Matthew L. Dering

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Information State College, PA 16803 matthew.dering@gmail.com

http://sites.psu.edu/dering/

RESEARCH Deep Learning, Convolutional Neural Networks, Human Dynamics and Behavior, Product Interests Design, Computer Vision, Automated Content Generation.

EDUCATION Penn State University, University Park, PA

Ph.D., Computer Science and Engineering, Expected: December 2017

- Thesis Topic: Using Deep Learning To Provide Computer Aided Design in Physical Spaces
- Advisors: Conrad S. Tucker, Ph.D and Daniel Kifer, Ph.D

M.S., Computer Science And Engineering, March 2014

- Topic: Android Market: Large Scale Reconstruction and Analysis
- Advisor: Patrick McDaniel, Ph.D

Swarthmore College, Swarthmore, PA

B.A., Psychology June 2007

RESEARCH Research Assistant
EXPERIENCE Penn State DATA

Penn State DATALab, Penn State University

Comparison Conned C Tuelson

Supervisor: Conrad S. Tucker, Ph.D

Summer Researcher Summer 2015

July 2014 to present

Air Force Institute of Technology,

Dayton, OH

Supervisor: Kenneth Hopkinson, Ph.D.

Research Assistant June 2012 to May 2014

SIISLab.

Penn State University

Supervisor: Patrick McDaniel, Ph.D

Summer Intern Summer 2013

Cigital, Inc. Dulles, VA

Summer Student Summer 2012

MIT Lincoln Labs, Lexington, MA

Supervisor: Thomas Moyer, Ph.D

Summer Intern Summer 2011

Cisco Systems, San Jose, CA

REFEREED PUBLICATIONS

- 1. **Dering, M. L.** and Tucker, C. S. "Implications of Generative Models in Government" *AAAI Fall Symposium*, 2017.
- 2. **Dering, M. L.**, Tucker, C. S., and Kumara, S. "An Unsupervised Machine Learning Approach To Assessing Designer Performance During Physical Prototyping" *Journal of Computing and Information Science in Engineering*, 2017.

- 3. Dering, M. L. and Tucker, C. S. "A Convolutional Neural Network Model for Predicting a Products Function, Given Its Form" Journal of Mechanical Design: Data Driven Design, 2017.
- 4. Dering, M. L. and Tucker, C. S. "Early Predicting of Student Struggles Using Body Language" ASEE Annual Conference & Exposition, 2017.
- 5. 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.
- 6. 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 marketscale android inter-component analysis." ACM SIGPLAN Notices 51(1):469–484, 2016.
- 7. 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.
- 8. 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.
- 9. Dering, M. L., and McDaniel, P. "Android market reconstruction and analysis." Military Communications Conference (MILCOM), 2014:300–305.

Submitted Conference **PUBLICATIONS** Papers in PREPARATION

- 1. Dering, M. L. and Tucker, C. S. "Generative Adversarial Networks for Increasing the Veracity of Big Data" IEEE International Conference on Big Data, 2017.
- 1. Dering, M. L. and Tucker, C. S. "Dis-Kinect-ed: Using Deep Learning for Simultaneous Pose and Depth Estimation".

AWARDS

Grant Awards

• NVIDIA K40 Hardware Grant, June 2016

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

Reviewer

IEEE Systems, Man, And Cybernetics: Systems

HARDWARE AND

Programming Languages:

- SOFTWARE SKILLS Python, C, C++, Java, Ruby, SQL, MySQL, MATLAB, and others
 - Scikit-learn, Tensorflow, Theano, (Py)Torch, Matplotlib, Opency, PCL, Boost, D3 and many others

Skills:

• Data Science, Robotics, Image Processing, Artificial Intelligence, Text Analysis, Visualization, Time Series Analysis.