



YAMAGUCHI & NISHI LAB

YAMAGUCHI & NISHI LABORATORY

Department of Finemechanics
Department of Mechanical/Biomedical Engineering
School of Engineering, Tohoku University



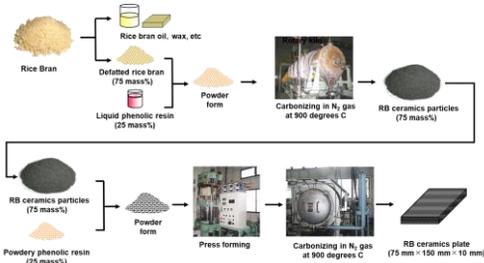
Professor
Takeshi Yamaguchi



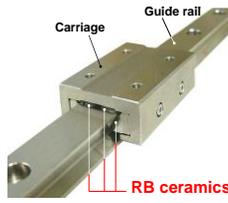
Assistant Professor
Toshiaki Nishi

Yamaguchi-Nishi Laboratory is engaged in research to improve the health and function of mechanical systems and to expand human motor functions, based on **soft mechanics research** such as contact and friction control of soft materials (rubber and living organisms) and human motion analysis. **Aiming at innovation in the field of life and life support through soft mechanics research**, we also focus on cross-disciplinary and interdisciplinary research and development, and industry-academia co-creation for social implementation of our research results.

Development and Application of Green Materials



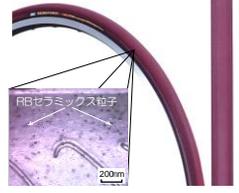
Development of carbon materials made from rice bran/husk



Dry sliding bearing



Electric drive unit for wheel chair

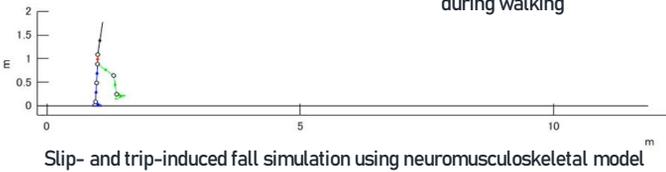


Road Racing Bicycle Tire

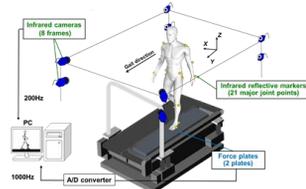
Fall Prevention Engineering



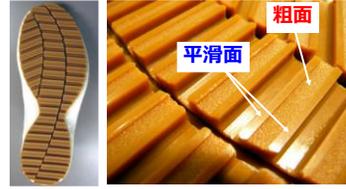
Mechanism of slip-induced falls



Slip- and trip-induced fall simulation using neuromusculoskeletal model



Evaluation of dynamics stability during walking



Super high grip shoe sole



Slip-resistance testing device



Gait analysis using sole sensor system (Photo by Denjiken)

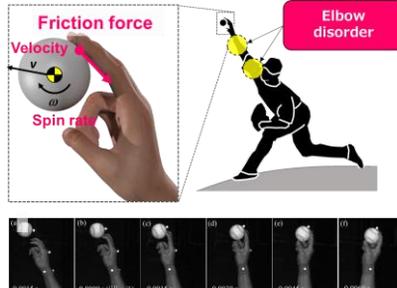
Physical Function Augmentation and Sports Engineering



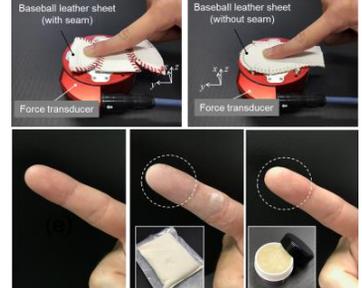
Lower limb orthotic using CFRP leaf spring



Development of high-grip sport shoes



Effect of friction between finger and ball on baseball pitching performance and elbow disorder



Evaluation of frictional properties of friction aids for sports