



## Matthew L. Dering

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CONTACT INFORMATION	1051 Teaberry Ln, Apt E205 State College, PA 16803 <a href="http://sites.psu.edu/dering/">http://sites.psu.edu/dering/</a>	(610) 209-9072 <a href="mailto:matthew.dering@gmail.com">matthew.dering@gmail.com</a>
RESEARCH INTERESTS	Deep Learning, Convolutional Neural Networks, Human Dynamics and Behavior, Product Design, Computer Vision, Automated Content Generation.	
EDUCATION	<b>Penn State University</b> , University Park, PA  Ph.D., Computer Science and Engineering, <i>Expected:</i> December 2017 <ul style="list-style-type: none"><li>• Thesis Topic: <i>The Efficacy of Deep Learning on the Product Design Lifecycle</i></li><li>• Advisors: Conrad S. Tucker, Ph.D and Daniel Kifer, Ph.D</li></ul> M.S., Computer Science And Engineering, March 2014 <ul style="list-style-type: none"><li>• Topic: <i>Android Market: Large Scale Reconstruction and Analysis</i></li><li>• Advisor: Patrick McDaniel, Ph.D</li></ul> <b>Swarthmore College</b> , Swarthmore, PA  B.A., Psychology June 2007	
RESEARCH EXPERIENCE	<b>Research Assistant</b> Penn State DATALab, Penn State University Supervisor: Conrad S. Tucker, Ph.D <b>Summer Researcher</b> Air Force Institute of Technology, Dayton, OH Supervisor: Kenneth Hopkinson, Ph.D <b>Research Assistant</b> SIISLab, Penn State University Supervisor: Patrick McDaniel, Ph.D <b>Summer Student</b> MIT Lincoln Labs, Lexington, MA Supervisor: Thomas Moyer, Ph.D	July 2014 to present    Summer 2015   June 2012 to May 2014   Summer 2012
REFEREED PUBLICATIONS	<ol style="list-style-type: none"><li>1. <b>Dering, M. L.</b>, Tucker, C. S., and Kumara, S. “An Unsupervised Machine Learning Approach To Assessing Designer Performance During Physical Prototyping” <i>Journal of Computing and Information Science in Engineering</i>, 2017.</li><li>2. <b>Dering, M. L.</b> and Tucker, C. S. “A Convolutional Neural Network Model for Predicting a Products Function, Given Its Form” <i>Journal of Mechanical Design: Data Driven Design</i>, 2017.</li></ol>	

3. **Dering, M. L.** and Tucker, C. S. “Early Predicting of Student Struggles Using Body Language” *ASEE Annual Conference & Exposition*, 2017.
4. Bodnar, T., **Dering, M. L.**, Tucker, C., and Hopkinson, K. M. “Using Large-Scale Social Media Networks as a Scalable Sensing System for Modeling Real-Time Energy Utilization Patterns.” *IEEE Transactions on Systems, Man, and Cybernetics: Systems.*, PP (99):1–14, 2016.
5. Octeau, D., Jha, S., **Dering, M.**, McDaniel, P., Bartel, A., Li, L., Klein, J. and Le Traon, Y. “Combining static analysis with probabilistic models to enable market-scale android inter-component analysis.” *ACM SIGPLAN Notices* 51(1):469–484, 2016.
6. **Dering, M. L.**, and Tucker, C. S. (2015, August). “A Computer Vision Approach for Automatically Mining and Classifying End of Life Products and Components.” *2015 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference* V004T05A007–V004T05A007.
7. Octeau, D., Luchaup, D., **Dering, M.**, Jha, S., and McDaniel, P. “Composite constant propagation: Application to android inter-component communication analysis.” *Proceedings of the 37th International Conference on Software Engineering* 1:77–88, 2015.
8. **Dering, M. L.**, and McDaniel, P. “Android market reconstruction and analysis.” *Military Communications Conference (MILCOM)*, 2014:300–305.

SUBMITTED  
CONFERENCE  
PUBLICATIONS

1. **Dering, M. L.** and Tucker, C. S. “The En-GAN-eer and I” *AAAI Fall Symposium*, 2017.

PAPERS IN  
PREPARATION

1. **Dering, M. L.** and Tucker, C. S. “Dis-Kinect-ed: Using Deep Learning for Simultaneous Pose and Depth Estimation”.

TEACHING  
EXPERIENCE

Teaching Assistant Fall 2014–Spring 2015  
 CMPSC 201 - Introduction to Programming for Engineers  
 Instructor: Martin Yeh, Ph.D  
 Computer Science and Engineering,  
 Penn State University

HARDWARE AND  
SOFTWARE SKILLS

Programming Languages:  
 • Python, C, C++, Java, Ruby, SQL, MySQL, MATLAB, and others  
 Software:  
 • Scikit-learn, Tensorflow, Theano, (Py)Torch, Matplotlib, Opencv, PCL, Boost, D3 and many others  
 Skills:  
 • Data Science, Robotics, Image Processing, Artificial Intelligence, Text Analysis, Visualization, Time Series Analysis.