

# 2017 TMHNA UNIVERSITY RESEARCH PROGRAM

## OVERVIEW

Toyota Material Handling North America (TMHNA) is making research funding available in the fields of material handling in 2017. TMHNA is promoting independent research through its University Research Program. TMHNA is seeking proposals for research that drives new technology or innovative approaches to the material handling industry.

Selected proposals will receive financial support of up to \$500,000 per year. It is anticipated that multiple proposals will receive financial support. Faculty that receive financial support through the University Research Program (URP) may be invited to renew the contract for up to three years based on the research outcomes.

## University Research Program Research Themes

Proposal themes should reflect the goal of the University Research Program to advance the science of material handling. Proposal themes related to the following areas are encouraged but given the broad nature material handling, other themes are welcome as well.

- Virtual Reality/  
Augmented Reality
- Energy Infrastructure
- Internet of Things (IoT)
- Industry 4.0
- ADAS systems
- Machine Learning

## Eligibility

Full-time professors or researchers in North American universities are eligible to apply. The University Research Program Proposal Confirmation Letter must be approved without modification by the university as part of the proposal submission process.

## 2017 UNIVERSITY RESEARCH PROGRAM TIMELINE

### URP PROPOSALS SUBMISSION STARTS:

June 1, 2017

### PROPOSAL SUBMISSION DEADLINE:

August 31, 2017  
5 PM Eastern Time

### ANNOUNCEMENT OF SELECTED PROPOSALS VIA EMAIL:

October 1, 2017

### PROJECT STARTS:

November 2017

Finalists will be contacted via email by a representative from TMHNA. At that time a research project liaison will be assigned by TMHNA. The liaison will serve as the point of contact for duration of the project.

## Confidential and Proprietary Information

Participants shall ensure that no confidential or proprietary information is included in submitted proposals. TMHNA will treat all information submitted in proposals as non-confidential and nonproprietary. The nature of the URP requires that submitted proposals be reviewed by TMHNA personnel, including TMHNA researchers, who will become knowledgeable of the information provided by the university researcher in the project proposal. During the evaluation process, TMHNA cannot maintain the confidentiality of information set forth in the proposals. Accordingly, TMHNA does not require, and does not desire, to receive any information that may be deemed confidential by the university researcher or the university.

## Evaluation Criteria

Through the URP, TMHNA hopes to establish relationships with leading universities and researchers to conduct innovative research that will advance material handling and contribute to TMHNA's future research activities. Funding selection of URP proposals shall be at the sole discretion of TMHNA.

The following criteria are the primary criteria that will be used to evaluate URP proposals:

- Research must contribute to the field of material handling.
- Research must be significant, innovative and have a positive impact on the future of material handling.
- Research effort must be well planned and feasible within the time period specified and budget requested.
- Researchers and principal investigators must be qualified in the proposed field of research.

## Required Documents

Each research proposal package shall include the following three documents and shall be delivered electronically to [UniversityResearchProgram@TMHNA.com](mailto:UniversityResearchProgram@TMHNA.com)

1. Research proposal package in PDF format.
2. Scanned PDF copy of an unmodified URP Proposal Confirmation Letter signed by an authorized university official. If submitting a joint proposal with other universities, each university included in the proposal must sign the URP Proposal Confirmation Letter.
3. The University's proposed Sponsored Research Agreement.

## University Research Program Proposal Format

Applicants are expected to provide the following information with each URP proposal. It is recommended that the research proposal (item 3) be limited to 10 pages. Items 1, 2, 4 & 5 are not included in the 10 page count.

1. TMHNA URP proposal cover page including the proposal title, the name and university affiliation of the principal investigator along with any co-PIs.
2. One page executive abstract with key words. If applicable, the abstract should indicate if the proposal could be a multi-year effort. The project description, however, should focus on year one objectives.
3. A research proposal (up to 10 pages) that:
  - a. Clearly states the research opportunity and objectives.
  - b. Explains why the research is innovative.
  - c. Proposes the anticipated significance of the research.
  - d. Provides a research plan and technical approach.
  - e. Identifies milestones that measure the success of the project.
  - f. Defines the expected outcomes.
  - g. Does not contain confidential or proprietary information.
4. Detailed budget in US dollars that clearly identifies the funding requested.
5. Additional supporting materials such as curricula vitae of principal investigators and other researchers is to be included in the appendix.

If you intend to submit a multi-year proposal, please indicate this in item 2. The budget (item 4) shall be completed on a one year proposal basis only. In order to receive funding for subsequent years, applicants must reapply with an updated proposal.

### About the sponsors

Toyota Material Handling North America (TMHNA), the industry leader in forklift sales, is composed of three main group companies: Toyota Material Handling U.S.A., Inc.; Toyota Industrial Equipment Mfg., Inc.; and The Raymond Corporation. One in three forklifts sold in North America is either a Toyota or Raymond product. With more than 1.5 million square feet of manufacturing space, TMHNA is composed of three manufacturing plant locations (Columbus, Indiana; Greene, New York; and Muscatine, Iowa) that produce 1,500 forklifts per week on average, with parts distribution locations in Syracuse, New York, and Columbus, Indiana, with more than 3 million service parts available. With an annual revenue of approximately \$3 billion, TMHNA has more than 7,300 people and more than 300 dealer locations to support Toyota and Raymond customers.