Alexander Ororbia II

Information Sciences & Technology (IST), The Pennsylvania State University
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My research is in developing scalable, semi-supervised connectionist models capable of operating in the life-long learning setting. Drawing from theoretical insights in both cognitive science and statistical machine learning, my goal is to design neural models that can effectively adapt to evolving text and image-based distributions with only minimal initial guidance from a human teacher.

To empirically demonstrate and analyze the practical viability of these models, I engineer intelligent tools that handle large-scale, mostly unlabeled, scholarly text, character recognition, and legislative speech data-sets.

Education

Academic Qualifications

Pennsylvania State University, University Park
Ph.D., Information Sciences & Technology — *2013–present*
Has passed candidacy field exam and is currently a graduate candidate.

Bucknell University, Lewisburg
B.S. Computer Science & Engineering — *2009-2013*
Minor in Mathematics and a *Minor in Philosophy*

Skills

Programming Languages

Experienced:: Java, Scala, LaTeX

Comfortable:: JavaScript, C, C++, Python, MatLab, R, O-Caml, Haskell, Bash, and MIPS assembly-level language

Familiar:: LISP, SmallTalk, HTML & CSS mark-up, PHP server-side scripting, LogicWorks (circuit design & simulation), Verilog Hardware Description Language, and GNU Make & Plot

Software

Experienced:: Eclipse IDE (for Java, C, Scala, & O-Caml), IntelliJ (JavaScript), BIDData/BIDMat, MiniTab Statistical Package, GIMP (image manipulation software), Audacity (sound manipulation & processing software), Microsoft Office Suite (PowerPoint, Word, and Excel), and modeling & animation packages including Blender3D, 3Ds Max/Viz, & Rhino

Familiar:: Spark, Hadoop Distributed File System

Operating Systems

Experienced:: Windows (with Cygwin), Ubuntu, and Linux RedHat Enterprise 6

Employment

Research Experience

University of Massachusetts, Amherst
Research Externship *2015*
Visiting scholar to 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
Intelligent Web Crawling: Summer Research Position *2013–2014*
Worked as summer employee/researcher for Dr. C. Lee Giles (intelligent, topical web crawling).

Bucknell University, Lewisburg
Dynamical Systems: Spring & Summer Research Position *2013–2014*
Worked with Dr. Joseph V. Tranquillo (Biomedical Engineering) on computational modeling of creative 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.

Work Experience

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 *2011–2012*
Provided services in conjunction with technology desk.

Bucknell University, Lewisburg
Technology Support/Assistant *2009–2011*
Office of Diversity & Equity.

Awards

- 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)

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)

Affiliations

- Alpha Lambda Delta Honor Society
- Omicron Delta Kappa Honor Society
- Bucknell Engineering Alumni Association
- Association of Computing Machinery
- Society of Hispanic Engineers - Founder and charter member
- The National Society of High School Scholars (Founder and Chairman Claes Nobel)

Journal Publications

Wu, Jian, Kyle Mark Williams, Hung-Hsuan Chen, Madian Khabsa, Cornelia Caragea, Suppawong Tuarob, Alexander G. Ororbia, Douglas Jordan, Prasenjit Mitra, and C. Lee Giles (2015). "CiteSeerX: AI in a Digital Library Search Engine". In: *AI Magazine* 36.3, pp. 35–48.

Conference Publications

Ororbia II, A. G., David Reitter, Jian Wu, and C. L. Giles (2015). "Online Learning of Deep Hybrid Architectures for Semi-Supervised Categorization". In: *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, ECML PKDD*. Springer.

Ororbia II, A. G., Jian Wu, Madian Khabsa, Kyle Williams, and C. L. Giles (2015). "Big Scholarly Data in CiteSeerX: Information Extraction from the Web". In: *BigScholar, The Second WWW Workshop on Big Scholarly Data: Towards the Web of Scholars*.

Ororbia II, A. G., Xu Yang, Vito D'Orazio, and David Reitter (2015). "Error-correction and Aggregation in Crowd-Sourcing of Geopolitical Incident Information". In: *Social Computing, Behavioral Modeling and Prediction*. Ed. by N. Agarwal et al. Vol. 9021. Springer, pp. 381–387.

Ororbia II, Alexander G., C. Lee Giles, and David Reitter (2015). "Learning a deep hybrid model for semi-supervised text classification". In: *Proceedings of the 2015 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Lisbon, Portugal.

Ororbia II, A. G., Jian Wu, and C. L. Giles (2014). "CiteSeerX: Intelligent Information Extraction and Knowledge Creation from Web-Based Data". In: *4th Workshop on Automated Knowledge Base Construction (AKBC) 2014*.

Wu, Jian, A. G. Ororbia II, Kyle Williams, Madian Khabsa, Zhaohui Wu, and C. L. Giles (2014). "Utility-Based Control Feedback in a Digital Library Search Engine: Cases in CiteSeerX". In: *The 9th International Workshop on Feedback Computing*.

Wu, Jian, Kyle Williams, Hung-Hsuan Chen, Madian Khabsa, Cornelia Carageay, A. G. Ororbia II, Douglass Jordan, and C. L. Giles (2014). "CiteSeerX: AI in a Digital Library Search Engine (Won "Most Innovative Application of AI" Award)". In: *Twenty sixth Annual Conference on Innovative Applications of Artificial Intelligence (IAAI '14)*.

Zhaohui, Wu, Jian Wu, Madian Khabsa, Kyle Williams, Hung-Hsuan Chen, Wenyi Huang, Suppawong Tuarob, Sagnik Ray Choudhury, A. G. Ororbia II, Prasenjit Mitra, and C. L. Giles (2014). "Towards Building a Scholarly Big Data Platform: Challenges, Lessons and Opportunities". In: *International Conference on Digital Libraries 2014 (DL '14)*. (Note: I also presented the talk).

ArXiv Papers & Tech Reports

Ororbia II, A. G., Nicolas Monath, and Andrew McCallum (2016). *Deep Connectionist Modeling of Documents*. (In Preparation).

Ororbia II, A. G. and Burt Monroe (2016). *Towards Interpretable Deep Learning for Political Text Data*. (In Preparation).

Ororbia II, Alexander G., C. Lee Giles, and Daniel Kifer (2016). *Unifying Adversarial Training Algorithms with Flexible Deep Data Gradient Regularization*. (In Review). arXiv: 1601.07213.

Chen, Hung-Hsuan, Alexander G. Ororbia II, and C. Lee Giles (2015). *ExpertSeer: a Keyphrase Based Expert Recommender for Digital Libraries*. arXiv: 1511.02058.

Ororbia II, Alexander G., C. Lee Giles, and David Reitter (2015). *Online Semi-Supervised Learning with Deep Hybrid Boltzmann Machines and Denoising Autoencoders*. (In Review). arXiv: 1511.06964.

Miller, Elaina, A. G. Ororbia II, and Bonnie Reiff (2013). *Follow Automata Paper Analysis and Implementation*. 12-1. (Note all authors carried equal contribution weight). Department of Computer Science, College of Engineering, Bucknell University.

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