

GS15 Artificial intelligence and machine learning in precision engineering

**GS15-01** Data-Driven Feature Selection for Bearing Vibration Signal Using Correlation-Based Graph and Social Network Analysis

SeyedHesam Hosseinizadeh Mazloumi, Madhurjya Dev Choudhury, Yuqian Lu and Jaspreet Singh Dhupia  
PhD candidate at University of Auckland

**GS15-02** Accurate prediction of 5-axis machining cycle times with machine learning

Shih-Hsuan Chien, Shingo Tajima and Burak Sencer  
Oregon State University

**GS15-03** Investigation of energy consumption prediction for ultra-precision machine tools in machining small samples

Baolong Zhang, Zhicheng Xu, Wai Sze Yip and Suet To

**GS15-04** Dynamic and Precise Localization of Near-Surface Defects in Composite Materials Using Shearography and Spatiotemporal Object Detection

GuanLin Li, Yao Hu and Qun Hao  
Beijing Institute of Technology

**GS15-05** The application of CNNs for angle measurement based on second harmonic generation

Zhiyang Zhang, Jiahui Lin, Ryo Sato, Hiraku Matsukuma and Wei Gao  
Tohoku University

**GS15-06** Research on Misjudgments Caused by Indistinguishable Speckle Patterns in Bolt Looseness Detection

Lin Deng and Zhan Gao  
Beijing Jiaotong University

**GS15-07** Precision in Microtexturing: A Machine Learning Approach to Optimize Surface Parameters and Milling Techniques for Enhanced Topography

Pooria A. Farahani, Oltmann Riemer and Daniel Meyer  
University of Bremen

**GS15-08** Efficient and Generalizable Machine Learning for Inline Defect Detection in Battery Laser Welding

Xijia Zhao, Joseph Kershaw, Masoud Pour, Junjie Ma, Hassan Ghassemi-Armaki, Blair Calson and Peng Wang

**GS15-10** Enhancing Optical Lateral Resolution through Deep Learning-Based Estimation of Zernike Coefficients from System Transfer Functions

Ming-Jie Liu, Yu-Ting Cheng, Yu-Tang Huang and Liang-Chia Chen

National Taiwan University

**GS15-11** Physical model-driven single-shot end-to-end absolute phase acquisition strategy

Yiming Li, Mingfeng Chen, Caobo Zhang, Hao Wang, Zinan Li, Weikang chen, Feng Feng, Xiaohao Wang, Weihua Gui, Xiaojun Liang and Xinghui Li

Tsinghua University

**GS15-12** Deformation prediction in English wheeling through physics-informed machine learning

Clayton Cooper, Jianjing Zhang and Robert X. Gao

Case Western Reserve University

**GS15-13** The effect of data synthesis and regression prediction model for gas electronic nose system

Hongyang Xiao, Qiang Shen, Cao Xia, Yuanlin Xia and Zhuqing Wang

Sichuan University

**GS15-14** Development of crystalline lattice scale using scanning tunneling microscope (STM)

Daichi Yoshikawa, Kazushi Iio and Masato Aketagawa

Nagaoka University of Technology