Kuya Takami

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EDUCATION

Virginia Polytechnic Institute and State University 2015
Ph.D. Mechanical Engineering
Thesis: "Non-Field-of-View Acoustic Target Estimation"
Advisor: Professor Tomonari Furukawa

University of Wisconsin-Madison *2011*
M.S. Mechanical Engineering
Advisor: Professor Scott Sanders

University of Wisconsin-Madison *2008*
B.S. Biomedical Engineering (Biomechanics)

APPOINTMENTS

VIRGINIA POLYTECNIC INSTITUTE AND STATE UNIVERSITY Blacksburg, VA (10/2015 - Present)
Postdoctoral Researcher

Graduate Research Assistant/ *Graduate Teaching Assistant (08/2011 - 09/2015)

- Developed non-line-of-sight (NLOS) hybrid optical/acoustical target localization scheme to model and predict the state of sound source in a complex environment.
- Modeled sound reflection/diffraction based NLOS target estimation for mobile robot localization.
- Assisted underwater autonomous navigation project on sonar localization simulation using simultaneous localization and mapping (SLAM) for NSF Naval Research Laboratory.
- Worked on real-time autonomous driving using Grid-based SLAM in collaboration with ZMP and University of Technology, Sydney.
- Worked on tire noise prediction model entailing mathematical formulations, and fluid-solid interaction modeling funded by NSF Center for Tire Research.
- *Instructor (ME 2024-Engineering Design and Economics): Lectured mechanical engineering students on product development.
- *Project Advisor (ME4015/4016): Supervised senior design project on autonomous driving, and automotive alternator design and experimental validation.

BRIDGESTONE AMERICAS, INC Akron, OH (05 - 08/2014)
Advanced Tire Technology - Research intern

- Developed tire noise analysis procedure and designed and implemented tire noise experimental device based on an FPGA controller.

ZMP, INC Tokyo, Japan (01 - 07/2013)
Research Engineer in Autonomous Vehicles

- Assisted programming and hardware development for an autonomous driving vehicle, including data acquisition, implementation of SLAM, and vehicle modeling/control.
- Designed and constructed a quadrupedal machine learning-based evolving robot by calculating kinematics and specifying components.

UNIVERSITY OF WISCONSIN-MADISON Madison, WI (03/2009 - 08/2011)
Graduate Research Assistant for Engine Research Center

- Conducted laser and fiber optics centered research optimizing optical element design in harsh environments.
- Developed a noninvasive laser grid tomography temperature measurement system for jet and IC engines.

UNIVERSITY OF WISCONSIN HOSPITAL Madison, WI (08/2007 - 12/2008)
MRI Research Assistant for Radiology Department

- Studied MRI-based knee analysis, quantified quality of the image, and determined change of cartilage volumes.

HONORS AND AWARDS

2007 Most Outstanding Physics Award†
2012 Pratt Graduate Fellowship‡
2015 ASME:IDETC/CIE Best Student Paper Award
2011 Pratt Graduate Fellowship‡
2014 Pratt Graduate Fellowship‡

†: Scholarship to the best student in two semester physics courses at University of Wisconsin-EC
‡: Awarded to students who are aggressively recruited by other top engineering colleges

TECHNICAL STRENGTH

Computer Languages:	C/C++, Java	System:	Windows, Linux, OS X
Software:	ROS, MATLAB, Visual Studio	Languages:	Japanese (native)
CAD & FEA:	SolidWorks, PTC Creo, Abaqus		

EXTRACURRICULAR EXPERIENCE

Organization	Mechanical Engineering Graduate Student Council (2013-2015)
	Mechanical Engineering Graduate Ambassador (2013-2015)
	President of VT Slackline Club (2011-2014)
	President of Japanese Conversation Group (2012-2015)
	President of Japanese Cultural Society in University of Wisconsin-EC (2005-2006)
Volunteer	Graduate student mentor (2014-Present)
Society	National Society of Leadership and Success, Biomedical Engineering Society

PUBLICATIONS

K. Takami, T. Furukawa, M. Kumon, D. Kimoto, and G. Dissanayake. "Estimation of a nonvisible field-of-view mobile target incorporating optical and acoustic sensors," Autonomous Robots, 2015.

K. Takami, T. Furukawa, M. Kumon, and G. Dissanayake. "Non-Field-of-View Acoustic Target Estimation in Complex Indoor Environment," Springer Tracts in Advanced Robotics, 2015.

K. Takami, T. Furukawa, M. Kumon, and L. Mak,"Non-Field-of-View Indoor Sound Source Localization based on Reflection and Diffraction," Multi-sensor Integration and Fusion, IEEE, 2015.

K. Takami, T. Furukawa, M. Kumon, and G. Dissanayake. "Non-Field-of-View Acoustic Target Estimation in Complex Indoor Environment," Field and Service Robotics, 2015.

T. Furukawa, **K. Takami**, X. Tong, D. Watman, A. Hamed, R. Ranasinghe and G. Dissayanake,"Map-based Navigation of an Autonomous Car Using Grid-based Scan-to-Map Matching," ASME IDETC, 2015.

K. Takami and T. Furukawa,"High-Resolution Deformation Measurement System for Fast Rotating Tire," ASME IDETC/CIE, 2015.

K. Takami and T. Furukawa,"High-Resolution Deformation Measurement System for Fast Rotating Tires Towards Noise Prediction," Euronoise., 2015.

M. Kumon, D. Kimoto, **K. Takami** and T. Furukawa, "Acoustic recursive Bayesian estimation for non-field-of-view targets," In Image Analysis for Multimedia Interactive Services (WIAMIS), IEEE, 2013.

M. Kumon, D. Kimoto, **K. Takami** and T. Furukawa. "Bayesian non-field-of-view target estimation incorporating an acoustic sensor," In Intelligent Robots and Systems, IEEE/RSJ International Conference, 2013.

K. Takami, S. Taheri, M. Taheri and T. Furukawa, "Prediction of Railroad Track Foundation Defects Using Wavelets," Joint Rail Conference, ASME, 2013.

J. M. Whitney, **K. Takami**, S. T. Sanders, and Y. Okura. "Design of system for rugged, low-noise fiber-optic access to high-temperature, high-pressure environments," Sensors Journal, IEEE, 2011.

A. Xinliang, T. Kraetschmer, **K. Takami**, S. T. Sanders, L. Ma, et al. "Validation of temperature imaging by H_2O absorption spectroscopy using hyperspectral tomography in controlled experiments," Journal of Applied Optics, 2011.