

Alexander Ororbia II

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My research is in deep learning. I target conferences like ECML, EMNLP, ICML, NIPS, and AAAI. My goal is to develop scalable, semi-supervised connectionist models that are capable of operating in the life-long learning setting. In particular, I am interested in distributions that change with time, requiring the learner to adapt with only minimal guidance from a human teacher.

To empirically demonstrate and analyze the practical viability of these models, I also engineer intelligent tools that handle large-scale, mostly unlabeled, text and image data-sets.

Education

Academic Qualifications.....

Pennsylvania State University, University Park

Ph.D., Information Sciences & Technology

2013–present

Ph.D. Candidate (A.B.D. Expected by April 22, 2016).

Bucknell University, Lewisburg

B.S. Computer Science & Engineering

2009–2013

Minor in Mathematics and a Minor in Philosophy

Employment

Research Experience.....

University of Massachusetts, Amherst

Research Externship

2015

Visiting scholar for Dr. Andrew McCallum in the IESL Laboratory, worked on language modeling using deep neural architectures.

Pennsylvania State University, University Park

Graduate Assistantship

2013–present

Doctoral researcher under Dr. C. Lee Giles & Dr. David Reitter.

Pennsylvania State University, University Park

Summer Research Position

2013–2014

Summer research assistant for Dr. C. Lee Giles, worked on intelligent, topical web crawling.

Bucknell University, Lewisburg

Spring & Summer Research Position

2013–2014

Worked with Dr. Joseph V. Tranquillo (Biomedical Engineering) on computational modeling of creative dynamical systems.

Bucknell University, Lewisburg

Interpreters: Spring Semester Research Position

2013–2014

Worked with Dr. Benoit Razet & Dr. Lea Wittie in developing an educational Lambda Calculus interpreter.

Bucknell University, Lewisburg*Embedded Systems: Summer Research Position*

2012–2013

Platform Development with Android and Integration of the Kernel-Space Component of the FINS Framework, Advisor Dr. Michael Thompson, Professor Electrical Engineering Department.

Bucknell University, Lewisburg*Graphics: Summer Research Position*

2010–2011

The Collection and Organization of Facts Pertaining to the History of Computer Graphics Hardware, Advisor Dr. Joshua Steinhurst, Asst. Professor Computer Science Department.

Teaching Experience**The Pennsylvania State University, University Park***CSE/IST 597 (Advances & Applications in Deep Learning)*

2017

Guest lecturer (general machine learning, deep learning), helped design/prepare the course.

The Pennsylvania State University, University Park*CSE 597 (Computational Linguistics)*

2017

Guest lecturer (neural language modeling/dialogue modeling).

The Pennsylvania State University, University Park*Mentorship*

2017

Mentoring Shikun Liu, undergraduate student in Electrical Engineering.

The Pennsylvania State University, University Park*Mentorship/Management*

2016–2017

Joint project lead with Dr. Jian Wu for neural compression team (on behalf of Dr. Lee Giles). Mentored several undergraduate students & one Masters student.

The Pennsylvania State University, University Park*Mentorship*

2016–2017

Mentored Yanbo Sun, Masters student in Electrical Engineering (passed defense summer 2016).

Work Experience**New Providence, New Jersey***Interactions, LLC*

2016–2017

Summer intern for Dr. Ryan Price and Patrick Haffner, conducted an exploratory study on neural language models.

The Pennsylvania State University, University Park*Part-time Summer Research Consultant*

2014

Worked with Darla Lindberg of the architecture department on initial design of resource management and recommendation software system for charitable food distribution facilities.

Bucknell University, Lewisburg*Classroom and Events Support L&IT*

2009–2012

Office of Diversity & Equity, and later for Bertrand Library.

Skills**Programming Languages****Experienced::** Java, Scala, LaTeX**Comfortable::** MatLab, R, O-Caml, JavaScript, C, C++, Python, Haskell, Bash, and MIPS assembly**Familiar::** LISP, SmallTalk, HTML/CSS mark-up, PHP, & Verilog Hardware Description Language**Software****Experienced::** Keras, Theano, Weka, Eclipse, IntelliJ, BIDData/BIDMat, GIMP, Audacity, Blender3D**Comfortable::** MiniTab Statistical Package, LogicWorks (circuit design & simulation), GNU Make & Plot, 3DsMax/Viz, & Rhino**Familiar::** Spark, Hadoop Distributed File System

Awards & Honors

- CIFAR-CRM Deep Learning Summer School (2016, accepted participant)
- Alfred P. Sloan Scholar (2014-2015 cohort, merit-based)
- NSF IGERT Fellow (2014-2016, merit-based)
- Jordan Rednor Fellow (2013, merit-based)
- Bunton Waller Scholar (2013-2014, 2016-2017, merit-based)

Affiliations

- Alpha Lambda Delta Honor Society
- Omicron Delta Kappa Honor Society
- Bucknell Engineering Alumni Association
- Association of Computing Machinery (Student member)
- Society of Hispanic Engineers (Founder & charter member of local Bucknell chapter)
- The National Society of High School Scholars

Professional Activities

- Bucknell National Society of Hispanic Engineers (2011-2012) Drafted club's constitution - charter member, Vice President
- Bucknell Association of Computing Machinery (2010-2012) - Treasurer
- Bucknell Musician's Forum (2009 - 2010) - Treasurer
- Student Mentor for Bucknell Alumni Weekend (2010)
- Bucknell Engineering Student Research Symposium Presented "The Collection and Analysis of Facts Surrounding the History of Graphics Hardware" research (2011)
- Bucknell Engineering Student Research Symposium Presented "The Collection and Organization of Facts Pertaining to the History of Computer Graphics Hardware" research (2010)
- Bucknell Big Questions/Answers Symposium (2009)
- Bucknell Engineering Student Research Symposium, Presented 3D Modeling/Animation independent research (2009)
- Bucknell Issues of the 21st Century Symposium (student participant) (2008)

Publications

2017.....

Alexander G. Ororbia II, Tomas Mikolov, and David Reitter. "Learning Simpler Language Models with the Delta Recurrent Neural Network Framework". *arXiv:1703.08864 [cs.LG]*.

Alexander G. Ororbia II, David Reitter, and C. Lee Giles. "The Temporal Neural Coding Network: Towards Lifelong Language Learning". 11th Annual Machine Learning Symposium. (Peer-reviewed and accepted poster and spotlight talk).

2016.....

Iulian Serban, **Alexander G. Ororbia II**, Joelle Pineau, and Aaron Courville. "Multi-modal Variational Encoder-Decoders". *arXiv:1612.00377 [cs.LG]*. (First two authors contributed equally.)

Qinglong Wang, Wenbo Guo, Kaixuan Zhang, **Alexander G. Ororbia II**, Xinyu Xing, C. Lee Giles, and Xue Liu. "Learning Adversary-Resistant Deep Neural Networks". *arXiv:1612.01401 [cs.LG]*.

Shuting Wang, **Alexander G Ororbia II**, Zhaohui Wu, Kyle Williams, Chen Liang, Bart Pursel, and C Lee Giles. "Using Prerequisites to Extract Concept Maps from Textbooks". In: *Proceedings of the 25th ACM*

International on Conference on Information and Knowledge Management.

Qinglong Wang, Wenbo Guo, **Alexander G. Ororbias II**, Xinyu Xing, Lynn Lin, C. Lee Giles, Xue Liu, Peng Liu, and Gang Xiong. "Using Non-invertible Data Transformations to Build Adversary-Resistant Deep Neural Networks". *arXiv:1610.01934 [cs.LG]*.

Alexander G Ororbias II, Fridolin Linder, and Joshua Snok. "Privacy Protection for Natural Language Records: Neural Generative Models for Releasing Synthetic Twitter Data". *arXiv:1606.01151 [cs.LG]*.

Alexander G. Ororbias II, C. Lee Giles, and Daniel Kifer. "Unifying Adversarial Training Algorithms with Flexible Deep Data Gradient Regularization". *arXiv:1601.07213 [cs.LG]*.

2015.....

Alexander G. Ororbias II, C. Lee Giles, and David Reitter. "Online Semi-Supervised Learning with Deep Hybrid Boltzmann Machines and Denoising Autoencoders". *arXiv:1511.06964 [cs.LG]*.

Alexander G. Ororbias II, David Reitter, Jian Wu, and C Lee Giles. "Online learning of deep hybrid architectures for semi-supervised categorization". In: *Proceedings of Joint European Conference on Machine Learning and Knowledge Discovery in Databases*.

Alexander G Ororbias II, C Lee Giles, and David Reitter. "Learning a Deep Hybrid Model for Semi-Supervised Text Classification". In: *Proceedings of Empirical Methods in Natural Language Processing*.

Alexander G Ororbias II, Yang Xu, Vito D'Orazio, David Reitter. "Error-Correction and Aggregation in Crowd-Sourcing of Geopolitical Incident Information". In: *Proceedings of Social Computing, Behavioral-Cultural Modeling, and Prediction: 8th International Conference*.

Alexander G Ororbias II, Jian Wu, Madian Khabsa, Kyle Williams, and C. Lee Giles. "Big Scholarly Data in CiteSeerX: Information Extraction from the Web". In: *Proceedings of the 24th International Conference on World Wide Web*.

Hung-Hsuan Chen, **Alexander G Ororbias II**, and C Lee Giles. "ExpertSeer: a Keyphrase Based Expert Recommender for Digital Libraries". *arXiv preprint arXiv:1511.02058*.

2014.....

Alexander G Ororbias II, Jian Wu, and C Lee Giles. "CiteSeerX: Intelligent Information Extraction and Knowledge Creation from Web-Based Data". *4th Workshop on Automated Knowledge Base Construction (AKBC) (at NIPS 2014)*.

Jian Wu, **Alexander G Ororbias II**, Kyle Williams, Madian Khabsa, Zhaohui Wu, and C Lee Giles. "Utility-based control feedback in a digital library search engine: Cases in CiteSeerX". *9th International Workshop on Feedback Computing (Feedback Computing 14)*.

Jian Wu, Kyle Williams, Hung-Hsuan Chen, Madian Khabsa, Cornelia Caragea, **Alexander G Ororbias II**, Douglas Jordan, and C Lee Giles. "CiteSeerX: AI in a Digital Library Search Engine". *AAAI*

Zhaohui Wu, Jian Wu, Madian Khabsa, Kyle Williams, Hung-Hsuan Chen, Wenyi Huang, Suppawong Tuarob, Sagnik Ray Choudhury, **Alexander G Ororbias II**, Prasenjit Mitra, and C Lee Giles. "Towards building a scholarly big data platform: Challenges, lessons and opportunities". *Digital Libraries (JCDL)*.

References

- **Dr. C. Lee Giles**: David Reese Professor, The Pennsylvania State University, University Park, PA
Email: giles@ist.psu.edu, Phone: +1 (814) 865-7884
- **Dr. David Reitter**: Assistant Professor, The Pennsylvania State University, University Park, PA
Email: reitter@psu.edu, Phone: +1 (814) 867-3159
- **Dr. Stephen Guattery**: Professor, Bucknell University, Lewisburg, PA
Email: guattery@bucknell.edu, Phone: +1 (570) 577-3828