

**CURRICULUM VITAE**  
**JAMES FOSTER**  
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**Contact**

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**Positions Held**

- 8/17 - Educational Technology Research Assistant  
Office of Information Technology, ASSETT Team  
University of Colorado, Boulder
  
- 5/17 – 8/17 Data Science Ph.D. Intern  
Oracle Data Cloud  
Broomfield, Colorado
  
- 8/16 – 5/17 Graduate Data Analysis and Research Consultant  
Computer Laboratory for Instruction in Psychology Research  
University of Colorado, Boulder
  
- 6/11 – Graduate Research Assistant, Jones Lab  
University of Colorado, Boulder  
Advisor: Matt Jones
  
- 8/09 – 5/11 Graduate Research Assistant, Computational Language and Education  
Research (CLEAR), University of Colorado, Boulder  
Advisors: Tamara Sumner and James Martin
  
- 8/08 – 5/09 Research Assistant, University Scholars Program  
University of Florida, Gainesville  
Advisor: Hana Filip
  
- 5/06 – 8/06 Professional Intern, Industrial Engineering  
Walt Disney World, Lake Buena Vista, Florida

## **Education**

- 2018 (expected) Ph.D. in Cognitive Science,  
Cognitive Psychology, & Neuroscience  
University of Colorado, Boulder
- 2015 M.A. in Cognitive Psychology,  
University of Colorado, Boulder
- 2009 B.S. in Computer Science  
University of Florida, Gainesville  
Industrial & Systems Engineering Elective  
GPA 3.97

## **RESEARCH**

### **Grants, Fellowships, and Awards**

- 2016 Travel Award, Institute of Cognitive Science, University of Colorado.  
\$500.
- 2015 Travel Award, Institute of Cognitive Science, University of Colorado.  
\$700.
- 2014 Travel Award, Department of Psychology & Neuroscience, University  
of Colorado. \$400.
- 2014 Summer Research Grant, Institute of Cognitive Science, University of  
Colorado. \$5,000.
- 2014 Travel Award, Institute of Cognitive Science, University of Colorado.  
\$200.
- 2013 Travel Award, Cognitive Psychology Program, University of  
Colorado. \$542.
- 2013 Travel Award, Institute of Cognitive Science, University of Colorado.  
\$700.
- 2013 Travel Award, Cognitive Psychology Program, University of  
Colorado. \$389.
- 2013 Travel Award, Department of Psychology & Neuroscience, University  
of Colorado. \$400.
- 2012-13 First-Year Student Fellowship, Cognitive Psychology Program,  
University of Colorado. \$1,000.

- 2008-09 University Scholars Undergraduate Research Program Grant, University of Florida. \$2,500.
- 2008 Tuckett Scholarship, College of Engineering, University of Florida. \$1,000.
- 2006 Anderson Scholar, Highest Distinction, College of Liberal Arts & Sciences, University of Florida.
- 2004-08 National Merit Scholarship. \$25,000.
- 2005 Wentworth Scholarship, College of Engineering, University of Florida. \$400.

### **Publications**

- Foster, J & Jones, M. (2017). Reinforcement Learning with Analogical Similarity to Guide Schema Induction and Attention. arXiv:1712.10070 [cs.AI]
- Foster, J. (2015, Master's Thesis). Analogical Reinforcement Learning *Psychology and Neuroscience Graduate Theses & Dissertations*. 91.
- Butcher, K. R., Leary, H., Foster, J., & Devaul, H. (2014). Facilitating teachers' thinking about pedagogy and technology with an online curriculum planning tool. *Journal of Technology and Teacher Education*, 22(4), 423-447.
- Okoye, I., Maull, K., Foster, J., & Sumner, T. (2012). Educational Recommendation in an Informal Intentional Learning System. In O. Santos, & J. Boticario (Eds.), *Educational Recommender Systems and Technologies: Practices and Challenges* (pp. 1-23). Hershey, PA: Information Science Reference. doi:10.4018/978-1-61350-489-5.ch001

### **Peer-Reviewed Conference Papers**

- Foster, J. & Jones, M. (2013). Analogical Reinforcement Learning. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (pp. 448-453). Austin, TX: Cognitive Science Society.
- Foster, J., Cañas, F., & Jones, M. (2012). Learning Conceptual Hierarchies by Iterated Relational Consolidation. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 324-239). Austin, TX: Cognitive Science Society.
- James M. Foster, Md. Arafat Sultan, Holly Devaul, Ifeyinwa Okoye, and Tamara Sumner. 2012. Identifying core concepts in educational resources.

In *Proceedings of the 12th ACM/IEEE-CS joint conference on Digital Libraries* (JCDL '12). ACM, New York, NY, USA, 35-42.  
DOI=10.1145/2232817.2232827

Tamara Sumner and CCS Team. 2010. Customizing science instruction with educational digital libraries. In *Proceedings of the 10th annual joint conference on Digital Libraries* (JCDL '10). ACM, New York, NY, USA, 353-356. DOI=10.1145/1816123.1816178

### **Manuscripts in Preparation**

Foster, J. Analogies between and within linguistic and conceptual domains support language acquisition and language processing. *Manuscript in preparation*.

Foster, J. & Jones, M. Learning Relational Concepts with Analogy, Reinforcement Learning, and Consolidation. *Manuscript in preparation*.

### **Conference Presentations**

Pareman, J., Foster J., Fairley, K., Hakimi, S., Jones, M., Carter, R. (2015, September). Social Balloon Analogue Risk Task: Competitive & cooperative rule effects on social decision making. Poster presented at the Annual Meeting of the Society for Neuroeconomics. Miami, FL.

Foster, J. & Jones, M. (2015, July). Reliability Weighting for Relational Cue Combinations. Presented at the Fourteenth Annual Summer Interdisciplinary Conference. Mammoth Lakes, CA.

Foster, J., Jones, M., Bell-Souder, D., Kim, A. (2015, November). Metaphor's New Career: A Shift from Structured to Attributive Representations. Poster presented at the Annual Meeting of the Psychonomic Society. Chicago, IL.

Foster, J. & Jones, M. (2014, November). Analogical Reinforcement Learning with Two-Stage Memory Retrieval. Poster presented at the Annual Meeting of the Psychonomic Society. Long Beach, CA.

Foster, J. & Jones, M. (2014, June). Analogical Reinforcement Learning with Two-Stage Memory Retrieval. Presented at the Thirteenth Annual Summer Interdisciplinary Conference. Moab, UT.

Foster, J. & Jones, M. (2013, November). Analogical Reinforcement Learning. Poster presented at the Annual Meeting of the Psychonomic Society. Toronto, Canada.

- Foster, J. & Jones, M. (2013, August). Are Some Schemas Stronger than Others? The Reinforcement of Relational Concepts. Poster presented at the Third International Conference on Analogy. Dijon, France.
- Foster, J., & Jones, M. (2013, August). Analogical Reinforcement Learning. Paper presented at the 35th Annual Conference of the Cognitive Science Society. Berlin, Germany.
- Foster, J. & Jones, M. (2013, July). Analogical Reinforcement Learning. Presented at the Twelfth Annual Summer Interdisciplinary Conference. Cortina d'Ampezzo, Italy.
- Foster, J., Cañas, F., & Jones, M. (2012, August). Learning Conceptual Hierarchies by Iterated Relational Consolidation. Paper presented at the 34<sup>th</sup> Annual Conference of the Cognitive Science Society. Sapporo, Japan.
- Foster, J., & Arafat, A., Devaul, H., Okoye, I., & Sumner, T. (2012, June). Identifying Core Concepts in Educational Resources. Paper presented at the 12th ACM/IEEE-CS joint conference on Digital Libraries (JCDL '12). Washington, D.C.
- Foster, J., Cañas, F., & Jones, M. (2011, November). Constructing Representations through Iterated Relational Learning. Poster presented at the Annual Meeting of the Psychonomic Society. Seattle, WA.

### **Other Presentations**

- Foster, J. (2015, April). Making New Things Familiar and Familiar Things New: Conventionalization and Unpacking of English Sentential Metaphors. Paper presented at the Institute of Cognitive Science Summer Research Funds Award Colloquium, University of Colorado. Boulder CO.
- Foster, J. (2015, March). The Induction, Reinforcement, and Unpacking of Relational Concepts. Paper presented at the Cognitive Psychology colloquium, University of Colorado. Boulder CO.
- Foster, J. (2014, April). Analogical Reinforcement Learning. Paper presented at the Ekstrand Mini-Convention, University of Colorado. Boulder CO.
- Foster, J. (2014, November). Analogical Reinforcement Learning. Paper presented at the Cognitive Psychology colloquium, University of Colorado. Boulder CO.

- Foster, J. (2013, April). Learning Relational Concepts with Analogy, Reinforcement Learning, and Consolidation. Paper presented at the Ekstrand Mini-Convention, University of Colorado. Boulder CO.
- Arafat, A., & Foster, J. (2012, April). Identifying Core Concepts in Educational Resources. Poster presented at the Institute of Cognitive Science Poster Session, University of Colorado. Boulder, CO.
- Okoye, I., Foster, J., & Sumner, T. (2011, April). Towards Effective Formative Feedback in CLICK: core concept identification and misconception prioritization. Poster presented at the Institute of Cognitive Science Poster Session, University of Colorado. Boulder, CO.
- Foster, J., & Filip, H. (2009, February). The Relationship between Polysemy and Analogy. Paper presented at the annual Undergraduate Research Symposium, University of Florida. Gainesville, FL.

## **TEACHING**

Su 2014 - Spr 2016      Lead Graduate Teacher, Psychology & Neuroscience Department, University of Colorado Graduate Teacher Program

### **Courses Taught**

- Spr 2015      Graduate Teaching Assistant, Statistics and Research Methods (undergraduate), University of Colorado
- Fall 2014      Graduate Teaching Assistant, Introductory Cognitive Psychology (undergraduate), University of Colorado
- Spr 2014      Graduate Teaching Assistant, Developmental Psychology (undergraduate), University of Colorado
- Fall 2013      Graduate Teaching Assistant, Statistics and Research Methods (undergraduate), University of Colorado
- Fall 2012      Graduate Teaching Assistant, Statistics and Research Methods (undergraduate), University of Colorado
- Spr 2007      Teaching Assistant, Computer Programming for Engineers (undergraduate), University of Florida
- Fall 2006      Teaching Assistant, Computer Programming for Engineers (undergraduate), University of Florida

### **Student Supervision**

Undergraduate research supervision

Jacob Parelman, 2015

Adam Szyszko, 2015

Alexandre Apfel, 2013

## **SERVICE**

### **University Service**

2013- Student Awards Committee (Chair), Institute of Cognitive Science,  
University of Colorado

2013-2014 Executive Committee Graduate Student Representative, Institute of  
Cognitive Science, University of Colorado

2013 Prospective Student Visit Committee, Cognitive Psychology Program,  
University of Colorado

### **Professional Service**

2009 Student Volunteer, North American Chapter of the Association for  
Computational Linguistics - Human Language Technologies (NAACL  
HLT)

2004-09 Tau Beta Pi, Engineering Honor Society