex to provide our students with opportunities for gaining experience with the equipment through on-the-job training.

· Major in Advanced Metals and Materials Engineering

Our Advanced Metals and Materials Engineering program is founded upon an interdisciplinary approach to engineering in which various materials and components are applied to different fields. This major covers the topics necessary for developing new materials, such as atom-level reactions, designing alloys, changing manufacturing processes, controlling micro-level tissues of materials, understanding the physical properties of materials, and connecting science and engineering.

· Major in Advanced Biochemical Engineering

Advanced Biochemical engineering is a discipline that applies the principles of physics, chemistry, and biology to develop chemical processes that are in harmony with the environment and life. We aim to produce high-value materials that are useful for humans and resolve environmental issues, devoting ourselves to developing the new future-oriented technologies that will enable humanity to maintain a clean environment and allow sustainable growth.



Department of Electronics and Semiconductor Engineering

In order to train and educate technologists who can respond to the changing times ushered in by 4th Industrial Revolution, we operate a field-oriented educational program so that our students can learn the basics of electronics engineering and semiconductors engineering and apply their knowledge in the field, contributing to the advancement of local industries and growth of the national economy.

· Major in Electronics Engineering

· Major in Semiconductor Engineering



Department of Smart Infrastructure Engineering

The Department of Smart Infrastructure Engineering is an essential discipline that pursues knowledge and skills in planning, designing, and building social infrastructures such as buildings, roads, railways, water systems, bridges, tunnels, embankments, dams, ports, and more. The Department of Smart Infrastructure Engineering studies not only the ideal placement of such infrastructures but also national land use planning, development of housing districts, energy development, and more as we seek co-existence between humans and nature.

· Major in Civil and Environmental Engineering

· Major in Smart Spatial Information



College of Science and Technology

The College of Arts and Physical Education trains experts in the fields of arts and physical education who can enhance the quality of life and further contribute to the progress of human culture. The areas of arts and physical education require harmony between effort and talent, the development of skills that are required of experts, as well as continued self-enhancement. The College of Arts and Physical Education at Gangneung - Wonju National University supports artists with potential who can create a new culture and offers advanced education programs that foster new talents who can be competitive leaders in the field of physical education.



Department of
Computer Sciences
& Engineering
Department of
Multimedia
Engineering
Department of
Electrical Engineering
Department of
Information and
Telecommunication
Engineering
Department of
Mechanical
Engineering
Department of
Automotive
Engineering
Department of
Industrial
and Management
Engineering



Department of Computer Sciences & Engineering

The Department of Computer Sciences & Engineering teaches theories and practical skills related to the utilization and application of computers, from the basic operating principles of hardware constituting a computer to the development of application software in specific areas with human needs. With a curriculum approved by the Accreditation Board for Engineering Education of Korea, students can learn various engineering technologies such as system software, scientific calculation, business processing, and information system at the Department of Computer Sciences & Engineering.

Department of Multimedia Engineering

The Department of Multimedia Engineering trains information experts who can serve as leaders in today's information society, and contribute to the development of the multimedia content industry based on their understanding of the basic characteristics of computers and multimedia. To this end, the Department helps students reinforce their skillset for international applications and information processing ability by learning basic theories and practicing how to apply what they have learned inside the classroom to real-world situations.

Department of Electrical Engineering

The Department of Electrical Engineering is where our students acquire various skills related to electrical energy and are trained to become high-level technical experts who will lead advanced industries such as renewable energy, artificial intelligence, and E-Mobility. For this purpose, we provide creative and professional education and practical field-oriented classes together so that students can respond to the rapidly expanding horizons of science and technologies in a proactive manner.

Department of Information and Telecommunication Engineering

The Department of Information and Telecommunication Engineering trains experts in high-tech systems capable of designing convergence

products and using ubiquitous network applications, which have become much more important in today's fast-moving information society. In particular, students who have completed courses on wireless

mobile devices and convergence product technology are expected to play a pivotal role in tomorrow's new industries.

Department of Mechanical Engineering

The Department of Mechanical Engineering, which played a leading role in the development of engineering overall, teaches students the basic theories and applied technologies required when designing, manufacturing, and operating various machinery. The curriculum is divided into the energy conversion, CAD/CAM, automobile, mechatronics, and medical machinery to support creative thinking.

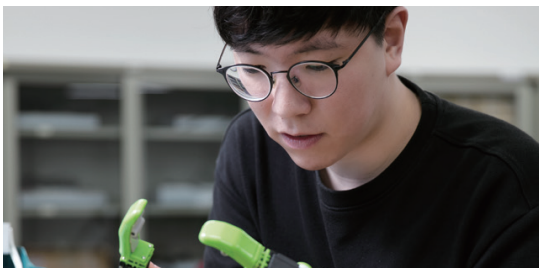
Department of Automotive Engineering

The Department of Automotive Engineering has earned us recognition

as the best university in the field of automotive engineering in the evaluation of universities from the perspective of industries. Our systematic educational programs allow students to obtain expertise in engineering and skills related to designing, assembly, simulation, overall automotive systems, and operation of individual components. Our goal is to cultivate automotive engineers with creativity and true passion, equipped with the core technologies and practical job skills for future automobiles.

Department of Industrial and Management Engineering

The Department of Industrial and Management Engineering pursues advanced studies in the management of industries and information technology. We combine the principles of business management with engineering technologies to help students develop the skills to enhance the values of their products and services. These skills can make various contributions not only to traditional manufacturing industries but also to information technologies, finance, logistics, and other service sectors, making them even more important for the future.





Introduction of Leading Research Labs



Advanced Functional & Innovative Materials Laboratory (AFIM Lab)

Department of Advanced Materials and Biochemical Engineering



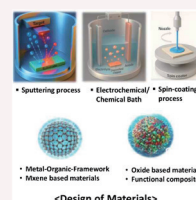
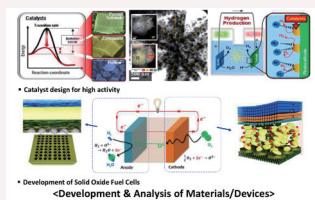
Ahn, Cheol-Hyoun

Professor

- 2023 ~ Present Assistant Professor at Gangneung-Wonju National Univ.
- 2024 ~ Present Gangwon Branch Manager, The Korean Institute of Electrical and Electronic Materials Engineering
- 2025 ~ Present SQF-based university Curriculum Accreditation(Ceramics) Development Committee member, Korea Ceramic Research Association
- 2019 ~ 2023 Research Professor at Sungkyunkwan Univ.
- 2015 ~ 2018 Research Fellow at Sungkyunkwan Univ.
- 2005 ~ 2006 Researcher at Korea Electronics Tech. Inst.

Research Interests

- Functional and innovative materials for next-generation energy storage devices
- Electrocatalysts and Photoelectrocatalysts for Water splitting or Carbon dioxide reduction
- Design and development of functional materials for Fuel Cells
- Semiconductor materials for sensor Applications



Projects

- Title: Design of conductive 2-dimensional metal-organic-framework based nanoarchitecture as a multifunctional electrode materials for renewable energy conversion/storage devices
- Resource : National research Foundation (Basic Science Research program) - Period : 2022 ~ 2025
- Title: Development of sputtering process for hybrid thin-film solid oxide fuel cells
- Resource : Gangwon Regional Institute of industrial Advancement - Period : 2025 ~ 2026

Performances [SCI paper 83; H-index 26; i10-index 53; Citations 2,902]

- "Rational design of a Co/MoO-embedded 2D nitrogen-doped Carbon/Carbon nanotube hybrid catalyst for efficient oxygen catalysis and high-capacity Zn-air batteries", ACS Applied Energy Materials 7 (2024) 8503-8514
- "Multiple functional biomolecule-based metal-organic-framework reinforced polyethylene oxide composite electrolytes for high-performance solid-state lithium batteries", Journal of Power Sources 557 (2023) 232528
- "Design of Bronze-rich dual-phasic TiO₂ embedded amorphous carbon nanocomposites derived from Ti-metalorganic-frameworks for improved lithium-ion storage", Small methods 6 (2022) 2201066
- "Design of hydrangea-type Co/Mo bimetal MOFs and MOF-derived Co/Mo₂C embedded carbon composites for highly efficient oxygen evolution reaction", Chemical Engineering Journal 435 (2022) 134815
- "Energy transfer-induced photoelectrochemical improvement from porous zeolitic imidazolate frameworkdecorated BiVO₃ photoelectrodes", Small methods 5 (2021) 2000753



AICL (Advanced Information & Communication Lab)

Department of Electronics and Semiconductor Engineering



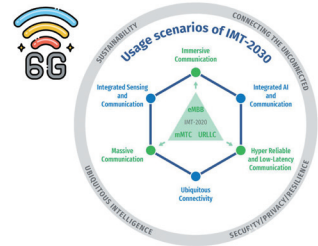
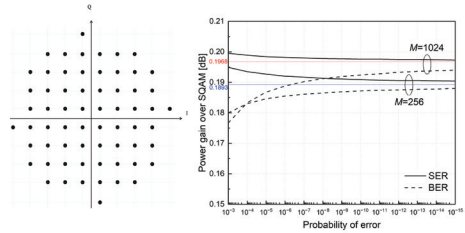
Park, Sung-Joon

Professor

- 1992.3 - 1996.2: B.S. (Radio Science Engineering), Yonsei University
- 1996.3 - 1998.2: M.S. (Electrical Engineering), KAIST
- 1998.3 - 2004.2: Ph.D. (Electrical Engineering), KAIST
- 2003.9 - 2005.3: Senior Engineer, Samsung
- 2005.4 - Present: Professor (Electronic & Semiconductor Eng.), GWNU

Research Interests

- Advanced Algorithms for Digital Communications
- AI/ML-based PHY/MAC Algorithms
- Mobile/Wireless Communication Systems
- AIoT and Edge AI



Current Projects

- Research on Energy Efficient High-Speed Data Transmission Techniques
- Optimization and Intelligence of Transmission Efficiency based on Bit Labeling and Bitwise Log-Likelihood Ratio Analysis
- Research and Development of Distributed AIoT Systems
- Diagnosis and Monitoring Systems Using Smart Oral Devices





Biomolecular Engineering Lab.

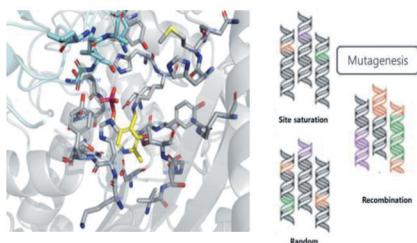
Department of Advanced Materials and Biochemocal Engineering



Yeon, Young-Joo

Professor

- Education
 - 2014. Ph.D. Chem. & Biol. Eng. Seoul National Univ.
 - 2002. M.S. Appl. Chem., Seoul National Univ.
 - 2000. B.S. Chem. Eng., Yonsei Univ.
- Career
 - 2016–Present. Gangneung-Wonju National Univ., Professor
 - 2008–2010. Samsung SDI, Senior Researcher
 - 2005–2006. LG Chem, Researcher

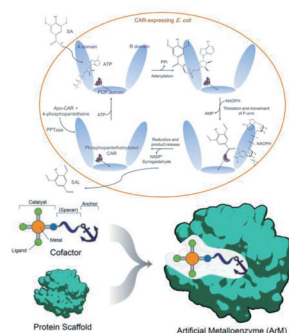


Research Interests

- In silico protein design
 - Computational modeling (Docking, MD, QM)
 - AI-based de novo protein design
- Protein engineering
 - Site-directed mutagenesis
 - Directed evolution
- Development and application of biocatalysts
 - Biorefinery, bioenergy, food additives, cosmetics, pharmaceuticals

Current Projects

- Development of biocatalysts for industrial level production of bio-diols.
- Development of artificial proteins and enzymes with de novo function.
- Development of biosynthetic process for the production of green H₂
- Development of biological production system for cosmetic peptides





CONcrete structural ENG. LAB.

Department of Smart Infrastructure Engineering



Yang, Eun-Ik

Professor

• EDUCATION

Jan. 1992 - Nov. 1996: Ph.D. of Concrete structure, Kyoto University, Japan

Mar. 1986 - Feb. 1988: M.S. of Concrete structure, Korea Advanced Institute of Science & Technology(KAIST)

Mar. 1982 - Jan. 1986: BSc in Civil Engineering, Yonsei University, Korea

• PROFESSIONAL EXPERIENCE

Apr. 2000 - Present: Professor, Department of Smart Infra, Gangneung-Wonju National University, Korea

May. 1998 - Mar. 2000: Research Engineer, Korea Institute of Ocean Science & Technology (KIOST)



Concrete structures are expected to maintain their performance and appearance over a long service life, despite environmental and external stresses.

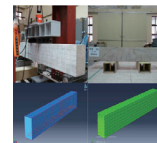
Our laboratory conducts research on the durability of mortar and concrete, structural behavior analysis, and the development of advanced functional concretes.

Through these efforts, we strive to create safer and more durable concrete structures.

Research Interests

Concrete structure and materials

- A study on the flexural and shear behavior of Reinforced-Concrete member
- A study on the Durability of concrete using functional materials
- Chloride diffusion of concrete and evaluation of corrosion
- Development of functional concrete using industrial waste



Structural experiments and analysis



Experiments of durability and mechanical properties

Selected Publications (over the last 5 years)

- IS Kim, SY Choi, and EI Yang* (2025), Evaluation of the Properties of Mortar Mixed with Multiple Hybrid Functional Materials, *Journal of Materials in Civil Engineering* 37 (4), 04025043.
- SY Choi, IS Kim, ST Kang, and EI Yang* (2025), Comparison of the flexural and flexural-bond behaviour of beams reinforced with CFRP rods with different surfaces, *Magazine of Concrete Research* 77 (1-2), 67-79.
- SY Choi, WJ Lee, and EI Yang* (2023), Estimating compressive strength of early age frost damaged recycled aggregate concrete using nondestructive evaluation techniques, *Archives of Civil and Mechanical Engineering* 23 (4), 235.
- IS Kim, SY Choi, and EI Yang* (2023), Comparison of fundamental properties and durability of mortar mixed with antibacterial functional materials, *Magazine of Concrete Research* 76 (2), 69-81.
- IS Kim, SY Choi, YS Choi, and EI Yang* (2021), Effect of Internal Pores Formed by a Superabsorbent Polymer on Durability and Drying Shrinkage of Concrete Specimens, *Materials* 14(18), 5199.
- IS Kim, SY Choi, YS Choi, and EI Yang* (2021), An Experimental Study on Absorptivity Measurement of Superabsorbent Polymers (SAP) and Effect of SAP on Freeze-Thaw Resistance in Mortar Specimen, *Construction and Building Materials*, 267, 1-14.
- SY Choi, and EI Yang* (2020), An Experimental Study on Alkali-Silica-Reaction (ASR) of Concrete Specimen using Steel Slag as Aggregate, *Applied sciences* 10(19), 6699.
- SY Choi, IS Kim, and EI Yang* (2020), An Experimental Study on the Flexural Behavior of RC Member under Long-term Calcium Leaching Degradation, *Journal of Structural Integrity and Maintenance* 1(6), 16-27.



Dynamics & Bridge Engineering Lab

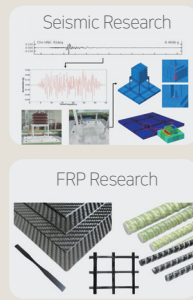
Department of Smart Infrastructure Engineering



Jung, Woo-Yung

Professor

The Dynamics & Bridge Engineering Lab specializes in seismic engineering and structural design, conducting collaborative research to enhance the earthquake resistance of structures. With advanced infrastructure for FRP reinforcement studies, we carry out comprehensive research on material properties and strengthening techniques.



Members

Careers

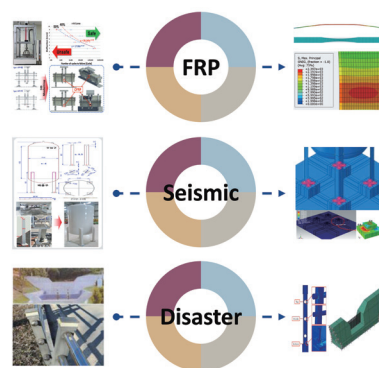
- Ph.D. in Structural and Earthquake Engineering, SUNY at Buffalo, USA
- Industry-Academia Researcher, R&D Department, An-Cor Industrial Corporation, Buffalo, USA
- Research Associate, MCEER, Buffalo, USA
- Expert Committee Member, National Emergency Management Agency, MPAS



Achievements



Research Projects



Research Infrastructure





EFDL - Environmental Fluid Dynamics Lab.

Department of Smart Infrastructure Engineering



Paik, Joong-Cheol

Professor

- Degrees
 - Ph.D. 2000, in Civil Engineering, Yonsei University
 - M.S. 1995, in Civil Engineering, Yonsei University
 - B.S. 1990, in Civil Engineering, Chungbuk National University
- Work Experience
 - 2001.03-2005.12 Research Engineer, Georgia Institute of Technology
 - 2006.01-2008.02 Research Associate, SAFL, University of Minnesota



Research Areas

- Advanced Turbulence Modeling (RANS/LES/DES)
- Hydraulic Experiments of River & Debris Flows
- Multiphase Flows & Gravity Currents Simulations
- Flow Interaction with Hydraulic Structures
- Sediment Transport and Water Quality Modeling

Ongoing Projects

- 3D Numerical and Experimental Investigations on Turbidity Current Behavior in Stratified Water Body
- Numerical Investigation of Water Quality Improvement by Reducing Turbidity in Reservoir
- Hydraulic Evaluation and Improvement of Discharge Capability of Spillways Installed in Hydropower Dams
- 3D Lagrangian-Eulerian Numerical Modeling of Sediment-Laden Multiphase Turbulent Flows
- Innovation of Aquatic Environmental Monitoring and Integrated Management Algorithm Development

Recruitment and Contact

- Research Fields: CFD modeling, Hydraulic experiments, Indoor and Field ADCP measurements
- Preferred Skills: Python, OpenFOAM, Handling Computers and Experimental devices
- Contact: paik@gwnu.ac.kr



ENERGY & POWER LAB

Department of Mechanical Engineering

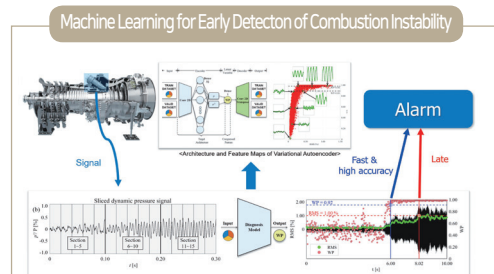
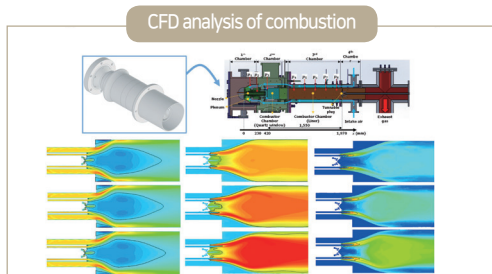
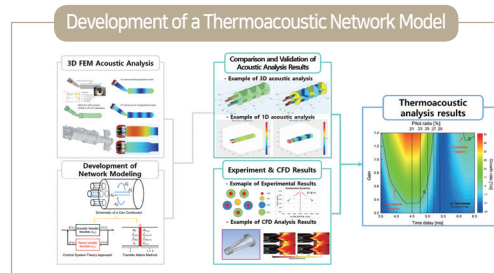
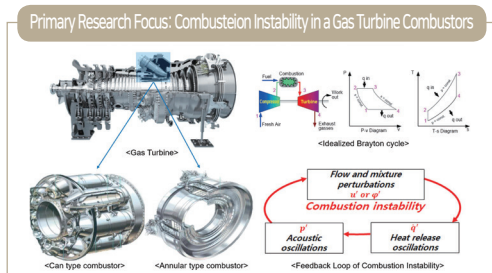


Kim, Dae-Sik

Professor

Ph.D. Dept of Mechanical Engineering, Hanyang University
 Professor, Dept of Mechanical Engineering, Gangneung-Wonju National University
 Chief Editorial Director, The Korean Society of Combustion
 Editorial Director, The Korean Society of Propulsion Engineers
 Vice President, Editorial Committee Chairman, The Institute for Liquid Atomization and Spray systems-Korea
 Associate Editor, International Journal of Aeronautical & Space Sciences

Research Interests



Current Projects

- 150MW(F-Class) Gas turbines hydrogen co-firing retrofit technology development and demonstration (with Doosan Enerbility, and Korea Electric Power Corporation)
- Development of a method for testing and evaluating hydrogen turbine combustor (with Korea Institute of Machinery & Materials)
- Middle class balancing hydrogen gas turbine power generation system demonstration (with with Doosan Enerbility)
- Human Resource Program in Energy Technology (with Korea Energy Technology Evaluation and Planning)
- Afterburner development (with Hanwha Aerospace and Agency for Defense Development)



Energy Processing Lab.(EPL)

Department of Advanced Materials and Biochemocal Engineering



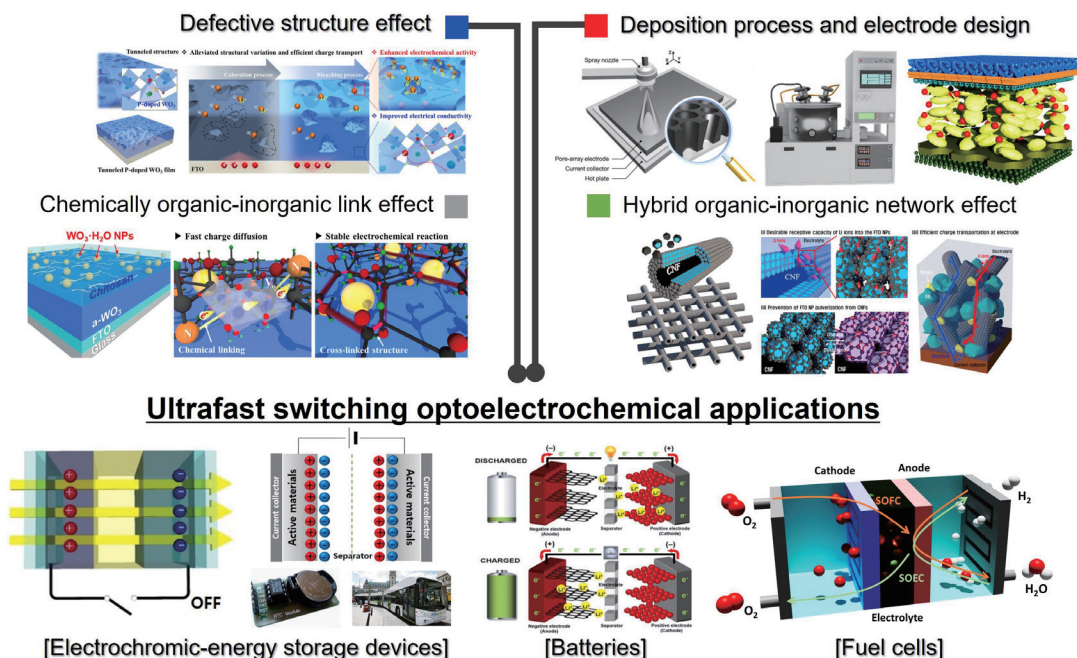
Koo, Bon-Ryul

Professor

- 2021 - 2024: Senior Researcher, Semiconductor R&D
- Center/Memory Business, Samsung Electronics
- 2019-2021: Research Fellow (Post. Doc. in Patrick Grant and Chun Huang), Department of Materials, University of Oxford
- 2007 -2019: B.S., M.S., and Ph.D. in Material Science and Engineering, Seoul National University of Science and Technology

Research Interests

- NET-ZERO materials and devices: Hybrid electrochromic energy storage devices
- Next-generation energy materials and devices: Na-ion battery, All-solid-state battery, etc
- Semiconductor materials and process: High-powered spraying, Sputtering, ALD, etc





Informatics for Infrastructure and Disaster Management Lab

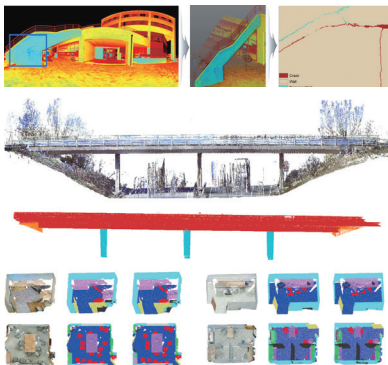
Department of Smart Infrastructure Engineering



Yum, Sang-Guk

Professor

- M.S. Texas A&M University, Texas, USA, 2013
- Ph.D. Columbia University, New York, USA, 2019
- Research Professor, Sungkyunkwan University, South Korea, 2020
- Associate Professor, Gangneung-Wonju National University, South Korea, 2021 – Current

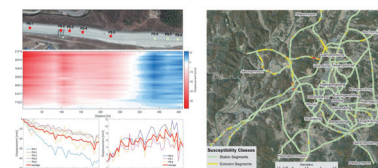
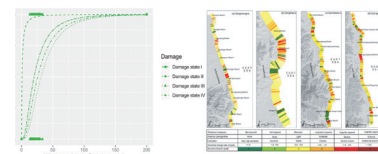
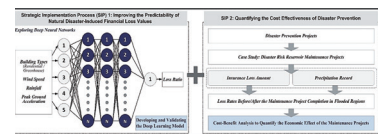


Research Interests

- Building Information Modeling (BIM)
- Construction management, risk controls, and safety
- Big data, sensing, and Artificial Intelligence
- Infrastructure Inspection, Monitoring and Management using 3D laser scanner, D-InSAR
- Catastrophe modeling and disaster prevention
- Vulnerability and Damage assessment of extreme weather events and geological disasters using statistical and deep-learning models

Current Projects

- Development of an AI construction safety management platform through the convergence of the accident prediction model enhanced with causal inference and semi-supervised learning and real-time behavior pattern recognition of worker
- Disaster prevention technology for infrastructure against extreme weather in mountain
- Big Data-driven multi-disaster risk management model for buildings and other infrastructure in major coastal cities
- Development of eco-friendly design and construction technology of debris-flow countermeasures in mountains region
- Development of advanced technology-based disaster assessment and disaster management technology in rapid slope area





Intelligent Infrastructure and Smart Construction LAB

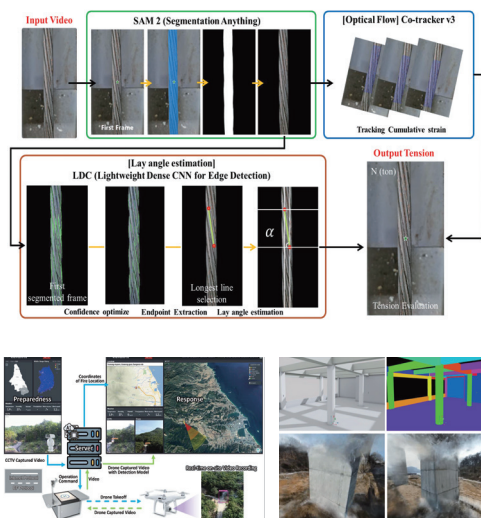
Department of Smart Infrastructure Engineering



Park, Min-Soo

Professor

Assistant Professor, Gangneung-Wonju National University (2025.03-)
 Visiting Professor, Myongji University (2024.09-2025.02)
 Postdoctoral Research Fellow, Sungkyunkwan University (2023.03-2025.02)
 : AI Institute, Center for Built Environment
 H-index: 12, Citations: 662+ (Google Scholar)
 pms5343@gwnu.ac.kr

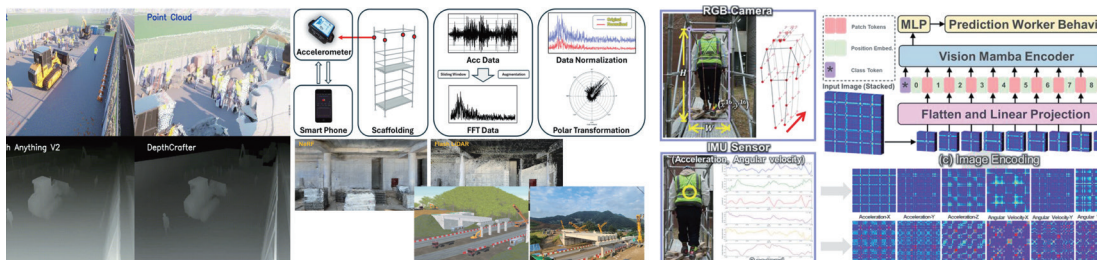


Research Interests

- Multimodal AI for Structural Health Monitoring in Civil Infrastructure
- NeRF (Neural Radiance Fields) based 3D Scene Reconstruction for Local Damage Monitoring
- Digital Twin for Construction Safety and Worker Behavior Monitoring
- Disaster Response Systems using Computer Vision and Remote Sensing

Current Projects

Development of a Safety Monitoring Solution for Temporary Structures in Bridge Construction Sites based on Digital Twin and Multi-modal





Laboratory for Machine Auditory Perception(L-MAP)

Department of Electronics and Semiconductor Engineering



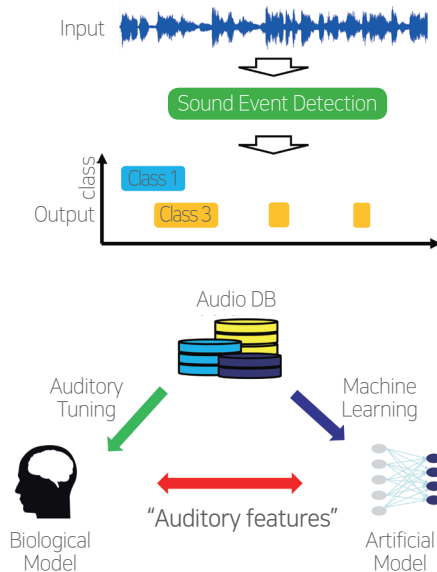
Park, Sang-Wook

Professor

- 2017.08 Ph. D. Korea Univ, South Korea
- 2017.11 ~2018.08 Research Prof., Korea Univ, South Korea
- 2018.09 ~2022.02 PostDoc Fellow, Johns Hopkins Univ, USA
- 2022.03 ~ current Assistant Prof., Gangneung-Wonju National Univ, South Korea

Research Interests

- Acoustic Signal Processing: Sound Event Detection, Acoustic Scene Classification (DCASE challenge)
- Machine Learning strategies: Semi-supervised Learning, A few-shot Learning, Federated Learning,
- Biomimetic Neural Network for Auditory Perception: Bio-inspired Models, Computational Biology
- Explainable AI: Characterization of Deep Neural Network



Current Projects

- A study of biomimetic temporal integration model for object identification applicable to ultrasonic sensor
- Bio-inspired model for 3D object shape recognition with active SONAR
- Detection and Classification of Acoustic Scenes and Events (DCASE) challenge: Sound Event Detection, Audio tagging



Laboratory of High-Strain-Rate Properties Modeling for Simulation

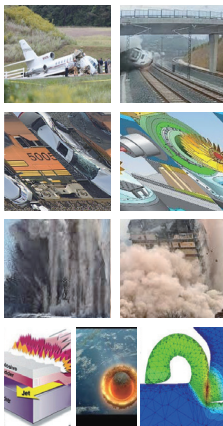
Department of Advanced Materials and Biochemol Engineering



Shin, Hyeon-Ho

Professor

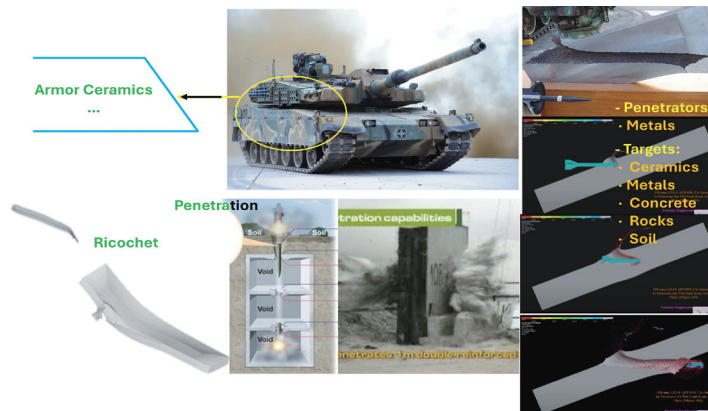
- BE & ME in Materials Eng., Korea University (1986 and 1888, respectively)
- PhD in Materials Eng., Georgia Institute of Technology (1994)
- Mechanical Eng. Research Fellow, S. Illinois University (1995-1996)
- Senor Researcher, Agency for Defense Development, S. Korea (1996-2004)
- Assist., assoc., and full prof. at Dept. of Materials Eng., Gangneung-Wonju Nat'l Univ. (2005-present)



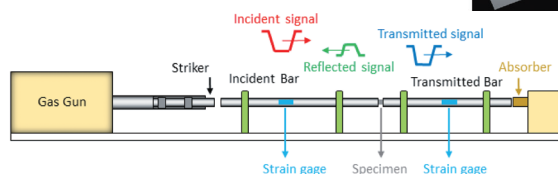
High-Strain-Rate-Phenomena

- Constitutive modeling & calibration
 - Strain rate- & temp.-dependent models
 - Constitutive models for metals, ceramics, and geomaterials
- Damage/fracture modeling & calibration
 - Stress state-, strain rate-, & temperature-dependent models
 - Damage/fracture models for metals, ceramics, and geomaterials
- Equation of state (EOS) modeling & calibration
 - EOS for metals and geomaterials (concrete, rocks, and soil)
- High-strain-rate FE/SPH simulations for solids and structures
- H-index 32; I10-index 88; Citations 3,800

Defense Phenomena



- A High-Strain-Rate Properties Measurement Instrument: Split Hopkinson bar(tension/ compression)





Microwave and RF Circuit Research Lab

Department of Electronics and Semiconductor Engineering



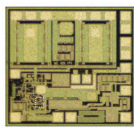
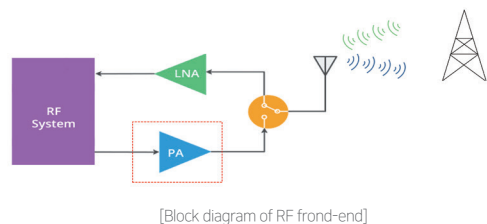
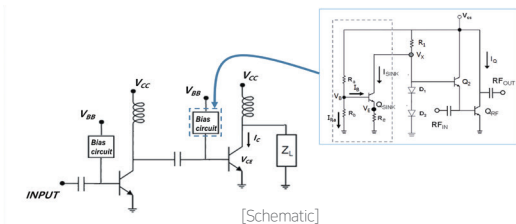
Jeon, Joo-Young

Professor

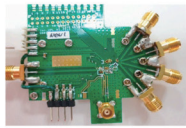
- Education and experience
Ph.D., Seoul National University
Eng. manager, Broadcom Inc.
- Research Interests
MMIC design
RF power amplifiers for mobile communication terminals

Research field

- Microwave IC design
 - MMIC (Monolithic Microwave Integrated Circuit)
- RF circuit design
 - Power amplifier module for mobile handsets



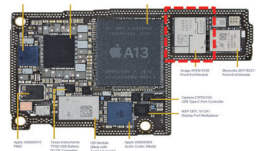
[Fabricated IC]



[Test module for verification]



[RF Front-end module]

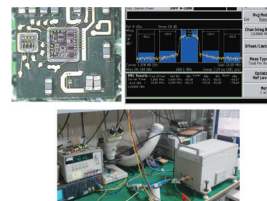
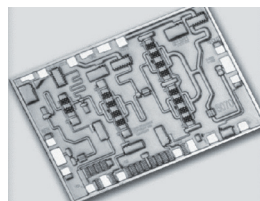
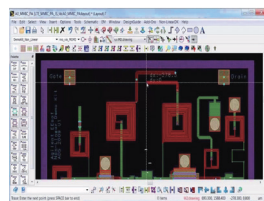
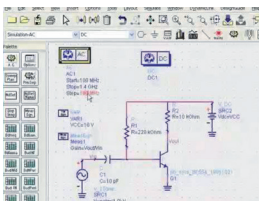


[RF FEM in a mobile handset]

- Design and verification of microwave circuits for wireless communications
- Design and verification of power amplifier circuit for mobile phones

Research process

- Circuit simulation
- Circuit Laying out
- MMIC fab.(Outsourcing)
- Circuit simulation





Pavement and Geotechnical Engineering Laboratory

Department of Smart Infrastructure Engineering



Lee, Seung-woo

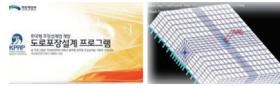
Professor

- **Education**
BS, Civil Engineering, Yonsei University, 1987
MS, Civil Engineering, State University of New York at Buffalo, 1989
Ph.D, Civil Engineering, Pennsylvania State University, University Park, 2000
- **Professional and Academic Experience**
2014.2 - 2016.2 Dean of Engineering School, GWNU
2018.3 - 2019.2 Chair of Road Engineering Committee of Korean Society of Civil Engineering
2018.9 - 2020.8 Director of Disaster-Prevention Research Center
2020.3 - 2021.2 President of Korean Society of Road Engineer

Main Research

• Pavement Structure Research

- Development of design standards for discontinuities in concrete pavements
- Behavior analysis of concrete and asphalt pavements through numerical and experimental methods



• Pavement Maintenance and Rehabilitation

- Development of in-place recycling and base-layering methods for deteriorated concrete pavements
- Development of concrete pavement overlay and reconstruction techniques
- Research on eco-friendly deicing agents and winter road maintenance methods



• Ground Improvement

- Development of non-shrink cement-stabilized base
- Development of ground and slope stabilization
- Research on improvement of road drainage systems



• Improving Road Performance

- Development of a ride quality prediction model
- Development of Exposed Aggregate Concrete Pavement and Roller Compacted Concrete Pavement



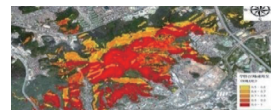
• Road Safety

- Development of a blow-up prediction model for concrete pavements
- Determination of critical stress for blow-up through large-scale blow-up testing
- Development of a water film thickness prediction model for concrete pavements



• Landslides and Debris Flows

- Development of prediction models and hazard maps for landslides and debris flows



Major Experimental Equipment



Universal Testing Machine (UTM)



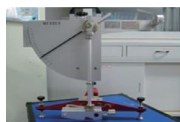
Wheel Tracking Tester



Aggregate Polishing Machine (APM)



Aggregate Exposure Equipment



British Pendulum Tester (BPT)



Rubbization



Semiconductor Nano-Device Lab

Department of Electronic and Semiconductor Engineering



Kim, Young-Lae

Professor

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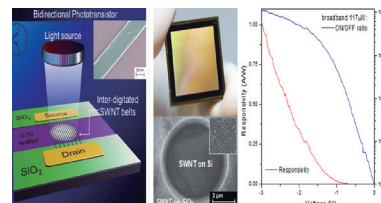
Homepage: <https://ylkim961.wixsite.com/andlab>

	Time period	University	Degree
Educations	2006.09 ~ 2013.05	Northeastern University	Ph.D.
	2003.03 ~ 2005.02	Gangneung National University	M.S.
	1996.03 ~ 2003.02		Undergraduate
	Time period	Institute	Position
Work Experiences	2018.03 ~	Gangneung-Wonju National University	Professor
	2013.07 ~ 2018.02	Intel Corporation	PTD Engineer
	2007.05 ~ 2013.05	Northeastern University	Research Assistant

Our laboratory conducts research on semiconductor devices utilizing novel 1D/2D nano-semiconductor materials, focusing on Optoelectronics, Chemical Sensors, Interconnects.

Optoelectronics

- Development of photodetectors using 1D/2D novel materials
- High-performance mechanisms based on heterojunctions of semiconductor materials
- CMOS-compatible semiconductor nanomanufacturing processes



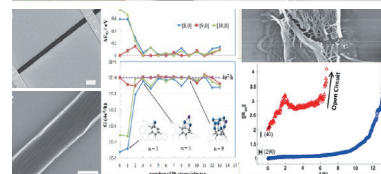
Chemical Sensors

- Fabrication of ultra-small chemical gas sensors using 1D/2D materials
- Detection systems for toxic and hazardous gases (e.g., H₂S, NH₃, CO)
- Enhancement of sensitivity and selectivity



Interconnects

- Creation of nanoscale interconnects using CNTs (Carbon Nanotubes)
- Implementation of enhanced conductivity and robust structures
- Improvement of reliability through rigorous testing



Research area: Semiconductor Devices

Focus: Optoelectronics, Chemical Sensors, Interconnects

Keywords: 1D/2D nanomaterials, Nanomanufacturing, AIoTSensors



Surveying & Geo-spatial Information System Lab

Department of Smart Infrastructure Engineering,



Kim, Gi-Hong

Professor

The Korea Institute of Civil Engineering and Building Technology, 2004
Gangneung-Wonju National University, 2005-present
Vice President of the Korean Society of Surveying, Geodesy, Photogrammetry and Cartography
Editor of KSCE Journal of Civil and Environmental Engineering Research

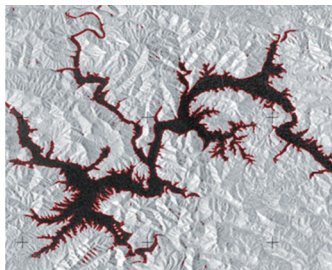


Research Interests

- Photogrammetry and Remote Sensing
- Time series satellite image based change detection
- UAV and AI Based feature extraction
- Multi-Hazard Risk Mapping and Spatial Analysis (Flood, Landslide, Wildfire)
- GNSS Surveying and GIS

Current Projects

- Development of Energy Digital Twin Utilization Technology in Gangwon RE100
- Gangneung UAM Optimal Route Setting and VR-based Demonstration Technology Development
- Change Detection of East Coastline of Gangwon-do Using Deep Learning
- Disaster Prevention Technology for Infrastructure against Extreme Weather in Mountain



College Of Engineering
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