

Kuya Takami

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Blacksburg, VA 24061

EDUCATION

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|---|---|
| Virginia Polytechnic Institute and State University 2015 | University of Wisconsin-Madison 2011 |
| Ph.D. Mechanical Engineering | M.S. Mechanical Engineering |
| Thesis: "Non-Field-of-View Acoustic Target Estimation" | Advisor: Professor Scott Sanders |
| Advisor: Professor Tomonari Furukawa | University of Wisconsin-Madison 2008 |
| | B.S. Biomedical Engineering (Biomechanics) |

APPOINTMENTS

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| VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY | Blacksburg, VA (09/2015 - Present) |
| Postdoctoral Researcher | |

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

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| 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.

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| 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.

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| 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.

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| 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

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

[†]: 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

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| 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

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| 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 H₂O absorption spectroscopy using hyperspectral tomography in controlled experiments," Journal of Applied Optics, 2011.