

Patrick Juola

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Research Interests

- Information retrieval and text analysis
- Digital humanities and humanities computing
- Forensics and computer systems security
- Quantitative and computational linguistics
- Psycholinguistics and cognitive science

Biography

A. Education

Ph.D.	(Computer Science) University of Colorado-Boulder, 1995.
certificate	(Cognitive Science) University of Colorado-Boulder, 1993.
M.S.	(Computer Science) University of Colorado-Boulder, 1991.
B.S.	(Electrical Engineering and Mathematics [double]), Johns Hopkins U., 1988.

Dissertation Title : *Learning to Translate : A Psycholinguistic Approach to the Induction of Grammars and Transfer Functions.* (Advisor : Dr. James H. Martin; Co-advisor, Dr. Lise Menn)

B. Academic Work History

Assistant/Associate Professor (promoted/tenured 2004), Computer Science, Duquesne University, Pittsburgh, PA, 1998–present.

Tutor, St. Hugh's and Lincoln Colleges, Oxford University, Oxford, UK, 1996–98.

Postdoctoral Research Associate, Experimental Psychology, Oxford University, Oxford, UK, 1995–98.

Instructor, Colorado Free University, Denver, CO, 1993–94.

Instructor, University of Colorado-Boulder, CO, 1990–94.

C. Non-Academic Work History

Adjunct Scientist, Human Language Technology Center of Excellence, the Johns Hopkins University, Baltimore, MD, 2008–present.

Visiting Scientist, CERT/CC, Carnegie Mellon University, Pittsburgh, PA, 1999–2001.

Staff Scientist, PGP, Inc., 1995–2001.

Contributing Editor, PCSense Magazine, 1995–1997.

NSF Fellow, Electrotechnical Laboratory, Tsukuba, Japan, 1991.

Software Engineer, Brain and Cognitive Sciences Dept., MIT, Cambridge, MA, 1990.

Technical Consultant, AT&T Bell Laboratories, Holmdel, NJ, 1987–1990.

D. Memberships in Professional Organizations

Association for Computers and the Humanities
 Association for Computing Machinery
 Linguistic Society of America
 International Quantitative Linguistics Association
 Digital Humanities Development Consortium
 Brain and Behavioral Sciences (Associate)
 International Steering Committee, New Methods in Language Processing

I. Scholarship¹*A. Books*

- (2007). *Principles of Computer Organization and Assembly Language*. Upper Saddle River, NJ: Prentice-Hall. Textbook on computer organization, architecture, and assembly language programming using the Java Virtual Machine as a teaching architecture.
- (2006/8). *Authorship Attribution*. Series title: *Foundations and Trends in Information Retrieval*. Delft: NOW Publishing, Research monograph and survey of authorship attribution and text categorization technologies.
- JUOLA, PATRICK & STEVE RAMSAY. (under contract, to appear 2009). *Mathematics for Humanists* (working title). Oxford: Oxford University Press. Research monograph describing mathematical applications in digital humanities.

B. Grants Awarded

- CRI: CRD: Collaborative Research: Community Resources for Authorship Attribution Research* (in collaboration with Shlomo Argamon, IIT). 2008, Grant No. CNS 0751087, National Science Foundation. Funded for \$58,202 (\$100,000 project total) over 18 months. August 2008 .
- A Machine-Aided Back-of-the-Book Indexing System*. (sole PI). 2007, Grant No. PR-50020, National Endowment for the Humanities. Funded for \$131,465 over 24 months. August 2008.
- SDCI Data New: A Modular Software Framework for Evaluation, Testing, and Cross-Fertilization of Authorship Attribution Techniques*. (sole PI) 2007, Grant No. OCI-0721667, National Science Foundation. Funded for \$212,000 over 36 months. August 2007.
- Conjecture Generation* 2009, Wimmer Family Foundation. Funded for \$3,500.
- Wimmer Writing Proposal : SIX SEPTEMBERS*. 2006, Wimmer Family Foundation. Funded for \$3,500.
- A Model of Aphasia using Dictionary-Derived Natural Language Semantics*. 2003, Oxford University Press. Supported by provision of research corpora from the Digital Reference library.
- Acquisition of a Beowulf Cluster for Research and Education in the Computational Sciences*. (Senior Personnel) 2003, National Science Foundation. Funded for \$227,500.
- Measuring Linguistic Complexity*. 1999, NEH Internal Grant, Duquesne University. Funded for \$2,500.

C. Patents

- FREDRIKSON, MATTHEW J. & PATRICK JUOLA (2006). “Detecting Malicious Code Using Behavioral Anomalies.” United States Provisional Patent No. 60/826,993.
- (2002). “Document Categorization and Evaluation via Cross-Entropy.” United States Patent No. 6,397,205.

D. Invited works

- (to appear 2008). “Connectionism.” To appear in Eddington, David, Ed. *Experimental and Quantitative Linguistics*, H. H. Langlin Press.

¹N.b. all works with no author listed are by JUOLA, PATRICK as sole author.

- (2007). “Future Trends in Authorship Attribution.” In Craiger & Shenoi (Eds.), *Research Advances in Digital Forensics — III*. Heidelberg : Springer.
- (2005). “Language Identification.” In Brown, Keith, Ed. *Encyclopedia of Language and Linguistics, 2nd Edition (ELL2)*, Elsevier.
- (2003). “Encapsulating Architecture and Encapsulating Processes.” *Behavioral and Brain Sciences*. 25(6):759–759
- (2003). “One Word, One Module?” *Cortex*. 39(1):135–137
- (1989). “Machine Translation and Lojban.” *Ju’i Lobypli*. 8.

E. Peer-reviewed Works

- (in press). “Webs of Publishing and of Trust.” *Text Technology*.
- (2008). “Killer Applications in Digital Humanities.” *Literary and Linguistic Computing (LLC)*, 23(1):73–85. doi: 10.1093/llc/fqm042;
- (2008). “Assessing Linguistic Complexity.” In Miestamo, Matti, Kaius Sinnemäki and Fred Karlsson (eds.) *Language Complexity : Typology, Contact, Change*. Amsterdam : John Benjamins Press.
- POTHOS, EMMANUEL & PATRICK JUOLA. (2007). “Characterizing Linguistic Structure with Mutual Information.” *British Journal of Psychology*, 98:291–304.
- (2007). “Becoming Jack London.” *Journal of Quantitative Linguistics*. 14(2):145–147.
- (2006). “Questioned Electronic Documents : Empirical Studies in Authorship Attribution.” In Olivier & Shenoi (Eds.), *Research Advances in Digital Forensics II*. Heidelberg : Springer.
- JUOLA, PATRICK, JOHN SOFKO & PATRICK BRENNAN. (2006). “A Prototype for Authorship Attribution Software.” *Literary and Linguistic Computing*. 21:169-178.
- JUOLA, PATRICK & HARALD BAAYEN. (2005). “A Controlled-Corpus Experiment in Authorship Identification by Cross-Entropy.” *Literary and Linguistic Computing*. 20(Suppl 1):59-67.
- (2003). “The Time Course of Language Change.” *Computers and the Humanities*. 37(1):77–96.
- PLUNKETT, KIM & PATRICK JUOLA. (2001). “A connectionist model of English past tense and plural morphology.” In Christiansen & Chater (Eds.), *Connectionist Psycholinguistics*. Westport, CT: Ablex Publishing, pp. 106–37.
- POTHOS, EMMANUEL M. & PATRICK JUOLA. (2001). “Linguistic Structure and Short Term Memory.” *Behavioral and Brain Sciences*. 24:138–9.
- JUOLA, PATRICK & KIM PLUNKETT. (2000). “Why double dissociations don’t mean much.” In Cohen, Johnson, and Plunkett (Eds.), *Exploring Cognition: Damaged Brains and Neural Networks*. Philadelphia, PA: Psychology Press/Taylor Francis, pp. 319–27.
- (2000). “Double Dissociations and Neurophysiological Expectations.” *Brain and Cognition*. 43(1):257–62.
- PLUNKETT, KIM & PATRICK JUOLA. (1999). “A Connectionist Model of English Past Tense and Plural Morphology.” *Cognitive Science*. 23(4):463–90.
- (1998). “Measuring Linguistic Complexity : The Morphological Tier.” *Journal of Quantitative Linguistics*. 5(3):206–13.
- (1998). “On Psycholinguistic Grammars.” *Grammars*. 1(1):15–31.
- (1997). “Corpus-based acquisition of transfer functions using psycholinguistic principles.” In Jones & Somers (Eds.), *New Methods in Language Processing*. London : UCL Press, pp. 207–18.
- JUOLA, PATRICK & JONATHAN REID. (1996). “Civilian Cryptography and the Promise of Decentralization.” *Soldier-Scholar, a Journal of Contemporary Military Thought*. III(1)
- UCHIDA, YURIKO & PATRICK JUOLA (1993). “Understanding and Generation of English Articles and Knowledge of Real Usage in a Text.” *Bulletin of the Electrotechnical Laboratory*. 57(2). (in Japanese).

UCHIDA, YURIKO, ET AL. (1991). “English Text Generation from Contextual Representation Structure Based on Real Text Data Dependent Knowledge [No. 1].” *Bulletin of the Electrotechnical Laboratory*. 55(11). (in Japanese).

JUOLA, PATRICK & HITOSHI ISAHARA. (1991). “An Efficient KWIC System for Japanese Text.” *Bulletin of the Electrotechnical Laboratory*. 55(10).

F. Works in Progress

FREDRIKSON, MATT & PATRICK JUOLA. (under review). “Finding Malicious Code Using Behavioral Anomalies.” Submitted to IEEE Security & Privacy.

LUKON, SHELLY & PATRICK JUOLA. (under review). “A Context-Sensitive Computer-Aided Index Generator.” Submitted to Literary and Linguistic Computing.

G. Scholarly Presentations

“20,000 Ways Not to Do Authorship Attribution – and a Few that Work.” 2009 Biennial Conference of the International Association of Forensic Linguists. Amsterdam. July, 2009.

“Cross-linguistic Transference of Authorship Attribution, or Why English-Only Prototypes Are Acceptable.” Digital Humanities 2009. College Park, MD. June, 2009.

“Conjecture Generation in the Digital Humanities.” (JUOLA, PATRICK & ASHLEY BERNOLA). Digital Humanities 2009. College Park, MD. June, 2009.

“JGAAP4.0 – A Revised Authorship Attribution Tool.” (JUOLA, PATRICK; JOHN NOECKER, JR; MIKE RYAN, & SANDY SPEER). Digital Humanities 2009. College Park, MD. June, 2009.

“Cosine Distance Nearest-Neighbor Classification for Authorship Attribution.” (NOECKER JR, JOHN & PATRICK JUOLA). Digital Humanities 2009. College Park, MD. June, 2009.

“Close Only Counts in Horseshoes and... Authorship Attribution?” (NOECKER JR., JOHN, MIKE RYAN, PATRICK JUOLA, AMANDA SGROI, STACEY LEVINE, & BENJAMIN WELLS). Digital Humanities 2009. College Park, MD. June, 2009.

“Authorship Attribution, The Large and Small Effect Sizes of Divergence as Classification.” (RYAN, MICHAEL & PATRICK JUOLA). Digital Humanities 2009. College Park, MD. June, 2009.

“TADA Research Evaluation Exchange: Winning 2008 Submissions” (SINCLAIR, STÉFAN, DAVE BEAVAN, SUSAN BROWN, STEPHEN DOWNIE, CARLOS FIORENTINO, PATRICK JUOLA, PETER ORGANISCIAK, GEOFFREY ROCKWELL, SUSAN SCHREIBMAN & KIRSTEN USZKALO) Digital Humanities 2009. College Park, MD. June, 2009.

“Authorship Attribution, Similarity, and Noncommutative Divergence Measures.” (JUOLA, PATRICK & MIKE RYAN). Chicago Colloquium on Digital Humanities and Computer Science (DHCS). Chicago, IL. November, 2008.

“An Empirical Study of Linear Separability on Authorship Attribution Feature Spaces.” (NOECKER, JOHN & PATRICK JUOLA). Chicago Colloquium on Digital Humanities and Computer Science (DHCS). Chicago, IL. November, 2008.

“JGAAP : A System for Comparative Evaluation of Authorship Attribution.” Chicago Colloquium on Digital Humanities and Computer Science (DHCS). Chicago, IL. November, 2008.

“Automating Conjecture in the Digital Humanities.” BOAF talk at Chicago Colloquium on Digital Humanities and Computer Science (DHCS). Chicago, IL. November, 2008.

“A Chinese Version of an Authorship Attribution Analysis Program.” (ZHAO, MENGJIA & PATRICK JUOLA). Digital Humanities 2008. Oulu, Finland. June 2008.

“JGAAP 3.0 — Authorship Attribution for the Rest of Us.” (JUOLA, PATRICK, JOHN NOECKER, MIKE RYAN & MENGJIA ZHAO). Digital Humanities 2008. Oulu, Finland. June 2008.

“Authorship Attribution : What Mixture-of-Experts Says We Don’t Yet Know.” American Association of Corpus Linguistics 2008. Provo, UT. March, 2008.

“Improving Web Access for Users with Aphasia with Language Technologies.” (KIREYEV, KIRILL *et al.*). 2007 Coleman Institute Conference: The State of the World & The State of the Science in Cognitive Disability and Technology. Westminster, CO. October, 2007.

- “A Context-Sensitive Computer-Aided Index Generator.” (LUKON, SHELLY & PATRICK JUOLA). Proceedings of Canadian Symposium for Text Analysis (CaSTA-06) “Breadth of Text” Fredricton, NB, CA. October, 2006.
- “Killer Applications in Digital Humanities.” Proceedings of Digital Humanities 2006, Paris, France. July, 2006.
- “A Context-Sensitive Computer-Aided Index Generator.” (LUKON, SHELLY & PATRICK JUOLA). Proceedings of Digital Humanities 2006, Paris, France. July, 2006.
- “Questioned Electronic Documents : Empirical Studies in Authorship Attribution.” Presented at Second Annual Conference of the IFIP Working Group 11.9 2006, Orlando, FL. January, 2006.
- “Compression-based Analysis of Language Complexity.” Proceedings of Approaches to Complexity in Language. Helsinki, Finland. September, 2005.
- “Language Change and Historical Inquiry.” Proceedings of XVIth International Conference of the Association for History and Computing (AHC 2005), Amsterdam, the Netherlands. August, 2005.
- “A Prototype for Authorship Attribution Studies.” Proceedings of the 2005 Joint Annual Conference of the Association for Computing and the Humanities and the Association for Literary and Linguistic Computing (ACH/ALLC 2005). Victoria, BC, CA. June, 2005.
- “Towards an Automatic Index Generation Tool.” Proceedings of the 2005 Joint Annual Conference of the Association for Computing and the Humanities and the Association for Literary and Linguistic Computing (ACH/ALLC 2005). Victoria, BC, CA. June, 2005.
- “Proving and Improving Authorship Attribution.” (JUOLA, PATRICK & JOHN SOFKO). Proceedings of Canadian Symposium for Text Analysis (CaSTA-04) “The Face of Text” Hamilton, ON, CA. November, 2004.
- “On Composership Attribution.” Proceedings of the 2004 Joint Annual Conference of the Association for Literary and Linguistic Computing and the Association for Computers and the Humanities (ALLC/ACH 2004). Göteborg, Sweden. June, 2004.
- “Ad-hoc Authorship Attribution Competition.” Proceedings of ALLC/ACH 2004. Göteborg, Sweden. June, 2004.
- “Becoming Jack London.” Proceedings of the Fifth International Conference on Quantitative Linguistics (QUALICO-2003), Athens, GA. May, 2003.
- “A Controlled-Corpus Experiment in Authorship Identification by Cross-Entropy.” (JUOLA, PATRICK & HARALD BAAYEN). Proceedings of ACH/ALLC 2003, Athens, GA. May, 2003.
- “Temporal Factors Underlying Linguistic Change.” at the 2003 Annual Meeting of the Linguistic Society of America, Atlanta, GA. January, 2003.
- “Lexical Change as a Factor in Linguistic Change.” at Measuring Lexical Variation and Change : A Symposium on Quantitative Sociolexicology. Leuven, Belgium. October, 2002.
- “The Significance of Lexical Choice in Language Change.” at a Workshop on Quantitative Investigations in Theoretical Linguistics (QITL). Osnabrück, Germany, October. 2002.
- “The Case for Humanities Mathematics : When Computing Doesn’t Work.” at the COCH/COSH 2002 Meeting, Toronto, ON CA, May, 2002.
- “The Case for Humanities Mathematics : When Computing Doesn’t Work.” at Humanities Computing Curriculum, Nanaimo, BC CA, November, 2001.
- “The Time Course of Language Change.” Proceedings of ACH/ALLC 2001. New York City, NY, June, 2001.
- “The Rate of Language Change.” Proceedings of the Fourth International Conference on Quantitative Linguistics (QUALICO-2000), Prague, Czech Republic, August, 2000.
- “A Linear Model of Complexity (And Its Flaws).” at the Fourth International Conference on Quantitative Linguistics (QUALICO-2000), Prague, Czech Republic, August, 2000.

- “Linguistic Structure and Short-Term Memory.” (POTHOS, E. M., P. JUOLA & N. C. ELLIS) at the Twenty-first Annual Conference of the Cognitive Science Society (CogSci-99), Vancouver, BC CA, August 1999.
- “Double Dissociations and Neurological Expectations.” Proceedings of the Tenth Annual Conference on Theoretical and Experimental Neuropsychology (TENNET X), Montreal, QC CA, June, 1999.
- “Quantifying Quasi-Regularity.” (JUOLA, PATRICK & TODD M. BAILEY) at the 1999 Annual Meeting of the Linguistic Society of America, Los Angeles, CA, January, 1999.
- “Text Distortion as a Measure of Communicative Function and Complexity.” at the Fourth Conference on Conceptual Structure, Discourse, and Language (CSDL-4), Atlanta, GA, October, 1998. “Theory-Neutral System Regularity Measurements.” (JUOLA, PATRICK, TODD M. BAILEY & EMMANUEL M. POTHOS) Proceedings of the Twentieth Annual Conference of the Cognitive Science Society (CogSci-98), Madison, WI, August 1998.
- “Why Double Dissociations Don’t Mean Much.” (JUOLA, PATRICK & KIM PLUNKETT) Proceedings of the Twentieth Annual Conference of the Cognitive Science Society (CogSci-98), Madison, WI, August 1998.
- “The Rise and Fall of English Inflectional Morphology.” (JUOLA, PATRICK & KIM PLUNKETT) Proceedings of the Twentieth Annual Conference of the Cognitive Science Society (CogSci-98), Madison, WI, August 1998.
- “Cross-Entropy and Linguistic Typology.” at New Methods in Language Processing 3, Sydney, Australia, January, 1998.
- “What Can We Do With Small Corpora? Document Categorization via Cross-Entropy.” Proceedings of the Workshop on Similarity and Categorization (SimCat 97), Edinburgh, UK, November, 1997.
- “Reinventing Behaviorism.” Proceedings of the Eighth Ireland Conference on Artificial Intelligence, Derry, UK, September, 1997.
- “Measuring Linguistic Complexity : The Morphological Tier.” Proceedings of the Third International Conference on Quantitative Linguistics (QUALICO-97), Helsinki, Finland, August, 1997.
- “A Numerical Analysis of Cultural Context in Translation.” Proceedings of the Second European Conference on Cognitive Science, Manchester, UK, April, 1997.
- “Whole-Word Phonetic Distances and the PGPfone Alphabet.” (JUOLA, PATRICK & PHILIP ZIMMERMANN), Proceedings of the International Conference on Spoken Language Processing (ICSLP-96), Philadelphia, PA, 1996.
- “Isolated-Word Confusion Metrics and the PGPfone Alphabet.” Proceedings of New Methods in Language Processing 2, Ankara, Turkey, September, 1996.
- “Phonetic Ambiguity : Approaches, Touchstones, Pitfalls, and New Directions.” Proceedings of the Fifth Annual Conference on the Cognitive Science of Natural Language Processing (CSNLP 5), Dublin, Ireland, September, 1996.
- “Psychologically Plausible Machine Translation via the Marker Hypothesis.” at the 1995 Annual Meeting of the Linguistic Society of America, New Orleans, LA, January, 1995.
- “Psycholinguistic Universals and Statistical Machine Translation.” (JUOLA, PATRICK & JAMES MARTIN) at the 1994 Post-NIPS Workshop : Statistical and neural network approaches to natural language processing, Vail, CO, December, 1994.
- “Data Mining and Marker Words : A Psycholinguistic Approach to Machine Translation.” at the Mid-America Linguistics Conference, Lawrence, KS, October, 1994.
- “MORPHEUS : A Tool for the Lexical Analysis of Corpora for Morpheme Segmentation.” (HALL, CHRIS, PATRICK JUOLA & ADAM BOGGS) at the Mid-America Linguistics Conference, Lawrence, KS, October, 1994.
- “A Psycholinguistic Approach to Corpus-Based Machine Translation.” at the Third International Conference on the Cognitive Science of Natural Language Processing (CSNLP 3), Dublin, Ireland, July, 1994.

“Corpus-based Morphological Segmentation by Entropy Changes.” (JUOLA, PATRICK, CHRIS HALL & ADAM BOGGS) at the Third International Conference on the Cognitive Science of Natural Language Processing (CSNLP 3), Dublin, Ireland, July, 1994.

“An Approach for the Yield Enhancement of Programmable Gate Arrays.” (KUMAR, VIJAY, ANTON DAHBURA, PATRICK JUOLA & FRED FISHER) at the IEEE International Conference on Computer-Aided Design, November, 1989.

“A Defect-Tolerant, Laser-Programmable, GaAs Logic Array.” (FISHER, F. H., A. T. DAHBURA, V. P. KUMAR & P. M. JUOLA) at the AT&T Symposium on Fault Tolerance, November, 1988.

H. Distributed Products/Software

JUOLA, PATRICK, JOHN NOECKER & MIKE RYAN. (2008). JGAAP (Java Graphical Authorship Attribution Processor) version 3.1, Duquesne University.
<http://www.jgaap.com/>

JUOLA, PATRICK AND JOHN SOFKO (2004). JGAAP (Java Graphical Authorship Attribution Processor), Duquesne University.

JUOLA, PATRICK (1995). “PGPfone Radio Alphabet”, PGP, Inc., Boulder, CO.
<http://web.mit.edu/network/pgpfone/>

I. Invited Presentations at Seminars and Colloquia

“Digital Humanities.” Bloomsberg University, Bloomsberg, PA, November, 2008.

“Great Problems, or Portals are not Killer Applications.” University of Virginia, Charlottesville, VA, September, 2005.

Defense Expert Witness, Infragard Moot Court, at the Forensic Institute, Duquesne University, Pittsburgh, May, 2004.

“Applications of Cross-Entropy in Text Analysis” at the Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands, October, 2002.

“The Case for Humanities Mathematics : When Computing Doesn’t Work (extended dance remix)” at the Digital Humanities Curriculum Seminar, University of Virginia, Charlottesville, VA, April, 2002.

“The History of Secrets : Cryptography and Privacy” at Allegheny College, Meadville, PA, February, 2001.

II. Teaching

A. Supported Teaching Activities

Wimmer Textbook Writing Proposal: SIX SEPTEMBERS. 2006. Wimmer Family Foundation. Funded for \$3,500.

Interdisciplinary Teaching Development, MATH 320: Topics in Mathematics. JUOLA, PATRICK & STACEY LEVINE. 2002. Wimmer Family Foundation. Funded for \$5,000.

Wimmer Textbook Writing Proposal: A VIRTUAL ASSEMBLY. 2002. Wimmer Family Foundation. Funded for one course released time.

B. Teaching-related Publications

JUOLA, PATRICK & STACEY LEVINE (in preparation, to appear 2008). “Image Processing in MATLAB(R).” Consortium for Mathematics and Its Applications (COMAP) module.

— (1995). “Ethics for Computer Scientists.” Correspondence course for the University of Colorado at Boulder, School of Continuing Education.

— (1994). “Cryptography and Privacy.” Course packet and associated workbook for the Colorado Free University.

C. Graduate Students Supervised

Ashley Bernola, expected graduation 2010. No title yet. (MS, Computational Mathematics, Duquesne University)

Sandra Speer, expected graduation 2009. No title yet. (MS, Computational Mathematics, Duquesne University)

Mengjia Zhao, 2008. “A System for Authorship Attribution in Chinese.” (MS, Computational Mathematics, Duquesne University)

Ipek Tetikoglu. 2007. “RSA is Better than El-Gamal for Mental Poker.” (MS, Computational Mathematics, Duquesne University)

Shelly C. Lukon. 2006. “A Machine-Aided Approach to Intelligent Index Generation.” (MS, Computational Mathematics, Duquesne University)

D. Graduate Courses Taught

- CPMA 515 (Advanced Discrete Mathematics)
- CPMA 531 (Programming Language : Java)
- CPMA 532 (Data Structures)
- CPMA 535 (Computer Systems)
- CPMA 535 (Software Engineering)
- CPMA 564 (Cryptology)
- CPMA 580 (Artificial Intelligence/Cognitive Science)
- CPMA 585 (Computer Security)
- GRBUS 462 (Topics in Digital Forensics)

E. Undergraduate Courses Taught

- COSC 100 (Elements of Computer Science)
- COSC 101 (Introduction to Visual Basic)
- COSC 150 (Computer Programming : C++)
- COSC 220 (Computer Organization and Assembly Language)
- COSC 210 (Data Structures)
- COSC 325W (Operating Systems and Computer Architecture)
- COSC 410 (Artificial Intelligence)
- COSC 425 (Computer Graphics)
- COSC 435 (Theory of Programming Languages)
- COSC 450 (Computer Networks)
- COSC 460 (Computer Security)
- COSC 494 (SPTPC : Neural Networks)
- COSC 495 (SPTPC : Authorship Attribution)

III. Service

A. University, College, or Departmental Service

- University Committees
 - Teaching Assistant Award Advisory Committee (2001–2002)
- College Committees
 - Chair, Academic Integrity Appeals Committee (2006–present)
 - Member, Ad-hoc Forensics Curriculum Committee (2007–present)
 - Member, Academic Integrity Appeals Committee (2006–present)

Subcommittee Chair, Ad-hoc Academic Integrity Subcommittee on Monitoring and Oversight (2005–6)

Member, Ad-hoc Academic Integrity Committee (2005–6)

•Department Committees and Positions

Chair, Research Committee (2008–present)

Graduate Committee (2000–present)

Student Achievement and Award Committee (1998–present)

Chair, Graduate Subcommittee on Master’s Theses and Projects (2002)

Faculty Search Committee (1999–2000,2008–present)

B. Non-Peer Reviewed publications

— (2004). Review of Raymond’s *The Art of UNIX Programming*. *Literary and Linguistic Computing*.

— (2004). Review of Hay’s *Probabilistic Linguistics*. *Computational Linguistics*. 30:1.

— (1998). Review of Bennett’s *A Course in Generalized Phrase Structure Grammar*. *Language*. 74:3.

C. Professional Services

Member, NSF Review Panel, OCI-DataNet, February 2009.

Member, NEH Review Panel, DHI Million Books Project, May 2008.

Member, NEH Review Panel, DHI Startup Grants I, May 2007.

Organizer/Chair, Ad-hoc Authorship Attribution Competition, June 2004.

Founding Member, Digital Humanities Development Consortium (2003–present)

Program Committee, QUALICO-2003

Member, NSF Review Panel, Information Technology Research “medium”, text and multilingual processing, May 2003

International Quantitative Linguistics Association (Member-at-Large of Executive Board, 2000–present)

International Steering Committee, New Methods in Language Processing (Member, 1999-present)