

# STEPHAN LEMMER

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## EDUCATION

- PhD (In Progress)** University of Michigan, Ann Arbor, Robotics 2017-Present
- MS** University of Michigan, Ann Arbor, Robotics May 2019
- MS** University of Texas at San Antonio, Applied/Industrial Mathematics May 2015
- BS** Rose-Hulman Institute of Technology, Mechanical Engineering May 2012  
Minored in Robotics, Computer Science,  
Spanish Language and Culture

## RESEARCH EXPERIENCE

**University of Michigan**, Ann Arbor, MI 2017 to Present

**Graduate Student Research Assistant**, Corso Research Group

- Developing systems for hybrid intelligence in 3d scene reconstruction.
  - Implemented and modified various PyTorch based deep learning systems, for tasks such as object detection, image generation, and viewpoint estimation.
  - Explored calibration in deep models for various tasks.
  - Developed Projection and filtering based methods for incorporating human annotations into pose estimation framework.

**Southwest Research Institute**, San Antonio, TX 2012 to 2017

**Research Engineer**

- Automated class VIII truck, including drive-by-wire interface, sensor integration, and software installation and calibration of ROS-based framework.
- Developed and implemented test procedures based on SAE standards for Dedicated Short-Range Communication (DSRC) radios.
- Applied machine learning and outlier detection algorithms to predict traffic delays and flag anomalous conditions.
- Supported integration of sensors onto multiple military and commercial vehicles.

**University of Denver**, Denver, CO 2011

**Undergraduate Researcher**, Collaborative Mechatronics Lab

- Worked on multiple robotics systems for urban search and rescue.

## PUBLICATIONS

Song, J. Y., Lemmer, S.J., Liu M. X., Yam, S., Kim, J., Corso, J. J., & Lasecki, W. S. (2019, March). Popup: reconstructing 3D video using particle filtering to aggregate crowd responses. In Proceedings of the 24th International Conference on Intelligent User Interfaces (pp. 558-569). ACM.

Sturgeon, P.K., Mott, C.M., Lemmer, S.J., and Brown, M.A. "Subtle Anomaly Detection in the Global Dynamics of Connected Vehicle Systems," Proceedings of ITS World Congress, October 10-14, 2016.

Lemmer, S.J., "Loosening the Reins: Decentralized Allocation of Resources and Tasks for Heterogeneous Multi-Agent Systems," Proceedings of XPONENTIAL 2016, May 2-5, 2016.

## PATENTS

Walker, J. D., Pomerening, D.J., Kozak, K.C., Mueshke, N.J., et al., "Edge-On Armor System with Translating and Rotating Armor Panels," United States Patent, No. 15963881. Patent Pending.

Lemmer, S.J., Mott, C.M., Avery, P.A., "Autonomous Team Formation and Task Negotiation Among Unmanned Vehicles," United States Patent 10,432,729 B2.

Lemmer, S.J., Chambers, D.R., "Sensor Data Confidence Estimation Based on Statistical Analysis," United States Patent, No. 10,235,629 B2

Lemmer, S.J., "Protective Case Adapted to Support a Smartphone," United States Patent, No. 62297097

## PRESENTATIONS AND INVITED LECTURES

**Poster Presentation**, "Loosening the Reins: Decentralized Allocation of Resources and Tasks for Heterogeneous Multi-Agent Systems," XPONENTIAL 2016, May 2-5 2016.

**Paper Presentation**, "Detection of Subtle Sensor Degradation through Machine Learning," University of Texas at San Antonio Architecture, Business, Engineering, and Science Student Conference, April 2015.