

# Erik Komendera

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## Research Interests

- Precise and accurate assembly of structures by robots.
- Distributed robotics.
- Reinforcement learning in robotics.
- Intelligent methods for exploring and controlling nonlinear systems.

## Journal Articles

- [1] Erik Komendera and Nikolaus Correll. Precise Assembly of 3D Truss Structures Using MLE-Based Error Prediction and Correction. *International Journal of Robotics Research*, Under Review, 2015.
- [2] Erik Komendera, Joshua Garland, Elizabeth Bradley, and Daniel J. Scheeres. Efficiently Evaluating Reachable Sets in the Circular Restricted 3-Body Problem. *IEEE Transactions on Aerospace and Electronic System*, 51:454-467, 2015.
- [3] Erik Komendera, Dustin Reishus, John T. Dorsey, William R. Doggett, and Nikolaus Correll. Precise Truss Assembly Using Commodity Parts and Low Precision Welding. *Journal of Intelligent Service Robotics*, 2014.

## Conference Papers

- [1] Erik Komendera, William R. Doggett, and John T. Dorsey. Control System Design Implementation and Preliminary Demonstration for a Tendon Actuated Lightweight In-Space MANipulator (TALISMAN). To appear in *Proceedings of the AIAA SPACE Conference*, 2015.
- [2] Erik Komendera and Nikolaus Correll. Precise Assembly of 3D Truss Structures Using EKF-Based Error Prediction and Correction. In *Proceedings of the 2014 International Symposium on Experimental Robotics*, 2014.
- [3] Erik Komendera, John T. Dorsey, William R. Doggett, and Nikolaus Correll. Truss Assembly and Welding by Intelligent Precision Jigging Robots. In *Proceedings of the Sixth Annual IEEE International Conference on Technologies for Practical Robot Applications*, 2014.
- [4] Michael A. McEvoy, Erik Komendera, and Nikolaus Correll. Assembly Path Planning for Stable Robotic Construction. In *Proceedings of the Sixth Annual IEEE International Conference on Technologies for Practical Robot Applications*, 2014.

- [5] Erik Komendera, Dustin Reishus, John T. Dorsey, William R. Doggett, Nikolaus Correll. Precise Truss Assembly using Commodity Parts and Low Precision Welding. In *Proceedings of the Fifth Annual IEEE International Conference on Technologies for Practical Robot Applications*, 2013.
- [6] John T. Dorsey, William R. Doggett, Erik Komendera, Nikolaus Correll, Robert Hafley, and Bruce D. King. An Efficient and Versatile Means for Assembling and Manufacturing Systems in Space. In *Proceedings of the AIAA SPACE Conference*, 2012.
- [7] Erik Komendera, Elizabeth Bradley, and Daniel J. Scheeres. Efficiently Locating Impact and Escape Scenarios in Spacecraft Reachability Sets. In *Proceedings of the AIAA Astrodynamics Specialists Conference*, 2012.
- [8] Erik Komendera, Daniel J. Scheeres, and Elizabeth Bradley. Intelligent Computation of Reachability Sets for Space Missions. In *Proceedings of the Innovative Applications of Artificial Intelligence Conference*, 2012.

## Posters

- [1] Erik Komendera, William R. Doggett, and John T. Dorsey. Tendon Actuated Lightweight In-Space MANipulator (TALISMAN) To appear at The Next Generation of Space Robotic Servicing Technologies Workshop, IEEE International Conference on Robotics and Automation, 2015.

## Technical Reports

- [1] Erik Komendera. Description of the reachability set adaptive mesh algorithm. Technical Report CU-CS 1090-12, University of Colorado, 2012.
- [2] Erik Komendera. Preliminary methods and results on the intelligent exploration of reachability sets. Technical Report CU-CS 1081-11, University of Colorado, 2011.
- [3] Erik Komendera, Dustin Reishus, and Nikolaus Correll. Assembly by intelligent scaffolding. Technical Report CU-CS 1080-11, University of Colorado, 2011.

## Education

Ph.D. Computer Science, University of Colorado Boulder, 2010-2014.

Advisor: Nikolaus Correll

Thesis: Precise Assembly of Truss Structures by Distributed Robots

M.S. Computer Science, University of Colorado Boulder, 2010-2012

GPA = 4.00/4.00.

B.S.E. Aerospace Engineering, University of Michigan, 2003-2007.

GPA = 3.69/4.00, Magna Cum Laude.

## Employment

National Aeronautics and Space Administration, 2014-Present, Research Aerospace Engineer.

University of Colorado, 2010-2011, Research Assistant.

FAAC Incorporated, 2007-2010, Engineer.

## Fellowships

Harvard University Visiting Fellow, 2012

NASA Space Technology Research Fellow, 2011-Present

Ford Foundation Predoctoral Research Fellow, 2011 (declined).

University Fellow, 2010-2011.

Edward A. Stalker Aerospace Research Fellow, 2006.

## Awards, Scholarships and Grants

Outstanding Research Award, University of Colorado Department of Computer Science, 2014

Ralph E. and Victoria L. Reins Scholarship, 2003-2007.

Robert C. Byrd Honors Scholarship, 2003-2007.

Michigan Competitive Scholarship, 2003-2007.

National SMART Grant, 2006-2007

Michigan Merit Award, 2003-2005

Regents Merit Scholarship, 2003-2004

## Additional Information

NASA Langley Emerging Professionals Committee, 2015-Present.

University of Colorado Computer Science Graduate Committee, 2011-2014.

University of Colorado Computer Science Social Committee, 2012-2014.

Boulder History Museum volunteer, 2010-2011.

Member of the Sault Ste. Marie Tribe of Chippewa Indians.