

## CURRICULUM VITAE

### JACOB MOORE, PH.D.

Associate Professor of Engineering  
Penn State Mont Alto  
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<http://mechanicsmap.psu.edu/bio/index.html>

### CURRENT POSITION:

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#### **Associate Professor of Engineering (July 2019 –Present)**

**(Assistant Professor of Engineering January 2014 – June 2019)**

**(Instructor August 2013 – December 2013)**

**Penn State Mont Alto Campus**

Research Interests:

- Engineering education with a focus on open educational resources, student assessment techniques, and flipped classrooms.
- Additive manufacturing technology

Current Courses Taught:

- Statics (EMCH 211)
- Dynamics (EMCH 212)
- Strength of Materials (EMCH 213)
- Thermodynamics (ME 300)
- Matrices (MATH 220)
- Plane Trigonometry (MATH 26)

Past Courses Taught

- Introduction to Engineering Design (EDSGN 100)
- Honors Seminar (HONOR 297) (seminar on sustainable energy)

University Administrative and Service Responsibilities:

- Chair Elect of Mont Alto Faculty Senate (July 2024 – Present)
- Assistant Director of Academic Affairs (July 2019 – June 2023)
- University Faculty Senator (August 2018 – June 2022)
- Faculty Advisor for the Engineering Club (August 2013 – Present)
- Shop Supervisor for the Engineering Lab (August 2013 – Present)
- Member of the Policy and Planning Committee (June 2021 – Present)
- Member of the Curricular Affairs Committee (July 2018 – June 2021)
- Member of the Academic Festival Committee (August 2013 – June 2020)
- Member of the Faculty Affairs Committee (August 2014-June 2018, Chair 2017-2018 academic year)
- Member of the Information Technology Committee (August 2013 – May 2014)

## EDUCATION:

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### **PhD, Engineering Education, Virginia Polytechnic Institute (2013)**

*Dissertation Title:* Promoting Conceptual Understanding via Adaptive Concept Maps

*Advisor:* Dr. Christopher Williams

### **MEng, Mechanical Engineering, Virginia Polytechnic Institute (2012)**

*Master's Project Title:* Fatigue Characterization of 3D Printed Elastomer Material

*Advisor:* Dr. Christopher Williams

### **BS, Mechanical Engineering, Rensselaer Polytechnic Institute (2008)**

## PREVIOUS EXPERIENCE:

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### **Graduate Research Assistant, Virginia Tech**

May 2011 – July 2013

*Project Title:* Promoting Conceptual Understanding via Adaptive Concept Maps

### **Graduate Teaching Assistant, Explorations in Engineering Design Workshop Instructor, Virginia Tech**

Spring Semester 2011

*Subjects covered:* computer-aided design and engineering drawing, programming in MATLAB, engineering design

### **Graduate Teaching Assistant, Engineering Exploration Workshop Instructor, Virginia Tech**

Fall Semester 2008, Spring and Fall Semesters 2009, Fall Semester 2010

Workshop Co-Coordinator Spring and Fall Semesters 2009, Fall Semester 2010

*Subjects covered:* introduction to engineering specializations, data collection and analysis, engineering problem-solving process, engineering design, electronics, programming in LabVIEW

### **Graduate Research Assistant, Virginia Tech**

January – August 2010

*Project Title:* A Mixed-Methods Study of the Effects of First-Year Pedagogies on the Retention and Career Plans of Women in Engineering

### **Graduate Research Assistant, Virginia Tech**

May – August 2009

*Project Title:* Integrating Art and Engineering through Additive Manufacturing

### **Teaching Assistant, Principals of Engineering Design, Johns Hopkins Center for Talented Youth**

June – August 2007, June – August 2008

### **Engineering Intern, Consumer Electronics Association**

May – August 2006, December – January 2006, May – June 2007

*Project Title:* Power Draw of Common Consumer Electronics

## **AWARDS AND AFFILIATIONS:**

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### **Awards:**

#### **Best Publication of the Year Award (2021)**

Award given by the Engineering Libraries Division for the publication "Current Usage Patterns of Open Educational Resources in the Engineering Mechanics Classroom and Barriers to Adoption". Given at the ASEE Annual Meeting and recognizes the best publication to come out in the previous calendar year.

#### **Ferdinand P. Beer and E. Russell Johnston Outstanding New Mechanics Educator Award (2018)**

Award given annually by the Mechanics Division of the American Society for Engineering Education for individuals who have made exceptional contributions to Mechanics Education. Individuals must not have more than five years' experience as a professional mechanics educator.

#### **Penn State Mont Alto Faculty Scholar Award (2016)**

Honors a member of the faculty who had the most outstanding (academic) year in terms of research and creative accomplishments at the Penn State Mont Alto campus.

#### **3rd Place Best Paper Award for the ASEE New Engineering Educators Division (2015)**

Recognizing the 3rd best paper submitted to the New Engineering Educators Division at the National American Society for Engineering Education Conference. Awarded for the paper "New Faculty Experiences with Mastery Grading."

#### **U.S. Renaissance in Advanced Manufacturing Symposium Scholarship Recipient (2012)**

Recognizing students who show promise in advanced manufacturing. Awarded for excellence in advanced manufacturing work in Virginia Tech DREAMS Lab, by Symposium sponsors.

#### **XCaliber Award (2012)**

Recognizing excellence in technology-assisted instruction. Awarded for work with developing tactile models for a visually impaired student, by the Office of the Provost at Virginia Tech.

#### **Excellence in Access and Inclusion Award (2012)**

Recognizing those whose work goes above and beyond policy compliance in making the university more accessible to students, faculty, and the community. Awarded for work with developing tactile models for a visually impaired student, by the Services for Students with Disabilities Office and the Office of Diversity and Inclusion at Virginia Tech.

#### **Best Poster at 2011 IDR Interdisciplinary Research Symposium at Virginia Tech**

Recognizing the best graduate student research poster at the IDR Symposium. Awarded for research poster titled, "Visualizations for the Visually Impaired," by Iota Delta Rho (the Interdisciplinary Research Honor Society).

### **Graduate Student Teaching Excellence Award (2011)**

Recognizing excellence in graduate student teaching across all colleges and departments in the university. Awarded for work as workshop co-coordinator of ENGE 1024 (Engineering Exploration), by the Graduate School at Virginia Tech.

### **Affiliations:**

#### **American Society of Engineering Educators**

Member (2008- present)

Mechanics Division Board of Directors (2023 – Present)

Mechanics Division Treasurer (2017-2022)

#### **American Society of Mechanical Engineers**

Member (2011-present)

#### **Tau Beta Pi – Engineering Honor Society**

Inducted May 2007

### **PUBLICATIONS:**

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#### **Open Educational Resources:**

**Moore, J.** et al. (n.d.). Mechanics Map Open Textbook Project. Available at <http://mechanicsmap.psu.edu/>

Martin, C., Ranalli, J., **Moore, J.** (n.d.) PYroMat Thermodynamic Property Lookup Tool. Available at <http://www.pyromat.org>

#### **Book Chapters:**

**Moore, J.** (2024). Natural and Applied Sciences in Strawser, M. and Yaure, R. (Eds.) *Interdisciplinary Approaches to Culminating Student Experiences* Vernon Press

Hollich, S., **Moore, J.** (2020). Open Pedagogy Big and Small: Comparing Open Pedagogy Efforts in Large and Small Higher Education Settings in Clifton, A., Hoffman, K. D. (Eds.) *Open Pedagogy Approaches: Faculty, Library, and Student Collaborations*

#### **Journal Papers:**

Martin, C., Ranalli, J., **Moore, J.** (2022). "PYroMat: A Python Package for Thermodynamic Properties" *Journal of Open Source Software*, 7 (79), 4757.

Reinsfelder, T., **Moore, J.** (2020). "Power Dynamics in a Complex OER Environment: Who is Leading the Way?" *Library Trends* (Special Issue on OER), 69 (2), 370-94.

**Moore, J.**, Reinsfelder, T. L. (2020). "Current Usage Patterns of Open Educational Resources in the Engineering Mechanics Classroom and Barriers to Adoption" *Issues in Science and Technology Librarianship* **95**

Gao, H., Kaweesa, D., **Moore, J.**, Meisel, N. (2017). "Investigating the Impact of Acetone Vapor Smoothing on the Strength and Elongation of Printed ABS Parts" *JOM* **69** (3)

**Moore, J., Williams, C. (2015).** “Fatigue Properties of Parts Printed by PolyJet Material Jetting” Rapid Prototyping Journal **21** (6)

**Moore, J., Williams, C., North C., Johri, A., Paretti, M. (2015).** “Effectiveness of Adaptive Concept Maps for Promoting Conceptual Understanding: Findings from a Design-Based Case Study of a Learner-Centered Tool” Advances in Engineering Education ASEE **4** (4)

#### **Conference Papers:**

**Moore, J., Baker, D. (2024).** Insights and Lessons Learned from Engineering OER Authors Proceedings of the 2024 ASEE Annual Conference and Exposition. Portland, OR, ASEE.

**Moore, J. (2023).** *Work in Progress: The Effects of Representation in Worked Example Videos* Proceedings of the 2023 ASEE Annual Conference and Exposition. Baltimore, MD, ASEE.

**Moore, J. (2019).** *GIFTS: Working with Local Retirement Communities for Freshman Design Experiences* Proceedings of the 2019 First Year Engineering Experience Conference. State College, PA, ASEE.

Ranalli, J., Martin, C., **Moore, J. (2019).** *An Online Tool for Facilitating Thermodynamic Property Lookups* Proceedings of the 2019 ASEE Annual Conference and Exposition. Tampa, FL, ASEE.

**Moore, J., Reinsfelder, T. (2018).** “Work In Progress: A Snapshot of OER Adoption in Engineering Mechanics Courses” Proceedings of the 2018 ASEE Annual Conference and Exposition. Salt Lake City, UT, ASEE.

Tanney, D., Meisel, N., **Moore, J. (2017).** “Investigating Material Degradation through the Recycling of PLA in Additively Manufactured Parts” Proceedings of the 2017 Solid Freeform Fabrication Conference Austin, TX.

**Moore, J., Venters C., Carbonetto, T. (2017).** “The Retention and Usefulness of Concept Maps as Advance Organizers” Proceedings of the 2017 ASEE Annual Conference and Exposition. Columbus, OH, ASEE.

Martin, C., Ranalli, J., **Moore, J. (2017).** “Problem-based Learning Module for Teaching Thermodynamic Cycle Analysis using PYroMat” Proceedings of the 2017 ASEE Annual Conference and Exposition. Columbus, OH, ASEE.

**Moore, J. (2016).** “Mastery Grading of Engineering Homework Assignments” Proceedings of the 2016 ASEE/IEEE Frontiers in Education Conference. Erie, PA, IEEE.

Ranalli, J., **Moore, J. (2016).** “Targeted Flipped Classroom Technique Applied to a Challenging Topic” Proceedings of the 2016 ASEE/IEEE Frontiers in Education Conference. Erie, PA, IEEE.

Martin, C., **Moore, J.**, Ranalli, J. (2016). "Teaching the Foundations of Thermodynamics with Pyro" Proceedings of the 2016 ASEE/IEEE Frontiers in Education Conference. Erie, PA, IEEE.

**Moore, J.**, Ranalli, J. (2015) "A Mastery Learning Approach to Engineering Homework Assignments" Proceedings of the 2015 ASEE Annual Conference and Exposition Seattle, WA, ASEE.

Ranalli, J., **Moore, J.** (2015) New Faculty Experiences with Mastery Grading" Proceedings of the 2015 ASEE Annual Conference and Exposition Seattle, WA, ASEE.

**Moore, J.** Pascale, M., Williams, C. North, C. (2013) "Translating Educational Theory Into Educational Software: A Case Study of the Adaptive Map Project" Proceedings of the 2013 ASEE Annual Conference Atlanta, GA, ASEE.

**Moore, J.**, Williams, C. North, C. Johri, A. (2013) Promoting Conceptual Understanding in Engineering Statics Through the Use of Adaptive Concept Maps Proceedings of the 2013 ASEE Annual Conference Atlanta, GA, ASEE.

**Moore, J.**, Williams, C. (2012). "Fatigue Characterization of 3D Printed Elastomer Material" Proceedings of the 23<sup>rd</sup> Annual Solid Freeform Fabrication Symposium. Austin, TX.

**Moore, J.**, Pierce, R., Williams, C. (2012). "Towards an "Adaptive Concept Map": Creating an Expert-Generated Concept Map of an Engineering Statics Curriculum." Proceedings of the 2012 ASEE Annual Conference and Exposition. San Antonio, TX, ASEE.

**Moore, J.**, Williams, C., Paretti, M. (2011). "Using Wikis as a Formative Assessment Tool For Student Engineering Design Teams." Proceedings of the ASME 2011 International Design Engineering Technical Conference & Computers and Information in Engineering Conference. Washington, DC, ASME.

Matusovich, H., Jones, B., Paretti, M., **Moore, J.**, Hunter, D. (2011). "Problem-Based Learning: A Student Perspective on the Role of the Facilitator." Proceedings of the 2011 ASEE Annual Conference and Exposition. Vancouver, BC, Canada, ASEE.

Paretti, M., Jones, B., Matusovich, H., **Moore, J.** (2010). "Work in Progress: A Mixed-Methods Study of the Effects of First-Year Project Pedagogies on the Motivation, Retention, and Career Plans of Women in Engineering". 2010 IEEE Frontiers in Education. Arlington VA, IEEE.

#### **Presentations, Workshops and Posters:**

**Moore, J.** (2023) TCTC Affordable Learning Panel. Invited virtual panelist at the Tri-County Technical College Faculty Development Day.

**Moore, J.** (2021) Discussion with STEM OER Creators, Panelist with the Affordable Learning PA (ALPA) OER Community of Practice Meeting

**Moore, J.** (2021) OER Curious? A panel discussion with Pennsylvania faculty and designers who have adopted, created, and supported teaching with Open Educational Resources, Panelist with the Affordable Learning PA (ALPA) Webinar Series

**Moore, J.** (2020). Using a Wacom Tablet for Worked Problems Talk at the 2020 Mont Alto Faculty Conference, Held Online.

**Moore, J.** (2019). The Past, Present, and Future of Additive Manufacturing Talk at the 2019 Penn State Alumni Association Adams County Chapter Summer Meeting, Biglerville, PA.

**Moore, J.** (2019). Bringing Engineering Design to the Community Talk at the 2019 Mont Alto Faculty Conference, Waynesboro, PA.

**Moore, J.** (2017). *The MUSIC Model of Student Motivation* Talk at the 2017 Mont Alto Faculty Conference, Ortanna, PA.

Rocco, S., Chinn, G., **Moore, J.**, Pursel, B. (2016). *Showcase of OER Champions*. Invited Panel Discussion at the 2016 Penn State Open Educational Resources Summit, State College, PA.

Gregg, A., Lang, J, **Moore, J.**, Salem, J. Williams, V. (2016). *Open Educational Resources at Penn State*. Invited Panel Discussion at the 2016 Symposium for Teaching and Learning with Technology, State College, PA.

**Moore, J.**, Young, M. (2016). *Navigating a Sea of Information*. Presentation at the 2016 Symposium for Teaching and Learning with Technology, State College, PA.

**Moore, J.** (2014). *The Adaptive Map: A Concept Map Based Digital Textbook*. Presentation at the 2014 Symposium for Teaching and Learning with Technology, State College, PA.

**Moore, J.** (2012). *Using Additive Manufacturing to Create Tactile Instructional Tools for the Visually Impaired*. Poster presented at the 23<sup>rd</sup> Annual Solid Freeform Fabrication Symposium, Austin, TX.

**Moore, J.**, Williams, C., North, C., Pierce, R. S., Johri, A. (2012). *Promoting Conceptual Understanding via an Adaptive Concept Map*. Poster presented at the 2012 ASEE Annual Conference and Exposition, San Antonio, TX.

**Moore, J.**, Amaya, A., Groves, E., Williams, C. (2012). *Using Additive Manufacturing Technologies as an Instructional Tool for the Blind and Visually Impaired*. Poster presented at the 2012 Conference on Higher Education Pedagogy, Blacksburg, VA.

**Moore, J.**, Williams, C. (2012). *Adaptive Concept Maps as a Way to Promote Conceptual Understanding in Digital Textbooks*. Poster presented at the 2012 Conference on Higher Education Pedagogy, Blacksburg, VA.

Amaya, A., **Moore, J.**, Groves, E., Williams, C. (2011.) *Visualizations for the Visually Impaired*. Poster presented at the 1<sup>st</sup> Virginia Tech Interdisciplinary Research Symposium, Blacksburg, VA.

**Moore, J.** (2011). *The Textbook in a Digital Age*. Poster presented at the 2011 Conference on Higher Education Pedagogy, Blacksburg, VA.