

2017

# First-Year Mechatronic Experiences: Towards Predicting Student Motivation

John R. Haughery

*Iowa State University*, [haughery@iastate.edu](mailto:haughery@iastate.edu)

D. Raj Raman

*Iowa State University*, [rajraman@iastate.edu](mailto:rajraman@iastate.edu)

Steven Freeman

*Iowa State University*, [sfreeman@iastate.edu](mailto:sfreeman@iastate.edu)

Follow this and additional works at: [https://lib.dr.iastate.edu/abe\\_eng\\_conf](https://lib.dr.iastate.edu/abe_eng_conf)



Part of the [Agriculture Commons](#), [Bioresource and Agricultural Engineering Commons](#), and the [Engineering Education Commons](#)

The complete bibliographic information for this item can be found at [https://lib.dr.iastate.edu/abe\\_eng\\_conf/560](https://lib.dr.iastate.edu/abe_eng_conf/560). For information on how to cite this item, please visit <http://lib.dr.iastate.edu/howtocite.html>.

---

This Abstract is brought to you for free and open access by the Agricultural and Biosystems Engineering at Iowa State University Digital Repository. It has been accepted for inclusion in Agricultural and Biosystems Engineering Conference Proceedings and Presentations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact [digirep@iastate.edu](mailto:digirep@iastate.edu).

---

# First-Year Mechatronic Experiences: Towards Predicting Student Motivation

## **Abstract**

Summary: This research examined the impacts that a half-semester mechatronics project in a first-year undergraduate course had on students' motivational orientation.

## **Disciplines**

Agriculture | Bioresource and Agricultural Engineering | Engineering Education

## **Comments**

This abstract is published as Haughery, J. R., Raman, R., Freeman, S. "First-Year Mechatronic Experiences: Towards Predicting Student Motivation," 2017 ATMAE Annual Conference, Cincinnati, OH. Nov. 1-3, 2017. Posted with permission.

# ATMAE 50<sup>th</sup> Anniversary Annual Conference



Thursday, November 2, 2017  
**Teaching Innovations**

## **First-Year Mechatronic Experiences: Towards Predicting Student Motivation**

### **Author(s)**

Dr. John Haughery, Iowa State University, Ames, IA

Dr. Raj Raman, Iowa State University, Ames, IA

Dr. Steven Freeman, Iowa State University, Ames, IA

**Need:** A data-driven answer to whether and to what degree a mechatronic experience impacts students' level of motivation will significantly contribute to the discussion of first-year undergraduate education.

**Overview:** Current literature has offered limited empirical evidence illustrating the impact that mechatronic experiences in first-year undergraduate courses have on student motivation and engagement. While there is much anecdotal evidence that these experiences are "exciting", "fun", or "interesting", an evidence-based foundation that clearly delineates the impact of how students are motivated to engage has eluded publication. Therefore, a data-driven answer to whether and to what degree a mechatronic experience impacts students' level of motivation will significantly contribute to the discussion of first-year undergraduate education.

### **Major Points:**

- Mechatronic experiences impact the motivational orientation of students in first-year applied engineering courses
- Different student subpopulations were impacted differently by the mechatronic experience

**Summary:** This research examined the impacts that a half-semester mechatronics project in a first-year undergraduate course had on students' motivational orientation.