David M. Barbella

Curriculum Vitae

September 7, 2022

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Education

2016 PhD. Northwestern University. Electrical Engineering and Computer Science.
2011 M.S. Northwestern University. Electrical Engineering and Computer Science.
2008 B.A. Carleton College. Computer Science

Professional Appointments

2016-Present Associate Professor of Computer Science. Earlham College.

Publications

Journal Articles

2015 Barbella, D. and Forbus, K. (2015). Exploiting Connectivity for Case Construction in Learning by Reading. *Advances in Cognitive Systems.*

2013 Barbella, D. and Forbus, K. (2013). Analogical Word Sense Disambiguation. *Advances in Cognitive Systems*, 2:297-315.

2013 Friedman, S., Barbella, D., and Forbus, K. (2012). Revising Domain Knowledge with Cross Domain Analogy. *Advances in Cognitive Systems*, 2:13-24.

Strongly Refereed Conference Publications

2011 Barbella, D. and Forbus, K. (2011). Analogical Dialogue Acts: Supporting Learning by Reading Analogies in Instructional Texts. *Proceedings of the Twenty-Fifth AAAI Conference on Artificial Intelligence (AAAI 2011)*, San Francisco, CA.

Workshops

2012 Friedman, S., Barbella, D., and Forbus, K. (2012). Repairing Qualitative Domain Knowledge with Cross-Domain Analogy. *Proceedings of QR 2012*.

2010 Barbella, D., and Forbus, K. (2010). Analogical dialogue acts: Supporting learning by reading analogies. *Proceedings of NAACL HLT 2010: 1st Int. Workshop on Formalisms and Methodology for Learning by Reading.*

Teaching Experience

2016-Present Associate Professor of Computer Science. Earlham College.
Courses include Advanced Data Structures; Algorithms; Artificial Intelligence and Machine Learning; Computer Game Design; Database Systems; Functional Programming; Methods for Research and Dissemination in Computer Science; Parallel and Distributed Computation;

Programming & Problem Solving; Software Engineering; Theory of Computation; Senior Capstone Experience; First-year Writing Seminar.

2011-2015 Teaching Trainee. Northwestern University.
EECS 370: Computer Game Design. (Spring 2011, 2013, 2015)

Research Experience

2020-Present Earlham Green Filing Research Group, Earlham College. Principal Investigator.
Collaborated with Green Filing, a local business, to develop a system for extracting key pieces of information from legal filings. Supervised and collaborated with student researchers on developing systems to support this work.

2016-2021 Earlham Analogy Research Group, Earlham College. Principal Investigator.
Investigated a variety of techniques in machine reasoning and machine learning for detecting textual analogies across a range of domains. Supervised and collaborated with student researchers on developing software systems to support this work.

2008-2016 Qualitative Research Group, Northwestern University. Research Assistant.
Developed lines of research in natural language understanding, cognitive systems, and analogy, resulting in the articles listed above for this period. Produced, maintained, extended, and instructed others in the use of software designed for experimental and practical machine reading tasks.

Service

2022-Present Division Convener, Natural Science Division. Earlham College.

2020-2022 Recording Clerk of the Faculty. Earlham College.

2017-2020 Student Conduct Council. Earlham College.

2017-Present Department Chair, Computer Science Department. Earlham College.

2017-Present Program Convener, Digital Arts. Earlham College

2016-Present Faculty Advisor: Earlham Hackers' Club; Helping Others Program Applied Group, Web Development Applied Group. Earlham College

2017-Present Search Committees: Assistant Professor of Computer Science (Co-Chair); VAP of Computer Science (2x); VAP of Math/CS/Physics (Chair); Completion Systems Analyst. Earlham College

2017-Present Program Committees: ACS 2018-21; AAAI-18-21; AAAI-18-21 Doctoral Consortium

Professional Skills

Programming: Python, Lisp, Java, C#, Haskell, C++, SQL, Prolog, HTML