

Matt Huenerfauth

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Academic Position

Assistant Professor, Queens College, The City University of New York (CUNY). September 2006 to Present.

Academic Appointments: Computer Science Department, Queens College, CUNY.
Computer Science Doctoral Program, Graduate Center, CUNY.

Focus of Research: Assistive Technology for People with Disabilities, Natural Language Processing, Virtual Human Modeling and Animation, and the Computational Linguistics of Sign Language.

Research Funding

Matt Huenerfauth, PI. June 2008 to May 2013. "CAREER: Learning to Generate American Sign Language Animation through Motion-Capture and Participation of Native ASL Signers." National Science Foundation, Faculty Early Career Development (CAREER) Award Program, CISE Directorate, IIS Division, HCC Cluster. Amount: \$581,496.

Matt Huenerfauth, PI. June 2007 to June 2011. "Generating Animations of American Sign Language." Go PLM Grant Program. Siemens A&D UGS PLM Software. Amount: \$633,150.

Matt Huenerfauth, PI. July 2007 to December 2008. "Evaluating Parameters for American Sign Language Animations." Professional Staff Congress - City University of New York (PSC-CUNY) Research Award Program, Out-Of-Cycle Round 38. Amount: \$4,095.

Matt Huenerfauth, PI. July 2008 to June 2009. "Cued Speech Educational Software for Deaf Users." Professional Staff Congress - City University of New York (PSC-CUNY) Research Award Program, Regular-Cycle Round 39. Amount: \$3,800.

Awards

Faculty Early Career Development (CAREER) Award. (2008). U.S. National Science Foundation.

Best Paper Award. (2007). ACM SIGACCESS Conference on Computers and Accessibility.

Certificate of Recognition. (2007). CUNY Chancellor's "Salute to Scholars" Ceremony.

Morris & Dorothy Rubinoff Award. (2007). Innovative Dissertation in Computer Science, University of Pennsylvania.

Best Paper Award. (2005). ACM SIGACCESS Conference on Computers and Accessibility.

Best Doctoral Candidate Award. (2004). ACM SIGACCESS Conference on Computers and Accessibility.

Teaching Practicum Award. (2003-2004). Department of Computer and Information Science, U. Pennsylvania.

Computing Research Association, Outstanding Undergraduate Research Awards, Honorable Mention. (2001).

Fellowships

National Science Foundation Graduate Research Fellowship. (2003-2006). Full fellowship for doctoral studies.

George J. Mitchell Scholarship. (2001-2002). National fellowship for twelve U.S. students to study in Ireland.

British Marshall Scholarship. (Declined to accept Mitchell Scholarship). National fellowship to study in the UK.

USA Today All-USA Collegiate Academic First Team. (2001) National scholarship for twenty U.S. students.

Eugene DuPont Memorial Distinguished Scholar. (1997-2001). Full scholarship to the University of Delaware.

Education

University of Pennsylvania, Department of Computer and Information Science, Philadelphia, PA, USA

Doctor of Philosophy (Ph.D.), 2006. GPA 4.00

Master of Science in Engineering (M.S.E.), 2004. GPA 4.00

Thesis: Generating American Sign Language Classifier Predicates for English-to-ASL Machine Translation.

Courses: American Sign Language (Levels 1 to 5), Fingerspelling (Levels 1 & 2), Deaf Culture, Conversation & Application (Level 4), and Classifier Predicates (Levels 1 & 2).

National University of Ireland, University College Dublin, Department of Computer Science, Dublin, Ireland.

Master of Science (M.Sc.), 2002. Research in Human-Computer Interaction, User-Interface Design, and Computer Accessibility for People with Special User-Interface Needs.

Master's Thesis: Designing user-interfaces for illiterate users in developing communities in India.

University of Delaware, Department of Computer and Information Science, Newark, DE, USA.

Master of Science (M.S.), 2001. GPA 4.00

Honors Bachelor of Science (H.B.S.), 2001. GPA 4.00

Graduation Honors: Summa Cum Laude, Top Index Graduating Student (Rank 1 of 3174).

Master's Thesis: Building a natural language generation text-planning component to produce tutorial output for educational software for deaf children learning English writing skills.

Honor Societies: Phi Kappa Phi, Upsilon Pi Epsilon (Computer Science), Golden Key, Omicron Delta Kappa, Alpha Lambda Delta, National Society of Collegiate Scholars.

Professional History

Assistant Professor. Computer Science, Queens College, The City University of New York. 2006 to Present

Teaching Assistant. Computer and Information Science Dept., U. Pennsylvania. Fall 2003 to Spring 2005

Program Manager Intern. Microsoft Corporation, Natural Language Group. Summers 2000 and 2001

Research Assistant. Computer and Information Science Department, University of Delaware. 1998-2001

Teaching Assistant. Computer and Information Science Department, University of Delaware. Fall 1999

Teaching Assistant. Pennsylvania Governor's School of Excellence for the Sciences. Summer 1999

Papers and Publications

Matt Huenerfauth. 2008. "Evaluation of a Psycholinguistically Motivated Timing Model for Animations of American Sign Language." The 10th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2008), Halifax, Nova Scotia, Canada.

Matt Huenerfauth. (in press, 2008). "Spatial, Temporal, and Semantic Models for American Sign Language Generation: Implications for Gesture Generation" *International Journal of Semantic Computing*. Volume 2, Number 1. (25 pages.)

Matt Huenerfauth and Vicki L. Hanson. (in press, 2008). "Sign Language in the Interface: Access for Deaf Signers." In C. Stephanidis (ed.), *The Universal Access Handbook*. Mahwah, NJ: Lawrence Erlbaum Associates.

- Matt Huenerfauth. (in press, 2008). "Representing American Sign Language Classifier Predicates Using Spatially Parameterized Planning Templates." In M.T. Banich and D. Caccamise (eds.), *Generalization of Knowledge: Multidisciplinary Perspectives*. New York: Psychology Press.
- Matt Huenerfauth, Liming Zhou, Erdan Gu and Jan Allbeck. 2008. "Evaluation of American Sign Language Generation by Native ASL Signers." *ACM Transactions on Accessible Computing*. Volume 1, Number 1. (27 pages.)
- Matt Huenerfauth. 2008. "Misconceptions, Technical Challenges, and New Technologies for Generating American Sign Language Animation." *Universal Access in the Information Society*, Volume 6, Number 4. (16 pages.)
- Matt Huenerfauth, Liming Zhou, Erdan Gu and Jan Allbeck. 2007. "Evaluating American Sign Language Generation Through the Participation of Native ASL Signers." The 9th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2007), Tempe, AZ, USA. **Conference Award: Best Paper Award, ASSETS 2007.**
- Matt Huenerfauth, Liming Zhou, Erdan Gu and Jan Allbeck. 2007. "Design and Evaluation of an American Sign Language Generator." 45th Annual Meeting of the Association for Computational Linguistics. Workshop on Embodied Language Processing. Prague, Czech Republic. June 23-30, 2007.
- Matt Huenerfauth. 2006. "Representing Coordination and Non-Coordination in an American Sign Language Animation." *Behaviour and Information Technology*, Volume 25, Issue 4, Pages 285-295.
- Matt Huenerfauth. 2006. *Generating American Sign Language Classifier Predicates for English-to-ASL Machine Translation*. Doctoral Dissertation, Computer and Information Science, University of Pennsylvania.
- Matt Huenerfauth. 2005. "Representing Coordination and Non-Coordination in an American Sign Language Animation." The 7th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2005), Baltimore, MD, USA. **Conference Award: Best Paper Award, ASSETS 2005.**
- Matt Huenerfauth. 2005. "American Sign Language Spatial Representations for an Accessible User-Interface." 3rd International Conference on Universal Access in Human-Computer Interaction (UAHCI 2005), Las Vegas, NV, USA.
- Matt Huenerfauth. 2005. "American Sign Language Generation: Multimodal NLG with Multiple Linguistic Channels." Student Research Workshop, Association for Computational Linguistics, 43rd Annual Meeting (ACL 2005), Ann Arbor, MI, USA.
- Matt Huenerfauth. 2005. "American Sign Language Natural Language Generation and Machine Translation." ACM SIGACCESS Accessibility and Computing. New York: ACM Press. Issue 81 (January 2005).
- Matt Huenerfauth. 2004. "Spatial and Planning Models of ASL Classifier Predicates for Machine Translation." 10th International Conference on Theoretical and Methodological Issues in Machine Translation (TMI 2004), Baltimore, MD, USA.
- Matt Huenerfauth. 2004. "American Sign Language Natural Language Generation and Machine Translation." The 6th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2004), Doctoral Consortium Presentation and Poster Session, Atlanta, GA, USA. **Conference Award: Best Doctoral Candidate Award, Delivered Closing Plenary Address, ASSETS 2004.**
- Matt Huenerfauth. 2004. "Spatial Representation of Classifier Predicates for Machine Translation into American Sign Language." Workshop on the Representation and Processing of Signed Languages, 4th International Conference on Language Resources and Evaluation (LREC 2004), Lisbon, Portugal.
- Matt Huenerfauth. 2004. "A Multi-Path Architecture for Machine Translation of English Text into American Sign Language Animation." Student Research Workshop, Human Language Technologies conference / North American chapter of the Association for Computational Linguistics (HLT-NAACL 2004), Boston, MA, USA.
- Matt Huenerfauth. 2003. *A Survey and Critique of American Sign Language Natural Language Generation and Machine Translation Systems*. Technical Report MS-CIS-03-32, Computer and Information Science, University of Pennsylvania.

Matt Huenerfauth. 2002. "Design Approaches for Developing User-Interfaces Accessible to Illiterate Users." American Association of Artificial Intelligence Conference (AAAI 2002), Intelligent and Situation-Aware Media and Presentations Workshop. Edmonton, Alberta, Canada.

Matt Huenerfauth. 2002. *Developing Design Recommendations for Computer Interfaces Accessible to Illiterate Users*. M.Sc. Thesis, Computer Science, National University of Ireland, University College Dublin.

Matt Huenerfauth. 2001. *Development of PeTaLS: Personality Tagged Logical Statistical Generator*. M.S. Thesis, Computer and Information Sciences, University of Delaware.

Service Activities

Computer Science Departmental Representative, Undergraduate Research Council, Division of Mathematical and Natural Sciences, Queens College. March 2008 to Present.

Student Research Competition Chair, The 10th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2008), Halifax, Canada.

Program Committee Member, The 10th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2008), Halifax, Canada.

Member of the Faculty Working Group, Summit to Create a Cyber-Community to Advance Deaf and Hard-of-Hearing Individuals in STEM (DHH Cyber-Community), NSF-funded summit lead by U. Washington and Rochester Institute of Technology with 50 invited leaders in science, technology, engineering, and mathematics (STEM) education for deaf and hard-of-hearing students, Rochester, NY, June 25-28, 2008.

Invited Proposal Reviewer, U.S. National Science Foundation, Computer Science and Engineering Directorate, Intelligent and Information Systems Division, February 2008.

Organizer of the Computer Science Department's website redesign/updating project, Department of Computer Science, Queens College, The City University of New York, December 2007 to February 2008.

Program Committee Member, The IASTED International Conference on Assistive Technologies (AT 2008), Baltimore, MD, USA, on April 16 to 18, 2008.

Journal Reviewer, ACM Transactions on Accessible Computing, Association for Computing Machinery, 2007.

Publicity Chair, The 9th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2007), Tempe, AZ, USA.

Program Committee Member, The 9th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2007), Tempe, AZ, USA.

Co-Chair, Doctoral Student Consortium at the Human Language Technology conference - North American chapter of the Association for Computational Linguistics annual meeting (HLT-NAACL) 2006 in New York, NY, USA.

Program Committee, Student Session, INLG 2006: Meeting of the Special Interest Group in Natural Language Generation (SIGGEN), COLING/ACL 2006: International Committee on Computational Linguistics and the Association for Computational Linguistics Joint Conference, Sydney, Australia.

Co-Chair, Graduate Student Office Committee, Department of Computer and Information Science, University of Pennsylvania, 2003-2005.

Graduate Student Planning Committee, Graduate Research Symposium, School of Engineering and Applied Science, University of Pennsylvania, 2005.

Organizing Committee, Second Annual Spring Research Symposium, Penn Working Group in Language, University of Pennsylvania, 2005.

Presenter, "Computers Assisting Deaf Communication," Non-technical lectures for community groups that are committed to fund-raising to benefit people with disabilities. January 2005 meeting of the Lionesses Club of Springfield, PA, and August 2003 meeting of the Lions Club of Springfield, PA.

Invited Talks and Guest Lectures

- “ASL Generation” and “Evaluation of ASL Systems.” March 2008. Guest Lectures, Computer Science 84010, “Computational Linguistics,” Ph.D. Program in Computer Science and Graduate Program in Linguistics, The Graduate School and University Center, The City University of New York, NY, USA.
- “Linguistic and Assistive Technology for Users with Disabilities.” March 2008. Guest Lecture, Computer Science 87100, “Research at CUNY,” Ph.D. Program in Computer Science, The Graduate School and University Center, The City University of New York, New York, NY, USA.
- “Assistive Technology for the Deaf: American Sign Language Machine Translation.” November 2006. Guest Lecture, Computer Science 87100, “Research at CUNY,” Ph.D. Program in Computer Science, The Graduate School and University Center, The City University of New York, New York, NY, USA.
- “Assistive Technology for the Deaf: American Sign Language Machine Translation.” October 2006. Colloquium, Ph.D. Program in Computer Science, The Graduate School and University Center, The City University of New York, New York, NY, USA.
- “Representing American Sign Language Classifier Predicates Using Spatially Parameterized Planning Templates.” August 2006. Science of Learning Symposium on Generalization of Knowledge, The Institute of Cognitive Science, University of Colorado, Boulder, CO, USA.
- “Assistive Technology for the Deaf: American Sign Language Machine Translation.” April 2006. Seminar, Harvard-MIT Division of Health Sciences & Technology and the MIT Department of Electrical Engineering & Computer Science, Cambridge, MA, USA.
- “Assistive Technology for the Deaf: American Sign Language Machine Translation.” April 2006. Seminar, Center for Language and Speech Processing, Johns Hopkins University, Baltimore, MD, USA.
- “Computational Linguistic Models of American Sign Language Classifier Predicates.” April 2005. The Second Symposium of the Penn Working Group in Language, University of Pennsylvania.
- “Generation Models for American Sign Language Classifier Predicates.” November 2004. Computational Linguistics Lunch (CLUNCH), Department of Computer and Information Science, University of Pennsylvania.
- “Motivating the Design of a Machine Translation System from English to American Sign Language.” January 2004. Graduate Research Symposium, School of Engineering and Applied Science, University of Pennsylvania. *Award: Best Graduate Student Presentation.*
- “Classifier Predicate Representations for an English to American Sign Language Machine Translation System.” April 2004. The First Symposium of the Penn Working Group in Language, University of Pennsylvania.
- “Handling Spatially Complex English-to-ASL Machine Translation with a Multi-Path Pyramidal Architecture.” November 2003. Computational Linguistics Lunch (CLUNCH), Department of Computer and Information Science, University of Pennsylvania.

Teaching Experience

User-Interface Design and Accessibility, CSC-87100, Computer Science Ph.D. Program, CUNY Graduate Center. Course created and taught: Fall 2007. PhD students were introduced to human-computer interaction and assistive technology for people with disabilities, applications of computer research to problems in accessibility, and experimental research with human subjects.

Honors Seminar: “A City for Everyone: Science and Technology in NYC Benefiting People with Disabilities”, CUNY Queens College / Macaulay Honors College. Course created: Fall 2007. Taught: Fall 2007 and Fall 2008. Undergraduate Honors College students learn about the life experiences of people with disabilities, current trends in assistive technology, and introductory computing concepts. Readings and in-class discussion explore the legal, medical, social, educational, cultural, and ethical issues surrounding technology and people with disabilities.

Artificial Intelligence, CSci-363, CUNY Queens College. Course created and taught: Spring 2007.

Data Structures, CSci-313, CUNY Queens College. Course created: Fall 2006. Taught: Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008.

Introduction to Artificial Intelligence, CSE-391, Department of Computer Science, University of Pennsylvania, Created and taught one-third of course lectures: Spring 2004, Spring 2005.

Information Technology and Its Impact on Society, CSE-100, Department of Computer Science, University of Pennsylvania, Created and taught recitation/laboratory section of the course: Fall 2003. Non-science students learn computing and Internet technology concepts, and they explore issues in electronic privacy and security, intellectual property, societal changes relating to information technology, and other ethical issues in cyberspace.

Professional Memberships

Association for Computing Machinery (ACM)

Special Interest Group: Accessible Computing (SIGACCESS)

Special Interest Group: Computer Science Education (SIGCSE)

Special Interest Group: Computers and Society (SIGCAS)

Association for Computational Linguistics (ACL)

Special Interest Group: Natural Language Generation (SIGGEN)