

## Abhishek Verma

<https://www.uwstout.edu/directory/vermaa>

715-232-3298

[vermaa@uwstout.edu](mailto:vermaa@uwstout.edu)

### EDUCATION

- PhD, Aerospace Engineering** **2011-2018**  
University of Minnesota, Twin Cities  
Dissertation title: Learning of Unknown Environments in Goal-Directed Guidance and Navigation Tasks: Autonomous Systems and Humans  
Advisor: Dr. Berenice Mettler
- BS + MS Dual Degree, Aerospace Engineering** **2006-2011**  
Indian Institute of Technology Kanpur, India  
Dissertation title: Three-Dimensional Linear Stability Analysis of Flows past Bluff Bodies  
Advisor: Dr. Sanjay Mittal

### EMPLOYMENT

- Assistant Professor** **August 2018-Current**  
Engineering and Technology Department, University of Wisconsin-Stout
- Instructor** **August 2017–May 2018**  
Engineering and Technology Department, University of Wisconsin-Stout

Taught following courses:

- System Dynamics (ME 492)
- Dynamics (ENGR 292)
- Heat Transfer (ME 392)
- Unmanned Aerial Vehicles (ETECH 496 or 333)
- Impacts of Engineering (ETECH 100)

### COURSE DEVELOPMENT

- Unmanned Aerial Vehicles (ETECH 496 or 333) **2019**
  - Developed a new course on unmanned aerial vehicles (UAVs) for engineering and environmental science students at UW Stout.

### JOURNAL PAPERS

- **Verma, A.** and Mettler, B., “Human Learning of Unknown Environments in Agile Guidance Tasks,” 2017. <https://arxiv.org/abs/1710.07757>
- Mettler, B., **Verma, A.**, and Feit, A., “Emergent Patterns in Agent-Environment Interactions and their Roles in Supporting Agile Spatial Skills,” Annual Reviews in Control, 2017. <https://doi.org/10.1016/j.arcontrol.2017.09.001>
- **Verma, A.** and Mettler, B., “Computational Investigation of Environment Learning in Guidance and Navigation,” Journal of Guidance, Control, and Dynamics. 2016. <http://arc.aiaa.org/doi/10.2514/1.G001889>
- **Verma, A.** and Mettler, B., “Scaling Effects in Guidance Performance in Confined Environments,” Journal of Guidance, Control, and Dynamics. 2016.

<http://arc.aiaa.org/doi/abs/10.2514/1.G001415>

- Mittal, S., GS, S., and **Verma, A.**, “A Finite Element Formulation for Global Linear Stability Analysis of a Nominally Two-Dimensional Base Flow,” International Journal for Numerical Methods in Fluids. 2014.  
<http://onlinelibrary.wiley.com/doi/10.1002/flid.3895/full>
- **Verma, A.** and Mittal, S., “A New Unstable Mode in the Wake of a Circular Cylinder,” Physics of Fluids (1994-present). 2011.  
<http://scitation.aip.org/content/aip/journal/pof2/23/12/10.1063/1.3664869>

## CONFERENCE PAPERS (ORAL PRESENTATIONS)

- Ghosh, A. and **Verma, A.**, “Implementing Collaborative Online International Learning (COIL) in Regular Engineering Coursework”, Sweden, 2022  
(primary presenter)  
Frontiers in Education conference, 2022.
- **Verma, A.**, Herrmann, M., and Baltaci, K., “Interdisciplinary Collaboration to Engage Engineering Students’ Interest in Renewable Energy Concepts,” Minneapolis, 2022  
American Society for Engineering Education conference, 2022.
- Ghosh, A. and **Verma, A.**, “Thematic Analysis of Reflective Peer Feedback in Programming-heavy Engineering Courses,” Nebraska, 2021  
(primary presenter)  
Frontiers in Education conference, 2021.
- **Verma, A.** and Mettler, B., “Analysis of Human Interaction Patterns Emerging While Learning Agile Navigation of Unknown Environments,” Florida, 2018  
(primary presenter)  
2<sup>nd</sup> IFAC Conference on Cyber-Physical & Human Systems 2018.
- **Verma, A.**, Benders, S., Dauer, J. C., and Adolf, F.-M., “Benchmarking Unmanned Rotorcraft Trajectories based on Dynamic Fit,” Florida, 2018  
2018 AIAA SciTech Forum.
- **Verma, A.** and Mettler, B., “Investigating Human Learning and Decision-Making in Navigation of Unknown Environments,” Brazil, 2016  
1<sup>st</sup> IFAC Conference on Cyber-Physical & Human Systems 2016.
- **Verma, A.** and Mettler, B., “Analysis of Human Guidance and Perceptual Behavior in Navigation of Unknown Environments,” Florida, 2016  
72<sup>th</sup> American Helicopter Society Conference 2016.
- **Verma, A.**, Feit, A., and Mettler, B., “Investigation of Human First-Person Guidance Strategy from Gaze Tracking Data,” Hong Kong, 2015  
(primary presenter)  
Systems, Man, and Cybernetics IEEE 2015.
- Feit, A., **Verma, A.**, and Mettler, B., “A Human-Inspired Subgoal-Based Approach to Constrained Optimal Control,” Japan, 2015  
54<sup>th</sup> IEEE Conference on Decision and Control (CDC), IEEE 2015.
- **Verma, A.** and Mettler, B., “Learning Optimal Guidance Behavior in Unknown Environments within Receding Horizon Planning,” Montreal, Canada, 2014  
(primary presenter)  
70<sup>th</sup> American Helicopter Society Conference 2014.
- Mettler, B. and **Verma, A.**, “Scaling Effects in Guidance Systems and their Benchmarking: The Agility Scale Ratio,” Montreal, Canada, 2014  
(primary presenter)  
70<sup>th</sup> American Helicopter Society Conference 2014.

## GRANTS

- Freshwater Collaborative of Wisconsin Grant [\$ 116,832]** 2021-2022  
University of Wisconsin-Stout, USA
- Received a grant from Freshwater Collaborative of Wisconsin for research

project entitled “Developing an easy-to-apply, integrated approach to modelling freshwater contamination from farm runoff using only commercial drones, cameras, and software”.

**Cervenka Summer Fellowship [\$ 7,500]**

**2021**

University of Wisconsin-Stout, USA

- Received a summer fellowship in Engineering and Technology Department for Summer 2021 for a project entitled “Interdisciplinary Collaboration to Engage Students’ Interest in Renewable Energy Concepts”.

**AWARDS**

**Graduate Student Teaching Award**

**2017**

University of Minnesota, USA

- Awarded by Council of Graduate Students for exceptional teaching performance in Dynamics, Spring 2017.

**Academic Excellence Award**

**2009**

Indian Institute of Technology Kanpur, India

- Awarded for maintaining GPA in the highest range during the academic year 2008-2009.

**PROFESSIONAL DEVELOPMENT**

- OPID 2022 Faculty College in Wisconsin

**2022**

- Engaged with some 120 University of Wisconsin System educators in a 3 ½-day workshop to discuss and learn novel methods to include social justice in teaching and research in our classrooms.

- Taught following courses at Zhengzhou University, China as a collaboration between University of Wisconsin Stout and Zhengzhou University, China

**2019 - 2022**

- Mechanics of Materials
- Finite Element Method
- Mechanical Dynamics
- Theoretical Mechanics
- Mechanical System Design

- FAA licenses

- Private pilot license
- Remote pilot license

**Sept 2020**

**June 2021**

**PROFESSIONAL/INSTITUTIONAL SERVICE**

- SkillsUSA 2019 UW Stout Regional Event
- Organizer of computer programming competition
- Organizer of robotics competition

**2019-2022**

- Resource Instructor at Teaching and Language Kick-Off program at College of Science and Engineering, University of Minnesota

**2017**

- Coach new teaching assistants.
- Demonstrate effective teaching methods.