

## James Rogers

*Home Address:*  
625 SW 20th St.  
Richmond, IN 47374  
(765)939-7340

*Campus Address:*  
Computer Science Department  
Drawer #98  
Earlham College  
Richmond, IN 47374-4095  
jrogers@cs.earlham.edu  
<http://www.cs.earlham.edu/~jrogers>  
(765)983-1671, Fax: (765)983-1497

### Education

Ph.D. Computer Science, University of Delaware, Newark, Delaware, Jan 1995.  
Dissertation: *Studies in the Logic of Trees with Applications to Grammar Formalisms*  
Adviser: K. Vijay-Shanker.  
Committee: John Case, Univ. of Delaware; Robert Frank, Univ. of Delaware;  
Aravind K. Joshi, Univ. of Pennsylvania.

M.S. Computer Science, University of Delaware, Newark, Delaware, Jan. 1993.

B.A. Liberal Arts, Goddard College, Plainfield, Vermont, June 1977.

### Academic Positions

2005–2006 Jeanne Rosselet Fellow, Radcliffe Institute for Advanced Study, Cambridge, MA.

2003– Associate Professor and Convener, Dept. of Computer Science, Earlham College, Richmond, IN.

2002–2006 Visiting lecturer, International PhD. Programme in Formal Languages and Applications, Rovira i Virgili University, Tarragona, Spain. (Annual one week lectures.)

2000–2002 Assistant Professor, Dept. of Computer Science, Earlham College, Richmond, IN.

1996–2000 Assistant Professor, Computer Science, University of Central Florida, Orlando, FL.

1994–1996 Post-Doctoral Fellow, Institute for Research in Cognitive Science (The NSF Science and Technology Center for Research in Cognitive Science), Univ. of Pennsylvania, Philadelphia, PA.

### Research Area

My principle interests lie in the theoretical aspects of *Computational Linguistics (Natural Language Processing)*, in *Mathematical Logic*, and, particularly, in the intersection of these. My research has focused on logical (model-theoretic) studies of formalisms for representing the syntactic structure of natural languages. Many systems of natural language understanding and generation are based on the knowledge of such structure, and formalisms of the sort I study typically find application in the core of these systems, but the main thrust of my research is the insight into issues in the linguistics of natural languages that can be provided by the tools and techniques of Computer Science and Logic.

More generally, I am interested in *formal methods* in a broad sense—theories and mechanisms which are based on precise mathematical semantics. Additional interests include *Formal Language Theory*, *Theory of Computation*, *Artificial Intelligence (Automated Theorem Proving, Rewrite Systems)* and *formal semantics of languages* both natural and programming.

## Teaching Interests

I am interested in Computer Science education in itself and have been actively engaged in curriculum development with some success. I am particularly interested in exploring ways of better integrating theoretical foundations into the core curriculum without losing sight of the fact that its goals are largely practical.

I have a strong commitment to active learning which shows up in my lectures—which tend to be interactive while theoretically rigorous—in an extensive use of labs with expository content in my more systems oriented courses, and in the use of guided inquiry in my theoretical courses.

The courses I have taught most frequently, and for which I have the most fully developed pedagogy, are CS-2 (advanced programming and basic data structures), *Algorithms*, and *Theory of Computation*. In ToC, I have been developing, over the last few of years, course materials based on a variation of active/cooperative learning, which have been highly successful.

I also teach a *Senior Seminar* annually, which involves guiding capstone projects as well as leading a traditional seminar (reading/discussion/writing/presentation). In the seminar we usually focus on social, ethical and legal issues in information technology including both current issues and historical context.

Other courses I have taught recently include CS-1 (Introduction to Programming), *Programming Languages, Networks, Graphics, Operating Systems, Computer Organization, AI and Database Systems*. I have professional experience in Hardware Design and Systems Programming which allows me to bring a personal perspective to *Computer Organization and Operating Systems*.

Courses I have not yet had an opportunity to teach, but which are close to my research include *Logic, Natural Language Processing*, other aspects of *Cognitive Science*, and *Compilers*.

I also have a strong interest in the *History of Computing* and *Social and Ethical Aspects of Computing*, and am interested in teaching such courses, if they are offered, or developing them if they are not.

I am particularly interested in the areas in which Computer Science interacts with other disciplines, my own research being one example. One of the opportunities I have had at Earlham is to supervise student interdisciplinary research. I would very much like to expand this into a more formal framework.

At the undergraduate level, my interests align most closely with topics in the areas (from ACM/IEEE-CS *Computing Curricula 2001*): AL—*Algorithms and Complexity*, PL—*Programming Languages*, AR—*Architecture and Organization*, OS—*Operating Systems*, IS—*Intelligent Systems*, and SP—*Social, Ethical, and Professional Issues*.

## Teaching Experience

Associate Professor, Earlham College, 2003 to present.

Assistant Professor, Earlham College, 2000 to 2003.

- *Programming and Problem Solving* (ACM/IEEE-CS CS-1) (Fall '04).
  - Text: Savitch, *Problem Solving: The Object of Programming*, 5ed..
- *Advanced Programming* (ACM/IEEE-CS CS-2) (Spring '01, '02, '03, '04, '05, '07).
  - Text: Main and Savitch, *Data Structures and other Objects Using C++*.
- *Algorithms and Data Structures* (ACM/IEEE-CS CS-7) (Fall '00, '01, '02, '03, '04, '06, '07).
  - Text: Cormen, Leiserson, Rivest and Stein, *Introduction to Algorithms* (Fall '04 to present).
  - Text: Weiss, *Data Structures and Algorithm Analysis in C++* (Fall '01, '02, '03).
  - Text: Sedgewick, *Algorithms in C++* (Fall '00).
- *Theory of Computation* (Spring '01, '02, '03, '04, '05).
  - Text: My own handouts. ('04, '05)
  - Text: Micheal Sipser, *Introduction to the Theory of Computation*. PWS, 1997. ('03)
  - Text: Lewis and Papadimitriou, *Elements of the Theory of Computation*. Prentice Hall, 1998. ('01, '02)

- *Senior Seminar*. (Fall '00, '01, '02, '03, '04, Spring '04, Fall '06).
- *Programming Languages* (Fall '01, Spring '03, Fall '07).
  - Text: Sebestra, Robert W. *Concepts of Programming Languages*, Addison Wesley.
- *Networks and Networking* (Spring '03, Fall '06)
  - Text: Kurose and Ross. *Computer Networking; A Top-Down Approach, 2ed.*, Addison Wesley, 2003.
- *Graphics* (Spring '05, '07).
  - Text: Hill and Kelley. *Computer Graphics Using Open GL*, Prentice Hall, 2007.
- *Database Systems* (Fall '00).
  - Text: Date, *Database Systems*.
- *Topics: Artificial Intelligence* (Spring '01).
  - Text: Russell and Norvig, *Artificial Intelligence, A Modern Approach*.
- *Topics: Graphical User Interfaces and Event-Driven Programming* (Fall '02).
  - Text: Hill. *Computer Graphics Using Open GL, 2ed.*, Prentice Hall, 2001.
- *Operating Systems* (Spring '02).
  - Text: Gary Nutt. *Operating Systems: a Modern Perspective, 2ed.* Addison Wesley, 2002.
  - Text: Gary Nutt. *Kernel Projects for Linux*. Addison Wesley, 2001.
- *Principles of Computer Organization* (Spring '07)
  - Text: Tanenbaum. *Structured Computer Organization, 5ed.*, Pearson Prentice Hall, 2006.

Visiting lecturer, International PhD. Programme in Formal Languages and Applications, Rovira i Virgili University, Tarragona, Spain. 2002-2006.

- *Tree-Adjoining Grammars*—Annual one week sessions.

Assistant Professor, University of Central Florida, 1996 to 2000.

- *Formal Languages and Automata*—Graduate level introduction to Theory of Computation and Formal Language Theory.
  - Text: Davis, Sigal and Weyuker, *Computability, Complexity, and Languages* (Spring '98, Fall '98, Fall '99)
  - Text: Hopcroft and Ullman, *Introduction to Automata Theory, Languages and Computation* (Fall '96, Fall '97).
- *Discrete Computational Structures*—Upper division undergraduate introduction to Theory of Computation and Formal Language Theory.
  - Text: Sudkamp, *Languages and Machines* (Spring '99, Spring '00).
  - Text: Hein, *Discrete Structures, Logic, and Computability* (Fall '97).
- *Modern Grammar Formalisms (Special Topics)*—Graduate seminar (Spring '97, Fall '99).

Instructor, University of Delaware, June–July 1993.

*General Computer Science*,

Text: Dale and Weems, *Introduction to Pascal and Structured Design*.

Teaching Assistant, University of Delaware, Sept 1989 to June 1991.

Duties included tutoring and grading for undergraduate and graduate level courses (*Compiler Design, Topics—Ada, Artificial Intelligence*); full responsibility for recitation periods for *General Computer Science* (Fall 1989); instruction, grading, and partial preparation of laboratory periods for *Introduction to Computer Science II (C++)* (Spring 1991).

Instructor, R.E.T.S. Electronics School, Broomall, PA. (Technical School) May–September 1979.

*Electronic Engineering Technology*

### Thesis Supervision

Ivan Garibay. *English Language Semantics for Statecharts*. MS University of Central Florida, 2000.

### Thesis Committees

Feinstein, Daniel. *Computational Properties of Unification Grammars*. MS CS, University of Haifa. Subervisor: Shuly Wintner, 2004.

Whitehead, Daniel Lee. *Acquiring Historical Knowledge from Encyclopedic Texts: Human Relations Aspect*. MS CS, Univ. of Central Florida. Supervisor: Fernando Gomez. 1997

Herleman, Karl Eric. *Pronoun Resolution in Encyclopedic Texts*. MS CS, Univ. of Central Florida. Supervisor: Fernando Gomez. 1998.

### Undergraduate Research Supervision

Publications and presentations by undergraduates under my supervision.

Ian Kelly, Josh McCoy and Nate Sommer. *Load-balancing distributed XDM servers in a computer lab environment*. Butler Undergraduate Research Conference, Spring 2003.

Josh Hursey. *Fingerprint Minutiae Recognition: An Artificial Neural Network Approach*. Butler Undergraduate Research Conference, Spring 2003.

Josh McCoy. *High Dimensional Rendering in OpenGL*. Butler Undergraduate Research Conference, Spring 2004.

Nathan Sommer. *Algorithmic Music Composition*. Butler Undergraduate Research Conference, Spring 2004.

David Brown, Ian Kelly, Colin Kern, Alex Lemann and Greg Sandstrom. *Representing Multidimensional Trees*. Midstates Conference for Undergraduate Research in Computer Science and Mathematics (MCURSCM '04).

David Brown, Ian Kelly, Colin Kern, Alex Lemann and Greg Sandstrom. *A CNF Transformation for Multidimensional Grammars*. Midstates Conference for Undergraduate Research in Computer Science and Mathematics (MCURSCM '04).

David Brown, Colin Kern, Alex Lemann and Greg Sandstrom. *The Yield Operation for Multi-Dimensional Trees*. Butler Undergraduate Research Conference, Spring 2005.

Greg Sandstrom. *A Parallel Extension of Earley's Parsing Algorithm*. Butler Undergraduate Research Conference, Spring 2005.

### Independent Study Supervision

1998, Spring: Christian Mackesy, Sandra Velez. (Plus several informal participants.) Initial development of FLT tutorial. Development of basic Java classes for interactive web-based version.

1998, Spring, Summer, Fall: Colby Cavin. A constraint-based grammar for the syntax of musical notation.

1999, Spring. Ivan Garibay. Elementary and Higher Order Logic (Informal).

1999, Summer. Ivan Garibay. Formalizing natural language system specifications.

1999, Fall. James Marley. Java classes for client submission of mathematical text.

2001, Spring. Andrew Dingman. A cryptographic file system for Linux.

2002, Spring. Ned Bingham. A Network Management Tool.

2002, Spring. James Rice. Electronic Gaming: A Peer-to-peer Approach.

2003, Spring. Micah Acinapura. Interactive Modeling in OpenGL.

2003, Spring. Nathan Sommer. Algorithmic Music Composition.

## Publications

### *Journal Articles*

James Rogers. wMSO theories as grammar formalisms. *Theoretical Computer Science*, 293(2):291–320, 2003.

\*James Rogers. Syntactic structures as multi-dimensional trees. *Research on Language and Computation*, 1(3–4):265–305, 2003.

\*James Rogers. “Grammarless” Phrase Structure Grammar. *Linguistics and Philosophy*, 20:721–746, 1997.

\*Rolf Backofen, James Rogers, and K. Vijay-Shanker. A first-order axiomatization of the theory of finite trees. *Journal of Logic, Language, and Information*, 4:5–39, 1995. Also available as IRCS Technical Report 95-02.

\*James Rogers and K. Vijay-Shanker. Obtaining trees from their descriptions: An application to tree-adjoining grammars. *Computational Intelligence*, 10:401–421, 1994.

### *Journal Issues*

James Rogers and Richard T. Oehrle, editors. *Journal of Logic, Language and Information*, volume 13:4. Elsevier, 2004. Special Issue on 8<sup>th</sup> Meeting on Mathematics of Language.

James Rogers and Lawrence Moss, editors. *Grammars*, volume 3:2/3. Elsevier, 2000. Special Issue on 6<sup>th</sup> Meeting on Mathematics of Language.

### *Books*

James Rogers. *A Descriptive Approach to Language-Theoretic Complexity*. (Monograph.) Studies in Logic, Language, and Information. CSLI/FoLLI, 1998. Reviewed in *Computational Linguistics*, vol. 27, no. 13, June 2001, pp. 304–309.

### *Book Chapters*

\*Thomas Cornell and James Rogers. Model theoretic syntax. In Lisa Lai-Shen Cheng and Rint Sybesma, editors, *The Glot International State of the Article Book 1*. Holland Academic Graphics, The Hague, 2000.

\*James Rogers. The descriptive complexity of generalized local sets. In Uwe Moennich and Hans-Peter Kolb, editors, *Mathematics of Syntactic Structure*, pages 21–40. Mouton/deGruyter, 1998.

\*James Rogers. Strict  $LT_2$  : Regular :: Local : Recognizable. In Christian Retore, editor, *Logical Aspects of Computational Linguistics : First International Conference, LACL '96 (Selected Papers)*, volume 1328 of *Lecture notes in computer science/Lecture notes in artificial intelligence*, pages 366–385. Springer, 1997.

\*James Rogers. On descriptive complexity, language complexity, and GB. In Patrick Blackburn and Maarten de Rijke, editors, *Specifying Syntactic Structures*, Studies in Logic, Language, and Information, pages 157–183. FoLLI/CSLI Publications, 1997. Also available as IRCS Technical Report 95-14. cmp-1g/9505041.

James Rogers and K. Vijay-Shanker. Towards a formal understanding of the determinism hypothesis in D-theory. In Masaru Tomita and Harry C. Bunt, editors, *Recent Advances in Parsing Technology*, pages 59–78. Kluwer, 1996.

*Conference Papers*

James Rogers and Geoffrey K. Pullum. Aural pattern recognition experiments and the subregular hierarchy. In *Tenth Meeting on Mathematics of Language*, UCLA, 2007.

Stephan Kepser and James Rogers. The equivalence of tree adjoining grammars and monadic linear context-free tree grammars. In *Tenth Meeting on Mathematics of Language*, UCLA, 2007.

James Rogers and Marc D. Hauser. Potential distinguishing characteristics of human aural pattern recognition. In *Recursion in Human Languages*, Illinois State University, Normal, IL USA, 2007.

\*James Rogers. Wrapping of trees. In *Proceedings of the 42nd Annual Meeting of the Association for Computational Linguistics (ACL'04)*, pages 558–565, Barcelona, ES, July 2004.

\*James Rogers. On scrambling, another perspective. In *Proceedings of the Seventh International Workshop on Tree Adjoining Grammars and Related Frameworks*, Vancouver, BC, CA, May 2004.

\*James Rogers. One more perspective on semantic relations in TAG. In *Proceedings of the Sixth International Workshop on Tree Adjoining Grammars and Related Frameworks*, Venice, IT, May 2002.

\*James Rogers. Generalized tree-adjoining grammar. In *Sixth Meeting on Mathematics of Language*, pages 189–202, 1999.

\*James Rogers. On defining TALs with logical constraints. In Anne Abeillé, Tilman Becker, Owen Rambow, Giorgio Satta, and K. Vijay-Shanker, editors, *Fourth International Workshop on Tree Adjoining Grammars and Related Frameworks (TAG+4)*, pages 151–154, 1998.

\*James Rogers. A descriptive characterization of tree-adjoining languages. In *Proc. of the 17th International Conference on Computational Linguistics (COLING'98) and the 36th Annual Meeting of the Association for Computational Linguistics (ACL'98)*, pages 117–121, Montreal, 1998. ACL. Project Note.

\*James Rogers. A unified notion of derived and derivation structures in TAG. In Tilman Becker and Hans-Ulrich Krieger, editors, *Proceedings of the Fifth Meeting on Mathematics of Language (MOL5)*, pages 146–152, Saarbrücken, 1997. DFKI.

\*James Rogers. A model-theoretic framework for theories of syntax. In *Proceedings of the 34th Annual Meeting of the Association for Computational Linguistics*, pages 10–16, Santa Cruz, CA, 1996. Association for Computational Linguistics.

\*James Rogers. Capturing CFLs with tree adjoining grammars. In *Proceedings of the 32nd Annual Meeting of the Association for Computational Linguistics*, pages 155–162, 1994. cmp-lg/9405020.

James Rogers and K. Vijay-Shanker. Reasoning with descriptions of trees. In *Proceedings of the 30th Annual Meeting of the Association for Computational Linguistics*, pages 72–80, 1992.

*Technical Reports*

\*James Rogers. A descriptive characterization of tree-adjoining languages (full version). Technical Report CS-TR-98-01, Univ. of Central Florida, 1998. Also available from the CMP-LG repository as paper number cmp-lg/9805008.

\*James Rogers. What does a grammar formalism say about a language. Technical Report IRCS-96-10, Institute for Research in Cognitive Science, University of Pennsylvania, Philadelphia, PA, 1996.

James Rogers and K. Vijay-Shanker. A mechanism for obtaining trees from their descriptions. Technical Report 94-18, University of Delaware, Wilmington, DE, 1993.

James Rogers and K. Vijay-Shanker. On the determinism hypothesis and D-theory parsers. Technical Report 94-01, University Of Delaware, 1993.

(Publications with cmp-1g numbers are available on the computational linguistics preprint archive: <http://http://arxiv.org/form/cs>.)

(Publications marked \* are available from my home page: <http://www.cs.earlham.edu/~jrogers>.)

## Presentations

*Model-Theoretic Syntax, Introduction*, Model-Theoretic Syntax at 10 (MTS@10), 19<sup>th</sup> European Summer School in Logic, Language and Information, Dublin, Ireland, Aug. 2007.

*Aural Pattern Recognition Experiments and the Subregular Hierarchy*, Tenth Meeting on Mathematics of Language (MoL10), July 2007.

*Potential Distinguishing Characteristics of Human Aural Pattern Recognition*, Recursion in Human Languages, April 2007.

*On Formalizing Syntax*, Eberhard Karls Universität (U. of Tübingen), Tübingen, Germany. April 2006.

*Model-Theoretic Syntax*, Institute for Research in Cognitive Science, University of Pennsylvania. Feb. 2006.

*Descriptions of Syntax*, Radcliffe Institute for Advanced Study. Jan. 2006.

*Some Notions of Higher-Order Grammars*, Fest Colloquium for Uwe Mönnich. Freudenstadt, Germany (University of Tübingen), Nov. 2004.

*Language-Theoretic Results in Model-Theoretic Syntax*, Workshop on Model-Theoretic Syntax. North American Summer School in Logic, Language and Information, Stanford, California, June 2002.

*One More Perspective on Semantic Relations in TAG*, Sixth International Workshop on Tree Adjoining Grammars and Related Frameworks. Venice, Italy, May 2002.

*A Hierarchy of Degrees of Constituency*, 6<sup>th</sup> Conference on Formal Grammars/7<sup>th</sup> Meeting on Mathematics of Language (FGMOL'01), Symposium on Model Theoretic Syntax. Helsinki, Finland, Aug. 2001, and Joint Sfs/IRCS Workshop, IRCS, Univ. of Pennsylvania, April 2002.

*wMSO Theories of Multi-dimensional Trees*, Automata and Finite Model Theory Workshop, 13<sup>th</sup> European Summer School in Logic, Language and Information (ESSLLI'01). Helsinki, Finland, Aug. 2001.

*In Multi-Dimensional Trees*, Joint Sfs/IRCS Workshop, Univ. of Tübingen. Tübingen, Germany, Dec. 2000.

*Syntactic Structures as Multi-dimensional Trees*, Workshop on Trees in Logic, Computer Science and Linguistics, 12<sup>th</sup> European Summer School in Logic, Language and Information (ESSLLI'00). Birmingham, U.K., Aug. 2000.

*wMSO Theories as Grammar Formalisms*, 2<sup>nd</sup> AMAST Workshop on Algebraic Methods in Language Processing (AMILP 2000). Iowa City, Iowa, May, 2000.

*Generalized Tree-Adjoining Grammar*, Sixth Meeting on Mathematics of Language, Orlando, FL, July 1999.

*A Descriptive Characterization of Tree-Adjoining Languages*. 17th International Conference on Computational Linguistics (COLING'98) and the 36th Annual Meeting of the Association for Computational Linguistics (ACL'98), Montreal, Aug. 1998.

*On Defining TALs with Logical Constraints*. Fourth International Workshop on Tree Adjoining Grammars and Related Frameworks (TAG+4), IRCS, Univ. of Pennsylvania, Phila., Aug. 1998.

*A Unified Notion of Derived and Derivation Structures in TAG*. Fifth Meeting of the Mathematics of Language (MOL5). DFKI, Univ. Saarlandes, Saarbruecken, Germany, Aug. 1997.

*Strict  $LT_2$  : Regular :: Local : Recognizable*. Logical Aspects of Computational Linguistics (LACL'96). Nancy, FR, Sept. 1996.

*The Descriptive Complexity of the Generalized Local Sets*, The Mathematics of Syntactic Structure (workshop), Prague, Aug. 1996.

*Language-Theoretic Complexity and GB*, Universität Potsdam, Potsdam, Germany, Nov. 1995.

*What Does a Grammar Formalism Say About a Language*,  
Universität des Saarlands, Saarbrücken, Germany, Nov. 1995.  
CLiFF Group, Univ. of Penn., Oct. 1995.

Werkvertrag (one week working visit including two formal talks), Universität Tübingen/Sfs, Tübingen, Germany, Nov. 1995.

- “Grammarless” Phrase Structure Grammar*, Fourth Mathematics of Language Workshop (MOL4), University of Pennsylvania, Oct. 1995.
- Language Complexity and Theories of Syntax*, Defining Cognitive Science at IRCS (Workshop), April 1995.
- On Descriptive Complexity, Language Complexity, and GB*,  
Logic, Structures and Syntax (Workshop), Amsterdam, Sept. 1994.
- CLiFF Group, Univ. of Penn., Nov. 1994.
- A Logical Definition of Tree Adjunction*, Third International Workshop on Tree Adjoining Grammars, Paris, France, Sept. 1994.
- A Logical Characterization of Context-Free Sets*, Theory Group Colloquium, University of Delaware, Nov. 93.
- Obtaining Trees from their Descriptions*, Theory Group Colloquium, University of Delaware, May 93.
- S2S and Finite Automata on Infinite Trees*, Theory Group Colloquium, University of Delaware, Dec. 92.
- Quasi-trees and TAGs*, University of Pennsylvania, Nov. 1993.
- A Formalization of Partial Descriptions of Trees*, TAG+ Workshop, Institute for Research in Cognitive Science, University of Pennsylvania, June 1992.

### Other Teaching—Tutorials and Summer Schools

- Formal Description of Syntax*. Foundational Course, 19<sup>th</sup> European Summer School in Logic, Language and Information (ESSLLI’07), Trinity College, Dublin, Ireland. August 2007.
- Model-Theoretic Syntax*. 3<sup>rd</sup> North American Summer School in Logic, Language and Information, UCLA, Los Angeles, CA. June 2004.
- Model-Theoretic Syntax—Formal Aspects*. 15<sup>th</sup> European Summer School in Logic, Language and Information, Vienna, Austria. Aug. 2003.
- Formal Foundations of TAG*. (Tutorial) Fourth International Workshop on Tree Adjoining Grammars and Related Frameworks (TAG+4), IRCS, Univ. of Pennsylvania, Phila., Aug. 1998.
- Logical Approaches to Syntactic Theories*. (Tutorial) 35th Annual Meeting of the Association for Computational Linguistics (ACL’97). Madrid, Spain, July 1997.
- Topics in Model-Theoretic Syntax*, Advanced Course, Eighth European Summer School in Logic, Language, and Information, Prague, Czech Republic, Aug. 1996.

### Funding

- Research on Parsing Multi-dimensional Grammars* Ford-Knight Faculty/Student Research Program, Earlham College. \$7760, Summer 2004.
- University Graduate Enhancement Program, Office of the Vice President for Research and Graduate Studies, UCF. (with Mark Goudreau) \$25,000/year, 1997-98, 1998-99.
- An Interactive System for Formalizing Circuit Specifications*, (Competitive In-house Research Grant). Office of the Vice President for Research and Graduate Studies, UCF. \$7329.98, 1998-99.

### Reviewing

- National Science Foundation*  
*Theory of Computing Systems*  
*Journal of Logic, Language and Information*  
*Journal of the ACM*  
*Theoretical Computer Science*  
*Computational Linguistics*.  
*Linguistics and Philosophy*.  
*Journal of Language and Computation*  
*Grammars*.  
*Linguistic Analysis*.

Sixth Meeting on Mathematics of Language. (MOL6).  
 Fourth TAG+ Workshop. (TAG+4).  
 Collected papers from Logical Aspects of Computational Linguistics. (LACL'97).  
*Papers from FHGC'98.*  
 37th Annual Meeting of the ACL. (ACL'99).  
 Fifth TAG+ Workshop. (TAG+5).  
 38th Annual Meeting of the ACL. (ACL'00).  
 2nd Conference of the North American Chapter of the ACL. (NAACL'01).  
 6th Conference on Formal Grammars/7th Meeting on Mathematics of Language. (FGMOL'01).  
 40th Annual Meeting of the ACL. (ACL'02).  
*Foundations of the Formal Sciences II.*  
 Sixth TAG+ Workshop. (TAG+6).  
 Formal Grammars '02, '03, '04, '05, '06, '07.  
 Eighth Meeting on Mathematics of Language (MoL8) '03.  
 Seventh TAG+ Workshop (TAG+7).  
 Logical Aspects of Computational Linguistics '05.  
 43rd Annual Meeting of the ACL. (ACL'05).  
 Tenth Conference on Formal Grammars and Ninth Meeting on Mathematics of Language (FG-MoL'05).  
 Finite-State Methods in Natural Language Processing (FSMNLP'05).  
 ESSLLI'06 Student Session.  
 11<sup>th</sup> Meeting of the European Association for Computational Linguistics (EACL'06).

### Committee Service

President, Association for the Mathematics of Language. 2003–2005.  
 Vice President/President-Elect, Association for the Mathematics of Language. 2001-2003.  
 Editorial Board, *Grammars*.  
 Editorial Board, *Lecture Notes in Logic, Language and Information (LNLLI)*  
 Former member, editorial board, *Computational Linguistics*.  
 Program Committee, Sixth Meeting on Mathematics of Language. 1999.  
 Local Arrangements Chair, Sixth Meeting on Mathematics of Language. 1999.  
 Session Chair, *Grammars* session, 37<sup>th</sup> Annual Meeting of the Association for Computational Linguistics. 1999.  
 Program Committee, 5th TAG+ Workshop. 2000.  
 Program Committee, ESSLLI Workshop on Trees in Logic, Computer Science and Linguistics, ESSLLI'2000.  
 Program Committee, 39th Conference of the Association for Computational Linguistics (ACL 2001). Area chair for  
 Syntax, Grammars and Morphology. 2001.  
 Program Committee, 6th Conference on Formal Grammars/7th Meeting on Mathematics of Language (FGMOL'01).  
 2001.  
 Program Committee, 6th TAG+ Workshop. 2002.  
 Program Committee, 8th Conference on Formal Grammars. 2003.  
 Program Committee, Eighth Meeting on Mathematics of Language. 2003.  
 Program Committee, 7th TAG+ Workshop. 2004.  
 Program Committee, 9th Conference on Formal Grammars. 2004.  
 Program Committee, Logical Aspects of Computational Linguistics, 2005.  
 Program Committee, Finite-State Methods and Natural Language Processing. 2005.  
 Organizing Committee, 10th Conference on Formal Grammars and 9th Meeting on Mathematics of Language (FG-  
 MoL'05), 2005.  
 Program Committee, 11th, 12th Conference on Formal Grammars. 2006, 2007.  
 Co-Chair, Model-Theoretic Syntax at 10 (MTS@10), 2007.

### **College Committees**

Academic Advisory Committee

Ad hoc working group on implementation of the Analytic Reasoning section of the proposed General Education revisions.

Harassment Board. (Quasi-judicial complaint review board.)

Events Committee

### **Honors, Awards and Fellowships**

Jeanne Rosselet Fellow, Radcliffe Institute for Advanced Study, Cambridge, MA. 2005–06.

Post-Doctoral Fellowship, IRCS, University of Pennsylvania, 1994–95, 1995–96.

Frank Pherson Graduate Student Achievement Award (Outstanding Achievement in Computer Science), University of Delaware, 1994.

University Competitive Fellowship, University of Delaware, 1992–93, 1993–94.

Research Assistantship, University of Delaware, 1991–1992.

Teaching Assistantship, University of Delaware, 1989–1990, 1990–1991.

### **Professional Associations**

Association for Computational Linguistics.

Association for Symbolic Logic.

Association for Mathematics of Language.

European Federation for Logic, Language and Information.

European Association for Theoretical Computer Science.

Association for Computing Machinery.

IEEE Computer Society.

Friends Association for Higher Education.

### **References**

Attached.

**Appendix: Capstone Studies**

2000

- Ben Bartlett *Expert Systems: A Practical Application of Artificial Intelligence* †  
(Now in PhD program at University of Toronto)
- Drew Dingman *Design of a multi-user cryptographic file system* ‡
- Will Dyson *An Artificial Neural Network Architecture for Musical Instrument Recognition*
- Corinne Lofchie *Equity and School Vouchers: A Simulation*
- Nicholas Marouf *System Log Analyzer*
- Sam Mehl *Is the Internet Making us Dummer?: A comparison of reading comprehension between computer screens and paper*
- Afua Sanders *Automated Fingerprint Verification*
- Porter Schermerhorn *Artificial Neural Network Implementation of Beat Recognition*

2001

- Ned N. Bingham *A Network Management Tool: Exploring Requirements Analysis* ‡
- Abby Ge *An application: Competitive Analysis on the One-Way Trading Problem* §†  
(Now in Master of Finance program at Columbia.)
- Edward Kamonjoh *Autonomous Robots: A behavior based object oriented approach to problem decomposition*
- Levent Besik *Comparative Performance Analysis of Star and Hypercube Topologies for a Beowulf Cluster: A Simulation Approach*
- Aaron Cayard-Roberts *A Register-Oriented Driver for Serial Ports with an Application to a Low-Cost ADC*
- Trevor Moss *Evolutionary Music: a genetic algorithm approach to creating sound*
- Jim Rice *Electronic Gaming: A Peer to Peer Approach* ‡

2002

- Hasan Al-Aref *A look at Main Drive intersection with 40 West through simulation*
- Josh Hursey *Fingerprint Minutiae Recognition: An Artificial Neural Network Approach* ¶  
(Now in PhD. program at University of Indiana)
- Marwan Aburdeneh *Exploring diversity at Earlham College using Data Mining*
- Glen Upton *The Roommate Matching Problem: A Swarm Intelligence Approach*

2003

- Micah Acinapura *Identifying Binding Sites for Transcription Factors in Bacterial Genomes*
- Nathan Chu *Maze Traversal with Behavioral Control*
- Josh McCoy *Higher-Dimensional Rendering in Open-GL* ¶†  
(Now in PhD. program at UC Santa Cruz)
- Eliza Navias-Bell *Computer Assisted Mathematical Proof*
- Julie Pickett *Common Form: An Application of Software Engineering Methodology*
- Nathan Sommer *Experiments in Algorithmic Music Composition* ‡, ¶

Spring, 2004

- Jeremy Brown-Hayes *Simulation using a Theorem Prover*
- Seth Hopper *Get Me Out of this Place! A Parallel Approach to Solar System Escape* †  
(Now in PhD. program in Physics, Univ. of North Carolina.)
- Ian Kelly *Twisted Grammars and RNA Secondary Structure* †  
(MS CS, University of Delaware)
- Yousef Rabah *Automatic Speech Recognition: A Voice Enabled Phone Directory*
- Mikel Rodriguez *Simulation of Galaxy Evolution Using Tree-Codes*  
(Now in PhD. program at University of Central Florida)

Fall, 2004

- Stuart Taylor *Where Cash and Technology Meet: The Development of Electronic Commerce*
- Greg Sandstrom *A Parallel Extension of Earley's Parsing Algorithm* ¶
- Abe Davis *Computer Aided Psychological Experimentation*
- Nate Bell *Preferential Interaction in Iterated Prisoners' Dilemma*

Fall, 2006

- Colin Copeland *Economical Real-Time Monitoring of Power Consumption*
- Florian Loretan *Modeling Plant Growth with String Rewriting*
- Shawn Smith *Caching the Uncachable: Dynamic Websites*

Notes:

† Related to subsequent graduate studies.

‡ Followed up with Independent Study.

§ Related to subsequent employment.

¶ Presented at Butler Undergraduate Research Conference.