

# Winners of Awards at PRESM2021

July 21(Wed)–July 23(Fri), 2021, Ramada Plaza Jeju Hotel and Virtual, Korea

## Winner of Best Paper Award

### Intelligent Operation Monitoring of a 5-axis Ultra-precision CNC Machine Tool using Energy Data

by Zhicheng Xu (University of Wisconsin-Madison), Vignesh Selvaraj (University of Wisconsin-Madison), Sangkee Min (University of Wisconsin-Madison)

## Winners of Young Researcher Award

**Sanghoon Ji** (Korea Institute of Civil Engineering and Building Technology, Korea)

**Kijung Park** (Incheon National University, Korea)

**Sangjin Maeng** (Hongik University, Korea)

**Yudi Rahmawan** (Universitas Pertamina, Indonesia)

## Winners of Outstanding Presentation Award

### Development of an Online Melt Pool Depth Estimation Technology for Directed Energy Deposition (DED) 3D Printing Using Coaxial Thermography and Laser Line Scanning System

by Ikgeun Jeon (KAIST), Liu Yang (KAIST), Hoon Sohn (KAIST)

### Contact Detection Method using Conductive Thin Films on PCD Cutting Tools in Ultra-precision Machining

by Zach Lowery (University of Wisconsin-Madison), Sangkee Min (University of Wisconsin-Madison)

### The Optimization of Variable Blank Holding Force Trajectory in Cylindrical Cup Drawing Process using Finite Element Analysis and Reinforcement Learning

by SungMin Cho (Seoul National University of Science & Technology), Chang-Whan Lee (Seoul National University of Science & Technology), KeeCheol Park (POSCO), Wanjin Chung (Seoul National University of Science & Technology)

### Reduction Characteristics of Welding Deformation according to Cooling Distance in Heat Sink Welding

by Bum-Su Go (Chosun University), Kyung-Hwan Oh (Chosun University), Soon-il Kwon (Chosun University), Hee-Seon Bang (Chosun University)

### Development of Artificial Neural Network (ANN) Model for Tool Wear Prediction Using Sound Sensing

by Eunseob Kim (Purdue University), Jang Hoon Seo (Kyungpook National University), Young Hun Jeong (Kyungpook National University), Martin Byung-Guk Jun (Purdue University)

### Development of a Highly Sensitive Three-axis Table Dynamometer using PZT Elements

by Sina Rezvani (University of Calgary), Jihyun Lee (University of Calgary), Yu Sung Chuo (University of Calgary), Dong-Yoon Lee (Korea Institute of Industrial Technology), Simon Park (University of Calgary)

### Machine Learning-based Milling Stability Diagnosis using Vibration Signal

by Minh-Quang Tran (National Taiwan University of Science & Technology), Meng-Kun Liu (National Taiwan University of Science & Technology)

### Direct Ink Writing of a 3-dimensional Carbon Nanotubes-based Nanocomposite Structure for Sensors Application

by In Hwan Lee (Chungbuk National University), Chaima Fekiri (Chungbuk National University), Chiyen Kim (Korea Polytechnic University), Ho Chan Kim (Andong National University)

### Construction of 3D Thick Skeletal Muscle Tissue with Integrated Vasculature by In-bath Cell Printing

by Seungyeun Cho (POSTECH), Myungji Kim (POSTECH), Uijung Yong (POSTECH), Donghwan Kim (POSTECH), Dong Gyu Hwang (POSTECH), Jinah Jang (POSTECH)

### Chiral Meta-beam with Complete Bandgap Mechanism

by Jeonghoon Park (POSTECH), Dongwoo Lee (POSTECH), Yeongtae Jang (POSTECH), Junsuk Rho (POSTECH)

### Suppressing Optical Losses of Hydrogenated Amorphous Silicon for Functional Photonic Platforms Working at the Visible Spectrum

by Younghwan Yang (POSTECH), Gwanho Yoon (Seoul National University of Science & Technology), Sunghak Park (Seoul National University), Seok Namgung (Seoul National University), Trevon Badloe (POSTECH), Ki-Tae Nam (Seoul National University), Junsuk Rho (POSTECH)

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## **Preparation of Controllable Porous Microsphere based on Mixing in Microdroplet by Microfluidic Device**

by Ji Hwan Han (Kyungpook National University), Chul Min Kim (Gyeongsang National University), Seon Young Kim (Kyungpook National University), Gyu Man Kim (Kyungpook National University)

## **Preparation of Bioanode for Enzymatic Biofuel Cell by Covalent Attachment of Carboxyl Ferrocene to Polyaniline MWCNTs**

by Haroon Khan (Kyungpook National University), Gyu Man Kim (Kyungpook National University)

## **Generation of Si@C Core-shell Nanoparticles by Laser Irradiation of Grinding Wastes**

by Kanon Minami (Keio University), Kyosuke Kobinata (DISCO Co., Ltd.), Jiwang Yan (Keio University)

## **High-performance Cu Conductor via Laser-induced Plasmonic Welding for Flexible Touch Screen Panel Applications**

by Jae Jun Lee (Kumoh National Institute of Technology), Yeon Uk Kim (Kumoh National Institute of Technology), Ui Yeon Nam (Kumoh National Institute of Technology), Pyeong An Kim (Kumoh National Institute of Technology), Jae Hun Yang (Kumoh National Institute of Technology), Yu Mi Woo (Kumoh National Institute of Technology), Hye Jin Lee (Kumoh National Institute of Technology), Jung Hwan Park (Kumoh National Institute of Technology)

## **Benchmarking Analysis of YOLOv5 based on Machine Learning Frameworks in Edge AI**

by Erick Valverde (Kumoh National Institute of Technology), James Rigor Camacho (Kumoh National Institute of Technology), Angela Caliwag (Kumoh National Institute of Technology), Wansu Lim (Kumoh National Institute of Technology)

## **An Experimental Research on Cooling Performance in Two-phase Flow using Microchannel Nanofluids printed by 3D Printing**

by HoYong Jang (Changwon National University), Heesung Park (Changwon National University)

## **The Nano Patterned Tin Oxide So I-gel Film using Nanoimprinting Lithography for Liquid Crystal Alignment**

by Jong In Jang (Changwon National University), Hae-Chang Jeong (Changwon National University)

## **Super-hydrophobic Surface fabricated by UV Curing and Post-heating Process for Anti-icing Performance**

by Su Hyun Choi (Changwon National University), Seok Kim (Changwon National University), Young Tae Cho (Changwon National University)

## **Preliminary Integrated Design of Superconducting Motor System based on Liquid Hydrogen and Fuel Cell**

by Kihwan Kim (Changwon National University), Seokho Kim (Changwon National University), Yonghyun Kwon (Changwon National University)

## **FEA for the Prediction of the Mechanical Property of Composites produced by CFF**

by Seungpyo Hong (Kongju National University), Euysik Jeon (Kongju National University)

## **Experimental Evaluation of Absorbent Regeneration in Electrodialysis for Non-heating Regeneration Process**

by Junsu Jang (Kongju National University), Woo Tae Kim (Kongju National University), Bumjoo Kim (Kongju National University)

## **Heat Transfer Modeling of Laser Annealing Process for Shallow Trench Isolation (STI) Structure**

by Yeongil Son (Kongju National University), Joonghan Shin (Kongju National University)

## **Improving Cooling Systems in High-speed Spindles considering Thermo-mechanical Behavior**

by Esra Yuksel (Sabanci University), Emre Ozlu (Sabanci University), Erhan Budak (Sabanci University)

## **A Study on Search Operation of Detection Robot to Inspect Survivors in Narrow Spaces**

by SungJae Kim (Pukyong National University), Jin Ho Suh (Pukyong National University), Young Bok Kim (Pukyong National University), Sang Won Han (Pukyong National University), Maolin Jin (Korea Institute of Robotics & Technology Convergence), Ju Hyun Pyo (Korea Institute of Robotics & Technology Convergence), Dong Gwan Shin (Korea Institute of Robotics & Technology Convergence), Ju Seong Shin (Korea Institute of Robotics & Technology Convergence)

## **Deep Learning-based Posture Detection with Multiple IMU Sensors**

by Sang Eum Jeon (Pukyong National University), Jae Wook Jung (Pukyong National University), Jun Pyo Hong (Pukyong National University)

## **Advancements of Flame Resistant Vinyl Ester Composites by Incorporating Bio-additive**

by Prabhakar M. N. (Changwon National University), Jung-II Song (Changwon National University)