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EDUCATION

- 1975-1980: Yale University, Ph.D., Psychology (1980)
M.Phil., Psychology (1980); M.S., Psychology (1978)
- 1973--1975: Université Catholique de Louvain, Institut Supérieur de Philosophie
Second Licentiate (courses), summa cum laude (1975)
First Licentiate, summa cum laude (1974)
- 1974-1975: Inter-University Centre for Post-Graduate Studies
Dubrovnik, Yugoslavia
Philosophy of Science Program
- 1969-1973: Georgetown University
B.S., Psychology and Philosophy, summa cum laude (1973)

PROFESSIONAL EXPERIENCE

- 2018-pres: Division Director, Behavioral and Cognitive Sciences
National Science Foundation
- 2017-pres: Wylma and James Curtin Chair of Psychology
- 2000-pres: Ordinary Professor of Psychology, The Catholic University of America
- 1997-2018: Chair, Department of Psychology, The Catholic University of America
- 1988-2000: Associate Professor of Psychology, The Catholic University of America
- 1996-1997: Director, Applied Experimental Psychology, The Catholic Univ. of America
- 1993-1994: Director, Psych. General Masters Program, The Catholic Univ. of America
- 1989-1990: Research Affiliate, Psychology, Yale University
- 1988: Lecturer in Psychology, Yale University
- 1988: Research Affiliate, Computer Science, Yale University
- 1985-1988: Chair, Cognitive Science Program, Wesleyan University
- 1980-1988: Assistant Professor of Psychology, Wesleyan University
- 1985(summer): Research Associate, Computer Science, Yale University
- 1979-1985: Consultant, Learning Disorders Unit, Yale-New Haven Hospital
- 1983(summer): Research Associate, Psychology, Yale University
- 1982(summer): Visiting Faculty Fellow, Naval Personnel R&D Center, San Diego, CA
- 1979;75-8(sum): Research Assistant, W.R. Garner, Yale University
- 1976, 1979: Teaching Assistant, Yale University
- 1978: Instructor, Data Analysis, Yale University
- 1978-1979: Consultant, Statistics, Yale and Wesleyan Universities
- 1973-1975: Fulbright-Hays Scholar, Louvain University, Belgium
- 1972-1973: Research Assistant and Lab Instructor, Georgetown University
- 1972(summer): Research Assistant, Naval Personnel Training and Research
Laboratory, San Diego

OTHER PROFESSIONAL ACTIVITIES**Editorial**

Editor, Springer-Verlag Series in Cognitive Science (1987-1992)
 Associate Editor, Journal of the Washington Academy of Sciences (1991- 2003)

Ad Hoc Journal Reviewer

Cognitive Psychology	Memory and Cognition
Human Factors	Developmental Psychology
Journal of Experimental Psychology: Human Perception and Performance	Journal of Experimental Psychology: Applied
Human-Computer Interaction	Psychonomic Bulletin & Review
Journal of Rehab. Research, and Development	Int'l Journal of Human-Computer Studies
	PLoS (Public Library of Science) ONE

Conference, Grant, and Scholarship Reviewer

ASEE Postdoctoral Fellowships (1990)	DC Psych. Assoc. Awards Cmte (1993)
CHI'94 Conference	ECHT'94 Conference
Consortium Faculty Grants (1994-5)	Maryland Industrial Partnerships proposal (2004)
National Science Foundation	Univ of Utah Center on Aging
Interactive Systems Program	Pilot Grant Project (2008)
IRIS Division, Committee of Visitors (1995)	American Psychological Foundation/COGDOP
Autism society of America Foundation	Graduate Research Scholarships (2013-17)
Research Grant Review (2001)	

Professional Memberships/Service

American Psychological Association	Association for Psychological Science
Cognitive Science Society	Amer. Assoc. for Artificial Intelligence
Human Factors Society	Psychonomics Society, Associate
HFS Computer Systems Technical Group	IEEE Computer Society
Society for Computers in Psychology	Software Psych. Society, Housatonic Chapter
Association for Computing Machinery	Society for Philosophy and Psychology
New York Academy of Science	Amer. Assoc. for the Adv. of Science
Sigma Xi; Phi Beta Kappa; Psi Chi	American Psychological Society
The Mathematical Assoc. of America	Capitol Area Researchers in Educ. Technology
EDUCAUSE	Washington Academy of Sciences
CHI'88 Conference Committee (1988)	DC Psychological Association Scientific and
McNair Scholars Program (2003)	Academic Affairs Committee (1993-5)
American Psychological Association	NSF Science of Learning Ctrs Site Visitor (2005)
Site Visitor (2003,2007)	Tenure Review, Kent State Univ (2010),
Institutional Review Boards	St. Michael's College (2011)
Aptima (2008-17)	Board of Advisors, Institute for Psychological
Ivymount School, Chair (2013-17)	Sciences (2004-2005; Adjunct 2006-2017)
Chairs of Graduate Departments of	NIH Grad & Prof'l School Fair (CUA rep. 2015)
Psychology Liaison to APA Board of	
Educational Affairs (2014-2017)	
Executive Board (2017-)	

University, School, Department Activities

<p>Graduate Admissions Committee, Psych. Computer Advisory Committee Committee on Honors and General Education (1984-1985) Dept. Faculty Review Committee (1989-91) Faculty Search Committee, Dept. (Clinical, 1990; Developmental, 1991) Centennial Committee (1991-92) University Honors Faculty (1992-pres) Open Major Advisor (1993-1994) Ad Hoc Committee on Freshman Academic Advising (1993-94) Dept. Curriculum Cmte, Chair (1995-1996) University Classroom Committee (1998) Middle States Steering Committee Undergrad, Chair (1998) University Strategic Planning Cmte (2000-2001) Board of Trustees, Faculty Rep (2002-2017) A&S CAP Committee (2002-2004) Provost Cmte on Faculty Research (2005) LCI Executive Board Member (2005-pres) Search Cmte, Honors Prog Director (2006-7) Middle States Accreditation Task Force on Grad Studies & Research Support (2008-9) Center for Academic Success Steering Committee (2008-2010) Marshall/Fulbright Scholar Interviewer (2014) Arts and Sciences Committee on Appointments and Promotions (2014-2018) Archdiocesan Scholarship interviewer (2016-17) University Research Operations Cmte (2017-2018)</p>	<p>Institutional Review Board Computing Task Force (1984) Social Sciences Colloquium Com. (1989-90) Committee on Guidelines for Academic Research (1990-93) Academic Senate Committee on Budget and Planning (1992-93, 1998-) Dept. Financial Aid Committee (1992-93) Commencement Marshal (1993) Dept. Faculty Search Committee Chair (1993-94) Middle States Evaluation Committee (1994) College Taskforce (1995-1996) Academic Senate Cmte on Computing (1995-8) Technology Classrooms Committee (1998) Advisory Cmte, Univ. Process & Staff (1998) Cardinal Student Strategic Planning Cmte (1999-2001) Preparing Future Faculty Program Academic Senate (ex officio) (2002-Present) A&S Task Force on Tenure Case Guidelines (2004-5) Search Cmte, Assoc. Vice Provost for Research (2005) Executive Cmte, Academic Senate (2007-9) Information Assurance Advisory Committee (2008-9) Career Services Etiquette Dinner (2009, 2010) Strategic Planning Committee, A&S (2012) Distance Learning Policy Cmte, A&S (2012) Academic Senate Ad Hoc Tenure Appeal Cmte (2012) Department Technology Representative (2014-2018) Academic Senate Budget and Planning Cmte Chair & Univ. Budget Cmte (2015-2018) President, Phi Beta Kappa, Beta Chapter of DC (2017-)</p>
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Honors

Washington Academy of Sciences Fellow
 Award for Scientific Achievement in the Behavioral and Social Sciences
Phi Beta Kappa, National Honor Society
Psi Chi, International Honor Society in Psychology (2013)

PUBLICATIONS (¹=doctoral, ²=masters, ³=undergraduate)**Refereed Journal Articles**

- Sebrechts, M.M., & Garner, W.R. (1981). Stimulus-specific performance consequences of goodness. **Memory and Cognition**, 9(1), 41-49.
- Black, J.B., & Sebrechts, M.M. (1981). Facilitating human-computer communication. **Applied Psycholinguistics**, 2(1), 149-177.
- Sebrechts, M.M., Deck, J.G.², & Black, J.B. (1983). A diagrammatic approach to computer instruction for the naive user. **Behavior Research Methods and Instrumentation**, 15(2), 200-207.

- Deck, J.G.² & Sebrechts, M.M. (1984). Variations on active learning. **Behavior Research Methods, Instruments, and Computers**, 16, 238-241.
- Sebrechts, M.M., Deck, J.G.², Wagner, R.K., & Black, J.B. (1984). How human abilities affect component skills in word processing. **Behavior Research Methods, Instruments, and Computers**, 16, 234-237.
- Wagner, R.K., Sebrechts, M.M., & Black, J.B. (1985). Tracing the evolution of knowledge structures. **Behavior Research Methods, Instruments, and Computers**, 17(2), 275-278.
- Sebrechts, M.M. & Gross, P. H.³ (1985). Programming in natural language: A descriptive analysis. **Behavior Research Methods, Instruments, and Computers**, 17(2), 268-274.
- Sebrechts, M.M., Shaywitz, S.E., Shaywitz, B.A., Jatlow, P., Anderson, G.M., & Cohen, D.J. (1986). Components of attention, methylphenidate dosage and blood levels in attention deficit disorder. **Pediatrics**, 77(2), 222-228.
- Sebrechts, M.M., Furstenberg, C.T., & Shelton, R.M.³ (1986). Remembering Computer Command Names: Effects of Subject Generation versus Experimenter Imposition. **Behavior Research Methods, Instruments, and Computers**, 18(2), 129-134.
- Furstenberg, C.T., Sebrechts, M.M., & Seamon, J.G. (1987). Accessing associative strength in cued recall and pair recognition. **American Journal of Psychology**, 100(2), 239-251.
- Sebrechts, M.M. & Schooler, L.J.³ (1987). An artificial intelligence approach to analyzing student errors in statistics. **Collegiate Microcomputer**, V(1), 82-86.
- Brody, N., Goodman, S.E., Halm, E., Krinzman, S., & Sebrechts, M.M. (1987). Lateralized affective priming of lateralized affectively valued target words. **Neuropsychologia**, 25(6), 935-946.
- Sebrechts, M.M., Seamon, J.G., & Marsh, R.L.² (1989). Secondary memory processes in very rapid forgetting. **Memory and Cognition**, 17(6), 693-700.
- Shaywitz, B.A., Shaywitz, S.E., Sebrechts, M.M., Anderson, G.M., Cohen, D.J., Jatlow, P., Young, G. (1990). Growth hormone and prolactin response to methylphenidate in children with attention deficit disorder. **Life Sciences**, 46(9), 625-633.
- Bennett, R.E., Sebrechts, M.M. & Rock, D.A. (1991). Expert-system scores for complex constructed-response quantitative items: A study of convergent validity. **Applied Psychological Measurement**, 15(3), 227-239.
- Sebrechts, M.M., Bennett, R.E., & Rock, D.A. (1991). Agreement between expert system and human rater's scores on complex constructed-response quantitative items. **Journal of Applied Psychology**, 76(6), 856-862.
- Sebrechts, M.M., Silverman, B.G., Boehm-Davis, D.A., & Norman, K.L. (1995). Establishing an electronic collaborative learning environment in a university consortium: The CIRCLE Project. **Computers and Education**, 25(4), 215-225.
- Bennett, R. E., & Sebrechts, M. M. (1996). The accuracy of expert-system diagnoses of mathematical problem solutions. **Applied Measurement in Education**, 9, 133-150.
- Sebrechts, M.M., Enright, M., Bennett, R.E., Martin, K. (1996). Using Algebra Word Problems to Assess Quantitative Ability: Attributes, Strategies, and Errors. **Cognition and Instruction**, 14(3), 285-343.

- Rau, P.¹ & Sebrechts, M.M. (1996). How initial plans mediate the expansion and resolution of options in writing. **Quarterly Journal of Experimental Psychology**, 49A(3), pp.616-638.
- Bennett, R. E., & Sebrechts, M. M. (1997). A computer-based task for measuring the representational component of quantitative proficiency. **Journal of Educational Measurement**, 34(1), pp. 64-78.
- Marsh, R.L., Sebrechts, M.M., Hicks, J.L., & Landau, J.D. (1997). Processing strategies and secondary memory in very rapid forgetting. **Memory and Cognition**. 25(2), pp. 173-181.
- Lathan, C.E., Sebrechts, M.M., Newman, D. J. & Doarn, C.R. (1999). Heuristic evaluation of a web-based interface for Internet telemedicine. **Telemedicine Journal**, 5(2). 177-185.
- Trepagnier, C., Sebrechts, M. M. & Peterson, R.¹ (2002). Atypical Face Gaze in Autism. **CyberPsychology & Behavior**, 5(3), 213-217.
- Trepagnier, C.Y., Sebrechts, M.M., Finkelmeyer, A.¹, Coleman, M.¹, Stewart, Jr., W.,² Werner-Adler, M.² (2005). Virtual Environments to Address Autistic Social Deficits. **Annual Review of CyberTherapy and Telemedicine: A Decade of VR**, 3, 101-108.
- Trepagnier, C.Y., Sebrechts, M.M., Finkelmeyer, A.¹, Stewart, W.², Woodford, J.², & Coleman, M.¹ (2006). Simulating social interaction to address deficits of autism spectrum disorder in children. **CyberPsychology & Behavior**, 9(2), 213-217.
- Skinner, A.¹, Auner, G., Meadors, M.¹, & Sebrechts, M. (2013). Ambidexterity in laparoscopic surgical skills training. **Studies in Health Technology and Informatics**, 184, 412-416.
- Settle, J.R.¹, Clawson, D.M., & Sebrechts, M.M. (2017). Initial planning benefits complex prospective memory at a cost. **Quarterly Journal of Experimental Psychology**, 70, 1700-1712.

In Preparation

- Settle, J.R.¹, Clawson, D.M., Sebrechts, M.M., French, L.M., Massey Watts, A.T. & Duncan, C.C. (submitted). Prospective memory in service members with mild traumatic brain injury.
- Johnson, J.¹ & Sebrechts, M.M. Working memory and visual distraction as predictors of concurrent task performance.
- Rahill, K.¹ & Sebrechts, M.M. Personally adaptive avatars for enhanced skill acquisition and performance.

Chapters, Reviews, and Monographs

- Sebrechts, M.M. & Black, J.B. (1982). [A review of Shneiderman, B. *Software psychology: Human factors in computer and information systems*.] **Applied Psycholinguistics**. 3(4): 373-381.
- Sebrechts, M.M. (1983). [A review of Card, S., Moran, T., & Newell, A. *The Psychology of Human-Computer Interaction*.] **American Scientist**, 71, 656.
- Galambos, J.A., Sebrechts, M.M., Wikler, E., & Black, J.E. (1984). A diagrammatic language for instruction of a menu-based word processing system. In S. Williams (Ed.), **Human and machines: The interface through language**. Norwood, NJ: Ablex.

- Sebrechts, M.M., & Marsh, R.L.², (1989). Components of computer skill acquisition: Some reservations about mental models and discovery learning. In G. Salvendy and M.J. Smith (eds.) **Designing and using human-computer interfaces and knowledge based systems**. Amsterdam: Elsevier Science Publishers.
- Sebrechts, M.M., Marsh, R.L.², & Furstenberg, C.T. (1990). Integrative modeling: Changes in mental models during learning. In S.P. Robertson, W.Zachery, & J.B. Black (Eds.) **Cognition, Computing, and Cooperation: Collected Works on Cooperation in Complex Systems**. Ablex Publishing Co.
- Sebrechts, M. M. (1992). From testing to training: Evaluating automated diagnosis in statistics and algebra. In Frasson, C., Gauthier, G., and McCalla, G.I. (Eds.). **Intelligent tutoring systems**. (ITS'92). Heidelberg, Germany: Springer-Verlag, 560-566.
- Sebrechts, M.M., Knott, B.¹ & Etgen, M.¹ (1997). **Human-computer interaction guidelines for imagery exploitation systems**, Version 2.0. Washington, DC: National Photographic Interpretation Center.
- Trepagnier, C., Gupta, V, & Sebrechts, M.M., Knott, B.¹ (1999). Use of Virtual Reality Technology to Investigate Face Processing by Persons with Autism. In C. Buehler & H. Knops (Eds.), **Assistive Technology on the Threshold of the New Millenium**. Amsterdam: IOS Press. Pp. 709-712.
- Sebrechts, M.M. (2000). Using Virtual Environments for Training of Spatial Navigation. **CSERIAC Gateway**, XI (2), 1-4.
- Lathan, C. E., Tracey, M.R., Sebrechts, M.M., Clawson, D.M., & Higgins, G.A. (2002). Using Virtual Environments as Training Simulators: Measuring Transfer. In K. M. Stanney (ed.). **Handbook of virtual environments: Design, Implementation, and Applications**. Mahwah, NJ: Lawrence Erlbaum Associates.
- Sebrechts, M.M., Lathan, C., Clawson, D.M., Miller, M.S.¹, & Trepagnier, C. (2003). Transfer of training in virtual environments: Issues for human performance. In L.J. Hettinger & M. Haas (Eds.). **Virtual and Adaptive Environments: Applications, Implications, and Human Performance Issues**. Mahwah, NJ: Lawrence Erlbaum Associates (pp. 67-90).
- Sebrechts, M.M. (2005). Visualizing Information in Virtual Space: Prospects and Pitfalls In S. –O. Tergan and T. Keller (Eds). **Knowledge and Information Visualization: Searching for Synergies**. LNCS 3426. (pp. 136-166). Heidelberg: Springer-Verlag.
- Skinner, A.¹, Sebrechts, M.M., Fidopiastis, C., Berka, C., Vice, J., & Lathan, C. (2009). Physiological Measures of Virtual Environment Training, In **Human Performance Enhancement in High Risk Environments: Insights, Developments & Future Directions from Military Research**. Santa Barbara, CA: Praeger.

Published Proceedings

- Sebrechts, M.M. (1983). Cognitive guidelines for computer-based instruction: A navigational case study. **Proceedings of the Human Factors Society - 27th Annual Meeting** (pp. 642-646). Santa Monica, CA: Human Factors Society.
- Galambos, J.A., Wikler, E., Sebrechts, M.M., & Black, J.B. (1983). How to tell your computer what you mean: Ostension in interactive systems. In R.N. Smith, R.W. Pew & A. Janda (Eds.), **Proceedings of the ACM CHI 83 Human Factors in Computing Systems Conference** (pp.182-185). New York: Association for Computing Machinery.

- Sebrechts, M.M. & Fragala, J.² (1985). Variations on parts and wholes: Information precedence vs. global precedence. **Proceedings of the Seventh Annual Conference of the Cognitive Science Society** (pp. 11-18). Irvine, CA: Cognitive Science Society.
- Sebrechts, M.M., LaClaire, L., & Schooler, L.J.³, & Soloway, E. (1986). Towards generalized intention-based diagnosis: GIDE. **Proceedings of the 7th National Educational Computing Conference** (pp. 237-242). Eugene, OR: International Council on Computers in Education.
- Sebrechts, M.M., & DuMont, M.D.² (1986). Mental models in computer skill acquisition: An empirical study. **Proceedings of the IEEE International Conference on Systems, Man and Cybernetics** (pp. 750-755). NY: The Institute of Electrical and Electronics Engineers.
- Sebrechts, M.M. & Deck, J.G.³ (1986). Techniques for Acquiring Computer Procedures: Some restrictions on "interaction." **Proceedings of the Human Factors Society - 30th Annual Meeting**, (pp.275-279). Santa Monica, CA: Human Factors Society.
- Sebrechts, M.M. & Furstenberg, C.T. (1986). Using mental schemata: An experimental analysis of computer skill acquisition. **Proceedings of the Eighth Annual Conference of the Cognitive Science Society**, (pp. 808-816). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Sebrechts, M.M., Schooler, L.J.³, LaClaire, L. (1986). Matching strategies for error diagnosis: A statistics tutoring aid. **Proceedings of the IEEE International Conference on Systems, Man and Cybernetics** (pp. 1228-1233). NY: The Institute of Electrical and Electronics Engineers.
- Sebrechts, M.M., Schooler, L.J.³, LaClaire, L., & Soloway, E. (1987). Computer-based interpretation of students' statistical errors: A preliminary empirical analysis of GIDE. **Proceedings of the 8th National Educational Computing Conference** (pp. 143-148). Eugene, OR: International Council on Computers for Education.
- Sebrechts, M.M. & Schooler, L.J.³ (1987). Diagnosing errors in statistical problem solving: Associative problem recognition and plan-based error detection. In E. B. Hunt (Ed.), **Proceedings of the Ninth Annual Cognitive Science Meeting** (pp. 691-703). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Sebrechts, M.M. & Swartz, M.¹ (1991). Question asking as a tool for novice computer skill acquisition. In S.P. Robertson, G.M. Olson, & J.S. Olson (eds.). **Proceedings of the ACM CHI 91 Human Factors in Computing Systems Conference** (pp. 293-299), Hillsdale, NJ: Lawrence Erlbaum Associates.
- Sebrechts, M.M., Jaffe, C.C., & Lynch, P. (1991). Hypermedia and echocardiography: An interface design for guided discovery. In S.P. Robertson, G.M. Olson, & J.S. Olson (eds.). **Proceedings of the ACM CHI 91 Human Factors in Computing Systems Conference** (pp.435-436), Hillsdale, NJ: Lawrence Erlbaum Associates.
- Sebrechts, M.M. (1992). A diagnostic approach to training in statistics and algebra. In R. B. Loftin and D.F. Cupitt (Eds.), **Proceedings of the 1991 Conference on Intelligent Computer-aided Training** (NASA Conference Publication 10100), Vol. II. Houston, TX: NASA/Johnson Space Center.
- Boehm-Davis, D.A., Sebrechts, M.M., Norman, K.L., & Silverman, B.G. (1996). Using technology to team teach across institutions: The CIRCLE project. **Proceedings of the 40th Annual Meeting of the Human Factors and Ergonomics Society** (pp. 468-472).
- Miller, M. S.¹, Clawson, D. M., Sebrechts, M. M., & Knott, B. A.¹ (1998). Interface design for inducing and assessing immersion in virtual reality. **CHI 98 Summary: Human Factors in Computing Systems** (pp. 343-344). New York: The Association for Computing Machinery.

- Clawson, D.M., Miller, M.S.¹, Knott, B.A.¹, & Sebrechts, M.M. (1998). Navigational training in virtual and real buildings. **Proceedings of the 42nd Annual Meeting of the Human Factors and Ergonomics Society** (pp. 1427-1431).
- Sebrechts, M.M., Vaskilakis, J.², Miller, M.S.¹, Cugini, J., & Laskowski, S. (1999). Visualization of search results: A comparative evaluation of text, 2D, and 3D interfaces. In **Proceedings of the 22nd Annual International ACM SIGIR Conference on Research and Development in Information Retrieval** (pp. 3-10).
- Miller, M. S.¹, Clawson, D. M., & Sebrechts, M. M. (1999). Long-term retention of spatial knowledge acquired in virtual reality. In **Proceedings of the 43rd Annual Meeting of the Human Factors and Ergonomics Society** (pp. 1243-1246).
- Trepagnier, C., Gupta, V., Sebrechts, M.M. & Knott, B.¹ (1999). Use of Virtual Reality Technology to Investigate Face Processing by Persons with Autism. In C. Buehler & H. Knops (Eds.), **Assistive Technology on the Threshold of the New Millenium** (pp. 709-712). IOS Press: Amsterdam.
- Cugini, J., Laskowski, S., & Sebrechts, M.M. (2001). Design of 3D Visualization of Search Results: Evolution and Evaluation, **Proceedings of IST/SPIE's 12th Annual International Symposium: Electronic Imaging 2000** (Visual Data Exploration and Analysis), San Jose.
- Trepagnier, C., Gupta, V., Sebrechts, M.M. & Rosen, M.J. (2000). How does he look: Tracking autistic gaze. **Proceedings of the RESNA 2000 Annual Conference** (pp. 28-30).
- Ramloll, R., Trepagnier, C. & Sebrechts, M.M. (2004). Gaze Data Visualization Tools: Opportunities and Challenges? In **IV 2004 - 8th International Conference on Information Visualization** (pp. 173-180), IEEE Press.
- Ramloll, R. Trepagnier, C., Sebrechts, M.M. & Finkelmeyer A.¹ (2004). A Gaze-Contingent Environment for Fostering Social Attention in Autistic Children. In A.T. Duchowski & R. Vertegaal (Eds.). **ETRA 2004 - Proceedings of Eye Tracking Research and Application Symposium**, (pp. 19-26).
- Piller, M.J.¹, & Sebrechts, M.M. (2005c). Route Oriented Tasks Help Initial Survey-based Learning. In **Proceedings of the 49th Annual Meeting of the Human Factors and Ergonomics Society** (pp. 2273-2277).
- Trepagnier, C.Y., Sebrechts, M.M., Finkelmeyer, A.¹, Woodford, J., & Stewart, W. Jr.² (2006). Virtual social environment for preschoolers with autism – preliminary data. **Proceedings of the 6th International Conference on Disability, Virtual Reality and Associated Technologies**. Esbjerg, Denmark. ICdVRAT: University of Reading, UK.
- Skinner, A.¹, Vice, J., Lathan, C., Fidopiastis, C., Berka, C., Sebrechts, M.M.. (2009). Perceptually-informed Virtual Environment (PerceiVE) Design Tool. In J. Jacko (Ed.). **Human-Computer Interaction. New Trends. Lecture Notes in Computer Science** (Foundations of Augmented Cognition: Neuroergonomics and Operational Neuroscience), Vol. 5610 (pp. 650-657). New York: Springer.
- Skinner, A.¹, Berka, D., Ohara-Long, L., & Sebrechts, M.M. (2010). Impact of Virtual Environment Fidelity on Behavioral and Neurophysiological Response. In **Proceedings of the 2010 Interservice/Industry Training, Simulation, and Education Conference (IITSEC)**.
- Vice, J., Skinner, A.¹, Berka, C., Reinerman-Jones, L., Barber, D., Pojman, J., Tan, V., Sebrechts, M. & Lathan, C. (2011). Use of Neurophysiological Metrics within a Real and Virtual Perceptual Skills Task to Determine Optimal Simulation Fidelity Requirements. In R. Shumaker (Ed.). **Proceedings of the 2011 International Conference on Virtual and Mixed Reality – HCI (13): New Trends – Volume Part I** (pp. 387-399). Heidelberg: Springer-Verlag.

Skinner, A.¹, Lathan, C., Meadors, M.¹ & Sebrechts, M.M. (2012). Training and Retention of Medical Skills. In **The Interservice/Industry Training, Simulation, and Education Conference (IITSEC)**. (Vol. 2012, No. 1). National Training Systems Association.

Momen, A.² Sebrechts, M.M., Allaham, M. M. (2016). Virtual Agents as a Support for Feedback- Based Learning. **Proceedings of the Human Factors and Ergonomics Society 2016 Annual Meeting**. Washington DC, 1778-1782.

Technical Reports

Sebrechts, M.M., Galambos, J.A., Black, J.B., Deck, J.G., Wikler, E., & Wagner, R.K. (1984). **The effects of diagrams on learning to use a system**. Yale Psychology Department, Learning and Using Systems Project, Technical Report 2.

Sebrechts, M.M. & Deck, J.G.² (1985). **The effects of goal structure on computer skill acquisition**. Wesleyan University, Cognitive Science Program, Research Report MMS-85-101.

Soloway, E., Macalalad, A., Spohrer, J., Sack, W. & Sebrechts, M.M. (1987). **Computer based analysis of constructed-response items: A demonstration of the effectiveness of the intention-based diagnosis strategy across domains**. Yale University Technical Report.

Bennett, R.E., Sebrechts, M.M., & Yamamoto (1991). **Fitting new measurement models to GRE general test constructed-response item data**. ETS Research Report 91-60. Princeton, NJ: Educational Testing Service.

Bennett, R.E., Sebrechts, M.M. & Rock, D.A. (1991). **The convergent validity of expert system scores for complex constructed-response quantitative items**: (RR-91-12). Princeton, NJ: Educational Testing Service.

Sebrechts, M.M., Bennett, R.E., & Rock, D.A. (1991). **Machine-scorable complex constructed-response quantitative items: Agreement between expert system and human raters' scores** (RR-91-11). Princeton, NJ: Educational Testing Service.

Sebrechts, M.M., Bennett, R.E., Katz, I. (1993). **A research platform for interactive performance assessment in graduate education**. ETS Research Report 93-08. Princeton, NJ: Educational Testing Service.

Sebrechts, M.M., Enright, M., Bennett, R.E., Martin, K. (1993). **Toward a Cognitive Basis for Quantitative Ability Measures**. ETS Research Report 93-22. Princeton, NJ: Educational Testing Service.

Sebrechts, M.M., Boehm-Davis, D.A., Davison, S.A.¹, & Ehret, B.D. (1993). **Resources in Human-Computer Interaction**. Report for the Consortium of Universities of the Washington Metropolitan Area.

Bennett, R.E. & Sebrechts, M.M. (1994). **The accuracy of automatic qualitative analyses of constructed-response solutions to algebra word problems**. ETS Research Report 94-04, GRE Board Professional Report No. 91-03P. Princeton, NJ: Educational Testing Service.

Bennett, R. E., Sebrechts, M. M., & Rock, D. A. (1995). **A task type for measuring the representational component of quantitative proficiency**. Princeton, NJ: Educational Testing Service. ETS Research Report 95-19, GRE Board Professional Report No. 92-05P. Princeton, NJ: Educational Testing Service.

- Sebrechts, M.M. (1995). Using dynamic queries for statistical map reading: A cognitive perspective. In Pickle, L.W. & Herrmann, D.J.(Eds). **Cognitive Methods Staff Working Paper Series, No. 18**, Hyattsville, MD: NCHS Office of Research and Methodology.
- Lathan, C. E., Newman, D. J., Sebrechts, M. M., & Doarn, C. R. (1997). Evaluating a Web-Based Interface for Internet Telemedicine. NASA, Washington, DC.
<https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19980036968.pdf>
- Knott, B.A.¹, Sebrechts, M.M., Howard, J.H., Miller, M.S.¹, & Vasilakis, J.²(1998). **A cognitive framework for information visualization: Annotated bibliography**. (NIST publication No. GCR 98-739). Gaithersburg, MD: National Institute of Standards and Technology.

Published Research Abstracts

- Shaywitz, S.E., Sebrechts, M.M., Jatlow, P., Anderson, G.M., Young, J.G., Cohen, D.J., & Shaywitz, B.A. (1982). Plasma Methylphenidate levels predict attention and activity. Results in a double-blind placebo study (abstract). **Pediatric Research**, 16:93A.
- Shaywitz, S.E., Sebrechts, M.M., Jatlow, P., Anderson, G.M., Young, J.G., Cohen, D.J., & Shaywitz, B.A. (1982). Clinical response to Methylphenidate (MPH) is related to plasma Prolactin and Growth Hormone levels: Support for catecholaminergic influences in Attention Deficit Disorder (abstract). **Annals of Neurology**, 12:196.
- Sebrechts, M.M., Schooler, L.J.³, & Soloway, E. (1987). Diagnosing student errors in statistics: An empirical evaluation of GIDE (abstract). **Proceedings of the Third International Conference on Artificial Intelligence and Education** (p. 48). Pittsburgh, PA: Learning Research Development Center.
- Sebrechts, M.M. (1992). Cognitive principals applied to the design of a hypermedia learning environment for echocardiography (abstract). **International Journal of Psychology**, 37(3-4), 579.
- Sebrechts, M.M. (1992). A goal/plan model of student problem solving: Empirical results using algebra word problems (abstract). **International Journal of Psychology**, 37(3-4), 162.

PAPERS PRESENTED

- Sebrechts, M.M., Deck, J.B.², & Black, J.B. (1982). **Methods for assessing the utility of graphic aids**. Paper presented at the Twelfth Annual Meeting of the National Conference on the Use of On-Line Computers in Psychology, Minneapolis, MN.
- Sebrechts, M.M. & Galanes, M. (1982). **A strategic informational approach to visual precedence**. Paper presented at the Twenty-Third Annual Meeting of the Psychonomics Society, Minneapolis, MN.
- Sebrechts, M.M. (1983). **Acquiring Text-Editing Skills**. Paper presented at the Eighth Annual Interdisciplinary Conference, Steamboat Springs, CO.
- Sebrechts, M.M., Deck, J.G.², Wagner, R.K., and Black, J.B. (1983). **Human abilities and cognitive skill acquisition**. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada.
- Sebrechts, M.M. (1983, October). **Strategies for assessing user knowledge**. Paper presented at the Second Annual Adelphi University Applied Experimental Psychology Conference, Garden City, NY.

- Sebrechts, M.M. (1983, October). **Information presentation and user learning.** Paper presented at the Second Annual Adelphi University Applied Experimental Psychology Conference, Garden City, NY.
- Black, J.B., Wagner, R.K., & Sebrechts, M.M. (1983). **Tracing the evolution of knowledge structures.** Paper presented at the Intelligent User Interfaces Conference, Jackson, New Hampshire.
- Sebrechts, M.M. (1984, April). **Cognitive Models and CAI.** Paper presented at the National Conference on Microcomputers and Basic Skills in College, The Instructional Resource Center of the City University of New York.
- Sebrechts, M.M. (1984). **Varying methodologies for an experimental aesthetics.** Paper presented at the 92nd Annual Convention of the American Psychological Association, Toronto, Canada.
- Sebrechts, M.M. & Deck, J.G. (1984). **Effects of information sequencing variables in mental procedural plans.** Paper presented at the 92nd Annual Convention of the American Psychological Association, Toronto, Canada.
- Sebrechts, M.M. (1984, October). **The effects of information sequencing on procedural training.** Paper presented at the Third Annual Applied Experimental Psychology Conference, Garden City, NY.
- Brody, N., Sebrechts, M.M., Tractenberg, B., & Jones, L. (1984). **Lateralized affective priming and judgments of affective value of words.** Paper presented at the 92nd Annual Convention of the American Psychological Association, Toronto, Canada.
- Sebrechts, M.M. & Gross, P.H.³ (1984, November). **An analysis of natural language programming.** Paper presented at the Fourteenth Annual Meeting of the Society for Computers in Psychology, San Antonio, Texas.
- Wagner, R.K., Sebrechts, M.M., & Black, J.B. (1984, November). **Tracing the evolution of knowledge structures.** Paper presented at the Fourteenth Annual Meeting of the Society for Computers in Psychology, San Antonio, Texas.
- Sebrechts, M.M. & Fragala, J.² (1985, October). **Variations on parts and wholes: Information precedence vs. global precedence.** Paper presented at the Seventh Annual Conference of the Cognitive Science Society. Irvine, CA.
- Sebrechts, M.M. (1985, October). **The Role of Models and Analogies in Learning Computer Skills.** Paper presented at the Fourth Annual Adelphi University Applied Experimental Psychology Conference. Adelphi Univ., NY.
- Sebrechts, M.M. (1985, September). **Intention-Based Diagnosis of Complex Procedures.** Paper presented at the Soviet-American Joint Conference on Applications of Microcomputers in Cognitive Psychology. UCLA, Los Angeles.
- Sebrechts, M.M., Shelton, R.M.³, & Furstenberg, C. (1985, November). **Remembering Computer Command Names: Comparisons of Generation and Imposition.** Paper presented at the Fifteenth Annual Meeting of the Society for Computers in Psychology. Boston, MA.
- Sebrechts, M.M. & Schooler, L.³ (1985, November). **Towards Intention-Based Debugging of Statistics.** Paper presented at the CUNY Conference on Microcomputers and Basic Skills in College. New York.

- Sebrechts, M.M. (1986, April). **Information-Dependent Shifts in Visual Pattern Precedence**. Paper presented at the 57th Annual Meeting of the Eastern Psychological Association. New York.
- Furstenberg, C.T., Sebrechts, M.M., & Seamon, J.G. (1986, April). **Accessing associative Strength in Cued Recall and Pair Recognition**. Paper presented at the 57th Annual Meeting of the Eastern Psychological Association. New York.
- Sebrechts, M.M. (1986, August). **Effects of elaboration on skill acquisition**. Paper presented at the Annual Convention of the American Psychological Association. Washington.
- Sebrechts, M.M., Schooler, L.J.³, LaClaire, L., & Soloway, E. (1986, August). **GIDE: An analysis of intention-based diagnosis**. Paper presented at the Eighth Annual Conference of the Cognitive Science Society, Amherst, MA.
- Sebrechts, M.M. & Furstenberg, C.T. (1986, August). **Using mental schemata: An experimental analysis of computer skill acquisition**. Paper presented at the Eighth Annual Conference of the Cognitive Science Society, Amherst, MA.
- Sebrechts, M.M. & Deck, J.G.³ (1986, October). **Techniques for Acquiring Computer Procedures: Some restrictions on "interaction."** Paper presented at the 30th Annual Meeting of the Human Factors Society, Dayton, Ohio.
- Seamon, J.G., Schooler, L.J.³, Sklar, E.³, & Sebrechts, M.M. (1987, April). **The role of proactive interference in very rapid forgetting**. Paper presented at the Annual Meeting of the Eastern Psychological Association, New York.
- Sebrechts, M.M. (1987, October). **Intuitive and plan-based aspects of statistical diagnosis: Preliminary empirical analysis of a computer simulation**. Paper presented at the Sixth Annual Adelphi University Applied Experimental Psychology Conference, Garden City, NY.
- Sebrechts, M.M. & Marsh, R.L.² (1987, April). **Subject-generated vs. author-provided elaborations: Effects on skill acquisition**. Paper presented at the Annual Convention of the American Psychological Association, New York.
- Sebrechts, M.M. (1988, May). **"Constraint" in computer-based training: Problems with some common guidelines**. Paper presented at The Conference on Human Factors in Computing Systems, CHI '88, Washington, DC.
- Sebrechts, M.M., Seamon, J.G., & Marsh, R.L.² (1989, April). **Secondary memory effects in short-term and long-term recall**. Paper presented at the 60th Annual Meeting of the Eastern Psychological Association, Boston, MA.
- Sebrechts, M.M., Neath, I.¹, Lynch, P., Jaffe, C.C. (1989, November). **Computer-aided instruction in radiology: Evaluation of efficacy**. Paper presented at the 75th Annual Meeting of the Radiological Society of North America. Chicago.
- Armstrong, S., Sebrechts, M.M., & Gleitman, C. (1990). **Metalinguistic ability and the development of "convention."** Paper presented at the Second Annual Meeting of the American Psychological Society.
- Sebrechts, M.M., Jaffe, C.C., & Lynch, P. (1990, April). **Interface design in hypermedia: Transient vs. enduring qualities**. Paper presented at CHI '90, the Conference on Human Factors in Computing Systems. Seattle, WA.

- Sebrechts, M.M. & Swartz, M.¹ (1991, May). **Question asking as a tool for novice computer skill acquisition.** Paper presented at CHI '91, the Conference on Human Factors in Computing Systems. New Orleans.
- Sebrechts, M.M., Jaffe, C.C., & Lynch, P. (1991, May). **Hypermedia and echocardiography: An interface design for guided discovery.** Paper presented at CHI '91, the Conference on Human Factors in Computing Systems. New Orleans.
- Davison, S.A.¹ & Sebrechts, M.M. (1991, June). **Cognitive style can influence the utility of a mental model.** Paper presented at the Third Annual Meeting of the American Psychological Society, Washington, DC.
- Swartz, M.L.¹ & Sebrechts, M.M. (1991, June). **Question-asking strategies can be altered by computer-based question-construction tools.** Paper presented at the Third Annual Meeting of the American Psychological Society, Washington, DC.
- Sebrechts, M.M., Bennett, R.E., & Rock, D.A. (1991, June). **A goal-based model explains student algebra errors and mimics expert assessment.** Paper presented at the Third Annual Meeting of the American Psychological Society, Washington, DC.
- Bennett, R. & Sebrechts, M.M. (1991, October). **Analysis of complex constructed-response mathematical items.** Paper presented at the Military Testing Association Meeting. San Antonio, TX.
- Sebrechts, M.M. (1991, November). **A diagnostic approach to training in statistics and algebra.** Paper presented at the Conference on Intelligent Computer-Aided Training. Houston, TX.
- Sebrechts, M.M. & Permenter, K.² (1991, December). **Hypermedia as a training tool for echocardiography: An empirical evaluation.** Paper presented at the Hypertext '91 Conference. San Antonio, TX.
- Sebrechts, M. M. (1992, June). **From testing to training: Evaluating automated diagnosis in statistics and algebra.** Paper presented at the Second International Conference on Intelligent Tutoring Systems, ITS'92, Montreal, Canada.
- Sebrechts, M.M. (1992, July). **Cognitive principals applied to the design of a hypermedia learning environment for echocardiography.** Paper presented at the International Congress of Psychology, Brussels, Belgium.
- Sebrechts, M.M. (1992, July). **A goal/plan model of student problem solving: Empirical results using algebra word problems.** Paper presented at the International Congress of Psychology, Brussels, Belgium.
- Davison, S.A.¹ & Sebrechts, M.M. (1992, June) "Why can't I adjust my refrigerator's temperature?" or "What's wrong with my mental model?" Presented at CHI'92. Monterey, CA.
- Kordell, G.J.² & Sebrechts, M.M. (1993, November). **Icon and diagram use in data navigation: I know I'm there, but where is that?** Poster presented at the Hypertext '93 Conference. Seattle, WA.
- Walker, V.² & Sebrechts, M.M. (1994, April). **Visualizing the desktop: The utility and limits of spatial layout for information retrieval.** Poster presented at the First Automation Technology and Human Performance Conference. Washington, DC.

- Davison, S. A.¹ & Sebrecchts, M.M. (1994, April). **Mental models and individual differences in learning to operate a simple device.** Poster presented at the First Automation Technology and Human Performance Conference. Washington, DC.
- Sebrecchts, M.M., Boehm-Davis, D., Silverman, B. & Norman, K. (1994, May). **CIRCLE: Consortium Interactive Research on Collaborative Learning Environments.** Paper presented at the Software Psychology Society meeting. Washington, DC.
- Davison, S.A.¹, Psotka, J., Sebrecchts, M.M. (1995, October). **The effects of cognitive style and immersion on spatial mental models.** Paper presented at the 39th annual meeting of the Human Factors and Ergonomics Society. San Diego, CA.
- Sebrecchts, M.M., Herrmann, D. , & Pickle, L.W. (1995, August). **Statistical mapping for the masses: Using dynamic mapping to visualize health statistics.** Paper presented at the Annual Meeting of the American Statistical Association. Orlando, FL.
- Sebrecchts, M.M., Knott, B., Etgen, M.¹, Pflaging, M., & Psotka, J. (1996, March). **Cyber-Seat: A design for rotational virtual reality.** Paper presented at the 2nd annual Automation Technology meeting.
- Knott, B. A.¹ & Sebrecchts, M. M. (1996, October). **Tracking control in forming spatial representations from virtual reality environments.** Poster presented at the Human Factors and Ergonomics Society, 40th Annual Meeting. Philadelphia. PA.
- Etgen, M.P.¹ & Sebrecchts, M.M. (1997, April). **Effects of instructional method and diagrams on word problem solving and analogy.** Paper presented at the Eastern Psychological Association Conference, Washington, DC.
- Etgen, M.P.¹, Sebrecchts, M.M., Knott, B.¹, Psotka, J., & Pflaging, M. (1997, May). **Augmented reality improves cognitive tracking over virtual reality.** Poster presented at the 9th Annual Convention of the American Psychological Society, Washington, DC.
- Sebrecchts, M.M. (1997, November). **Using structured aids to improve solutions to algebra word problems.** Presented at the 38th Annual Meeting of the Psychonomics Society. Philadelphia, PA.
- Sebrecchts, M.M. & Etgen, M.P.¹ (1998, May). **Implicit spontaneous analogical transfer: Effects of problem-oriented processing and graphical adjuncts.** Poster presented at the 10th Annual Convention of the American Psychological Society, Washington, DC.
- Clawson, D.M., Miller, M.S.¹, & Sebrecchts, M.M. (1998, May). **Specificity to route orientation: Reality, virtual reality, and maps.** Poster presented at the 10th Annual Convention of the American Psychological Society, Washington, DC.
- Sebrecchts, M.M. & Knott, B.A.¹ (1998, May). **Learning spatial relations in virtual environments: Route and Euclidean metrics.** Poster presented at the 10th Annual Convention of the American Psychological Society, Washington, DC.
- Clawson, D.M., Miller, M.S.¹, Knott, B.A.¹ & Sebrecchts, M.M. (1998, October) **Navigational training in virtual and real buildings.** Paper presented at the 1998 Annual Meeting of the Human Factors and Ergonomics Society, Chicago, IL.
- Clawson, D.M., Miller, M.S.¹ & Sebrecchts, M.M. (1998, November). **Mental representations of large spaces: Orientation specificity.** Poster presented at the 39th Annual Meeting of the Psychonomic Society, Dallas, TX

- Sebrechts, M.M., Knott, B.A.¹, & Clawson, D.M. (1998, November). **Changes in spatial mental models with alternative virtual reality learning environments.** Poster presented at the 39th Annual Meeting of the Psychonomic Society, Dallas, TX
- Sebrechts, M.M., Knott, B.A.¹, Miller, M.S.¹, & Clawson, D.M. (1999, August). **Variations in the utility of virtual training environments: Types of spatial ability and effects on performance.** Paper presented at the 1999 Annual Meeting of the American Psychological Association, Boston, MA.
- Miller, M.S.¹, Clawson, D.M., Sebrechts, M.M., Navas-Latiff, L.A.² (1999, November). **Retention of spatial representations: Orientation specificity, virtual reality, and restricted FOV.** Poster presented at the 40th Annual Meeting of the Psychonomic Society, Los Angeles, CA.
- Sebrechts, M.M., Mullin, L. N.¹, Clawson, D.M., & Knott, B.A.¹, (1999, November). **Virtual exploration effects on spatial navigation and recall of location.** Poster presented at the 40th Annual Meeting of the Psychonomic Society, Los Angeles, CA.
- Trepagnier, C., Gupta, V., Sebrechts, M.M. & Knott, B.¹ (1999, November.). **Use of virtual reality technology to investigate face processing by persons with autism.** Paper presented at the AAATE 5th European Conference for the Advancement of Assistive Technology, Dusseldorf.
- Sebrechts, M.M., Vasilakis, J.², & Miller, M.S.¹ (2000, February). **Using task analysis to identify cognitive bases for 3D information visualization design.** Poster presented at the 2000 American Association for the Advancement of Science Annual Meeting, Washington, DC.
- Miller, M.S.¹, Clawson, D.M., & Sebrechts, M.M. (2000, August) **How does alignment with Virtual Environment Navigation affect Survey Knowledge?** Poster presented at the 2000 Convention of the American Psychological Association, Washington, DC.
- Mullin, L.N.¹, Sebrechts, M.M., & Clawson, D.M. (2000, August) **Using Virtual Environments to Reinstate Context for Recalling Object Placement.** Poster presented at the 2000 Convention of the American Psychological Association, Washington, DC.
- Hernández, T., Kim, B., Wilder, L., Godwin, S., & Sebrechts, M.M. (2000, September). **Computer-based anchors and portion size estimation,** Fourth International Conference on Dietary Assessment Methods, Tucson, AZ.
- Hernández, T., Kim, B., Wilder, L., & Sebrechts, M.M. (2000, September). **Serving versus Portion: Is there a difference? Does it matter?** Fourth International Conference on Dietary Assessment Methods, Tucson, AZ.
- Miller, M.S.¹, Clawson, D.M., & Sebrechts, M.M. (2000, November). **Spatial knowledge acquired from virtual reality: Transfer and flexibility.** Poster presented at the 41st Annual Meeting of the Psychonomic Society, New Orleans, LA.
- Sebrechts, M.M. & Johnson, S.J.¹ (2000, November). **Using HMD-Embedded Eye-Tracking to Assess Autistic Visual Information Processing: Preliminary Eye-Gaze Analysis .** Poster presented at the 41st Annual Meeting of the Psychonomic Society, New Orleans, LA.
- Trepagnier, C., Sebrechts, M.M., Lathan, C. Ramloll, R., Peterson, R. (2001, October) **VR and Autism: State of the Science & VR for Early Intervention.** Paper presented at Telerehabilitation: Rehabilitation at a Distance (The State of the Science Plenary Conference). Washington, DC.
- Sebrechts, M.M. (2001, October). **Virtual Environments and Spatial Navigation: Training, Transfer, and Transformation .** Paper presented at Telerehabilitation: Rehabilitation at a Distance (The State of the Science Plenary Conference). Washington, DC.

- Sebrechts, M.M. & Johnson, S.J.¹ (2001, November). **Stimulus Structure Effects on Visual Configural Processing in Persons with Autism.** Poster presented at the 42nd Annual Meeting of the Psychonomic Society, Orlando, FL.
- Trepanier, C. & Sebrechts, M.M. (2002, November). **Face Processing in Autism.** Paper presented at the International Meeting for Autism Research (IMFAR). Orlando, FL.
- Miller, M.S., Giacoppo, A.S.², & Sebrechts, M.M. (2002, October). **Specificity after training in virtual reality: a comparison of route and survey alignment effects.** Paper presented at the Human Factors and Ergonomics Society, 46th Annual Meeting. Baltimore, MD.
- Piller, M.J.¹, Miller, M.S.¹, & Sebrechts, M.M. (2003, May). **Restricted Field of View Leads to Specificity of Spatial Learning.** Poster Presented at the 15th Annual Meeting of the American Psychological Society, Atlanta.
- Mullin, L.¹ & Sebrechts, M.M. (2003, May). **Enhancing the Utility of a Map for Spatial Learning: A Comparison of Traditional and Interactive Designs.** Poster Presented At The 15th Annual Meeting Of The American Psychological Society, Atlanta.
- Piller, M.J.¹ & Sebrechts, M.M. (2003, October) **Spatial Learning in Transparent Virtual Environments.** Poster Presented at the 47th Annual Meeting of the Human Factors and Ergonomics Society, Denver.
- Sebrechts, M.M., Finkelmeyer, A.¹, Ramloll, R., & Trepagnier, C. (2003, November). **AutoCal: Assessing Attentional Capture for Automating Eye-Tracking Calibration.** Paper presented at the 33rd Annual Meeting of the Society for Computers in Psychology, Vancouver, Canada.
- Sebrechts, A.M. & Sebrechts, M.M. (2003, November). **Using Virtual Environments to Reassess Constancy under Apparent Height Transformation.** Poster presented at the 33rd Annual Meeting of the Society for Computers in Psychology, Vancouver, Canada.
- Trepagnier, C.Y., Sebrechts, M.M., Coleman, M.¹, Finkelmeyer, A.¹, Ramloll, R., Lathan, C., Vice, M., & Pettersen, M. (2004, January). **Design Trials of the Virtual Buddy: Progress Report.** Presented at CyberTherapy, San Diego, CA.
- Trepagnier, C.y., Sebrechts, M.M., Ramloll, R., Coleman, M.¹, Finkelmeyer, A.¹, Barker, L., Paxton-Jones, M., Stewart, W., & Gleeson, K. (2004, May). **Gaze at Eyes and ADI-R.** Presented at the International Meeting for Autism Research, Sacramento, CA.
- Ramloll, R., Trepagnier, C. & Sebrechts, M.M. (2004, July). **Gaze Data Visualization Tools: Opportunities and Challenges.** Paper presented at the 8th International Conference on Information Visualisation IV04 London.
- Piller, M.J.¹, & Sebrechts, M.M. (2005, May). **Route-Oriented Learning Can Produce Alignment Insensitivity.** Poster presented at the 17th Annual Meeting of the American Psychological Society, Los Angeles, CA.
- Sebrechts, M.M., Stewart, Jr., W.C.², Finkelmeyer, A.E.¹, & Trepagnier, C.Y. (2005, May). **Eye-Gaze Demonstrates Planning in Activities of Daily Living.** Poster presented at the American Psychological Society 17th Annual Convention, Los Angeles, CA.
- Piller, M.J.¹, & Sebrechts, M.M. (2005, August). **Acquisition of survey and route knowledge in virtual environments.** Poster presented at the 113th Annual Convention of the American Psychological Association, August 18, Washington, DC.

- Piller, M.J.¹, & Sebrechts, M.M. (2005, September). **Route Oriented Tasks Help Initial Survey-based Learning**. Paper presented at the 49th Annual Meeting of the Human Factors and Ergonomics Society. Orlando, Florida.
- Finkelmeyer, A.E.¹ & Sebrechts, M.M. (2005, August). **Horizontal and Vertical FOV Extent Influence Navigation in Virtual Environments**. Poster presented at the 113th Annual Convention of the American Psychological Association, Washington, DC.
- Trepagnier, C.Y., Sebrechts, M.M., Finkelmeyer, A.¹, Coleman, M.¹, Stewart Jr., W. & Werner-Adler, M.² (2005, June). **Virtual Environments to Address Autistic Social Deficits**. 10th Annual Cyber Therapy 2005 Conference: A Decade of Virtual Reality, Basel, Switzerland.
- Trepagnier, C.Y, Finkelmeyer, A.¹, Sebrechts, M.M., Stewart, Jr., W.², Woodford, J., & Coleman, M.¹ (2005, September). **Simulating social interaction to address deficits of ASD**. presented at 4th International Workshop on Virtual Rehabilitation (IWVR 2005) Catalina Island, CA.
- Sebrechts, M.M., Finkelmeyer, A.¹, & Trepagnier, C.Y. (2005, November). **Spatial Navigation Response to Social Objects in a Virtual Environment**. Poster presented at the 46th Annual Meeting of the Psychonomic Society, Toronto, Canada.
- Mullin, L.N.¹ & Sebrechts, M.M. (2006, March). **Interactive Navigational learning in a Virtual Environment: Cognitive, Physical, and Attentional Components**. Poster presented at APA Div 21, Div 19, & HFES Potomac Chapter Annual Symposium on Applied Experimental Research, Fairfax, VA.
- Piller, M.J.¹, & Sebrechts, M.M. (2006, May). **Allocentric Reference Frames Require Time to Develop**. Poster presented at the 18th Annual convention of the Association for Psychological Science. New York, NY.
- Mullin, L.¹, & Sebrechts, M.M. (2006, May). **Cognitive and Physical Control During Use of Interactive Maps and Virtual Environments**. Poster presented at the 18th Annual convention of the Association for Psychological Science. New York, NY.
- Trepagnier, C.Y., Sebrechts, M.M., Finkelmeyer, A.¹, Woodford, J.², Stewart Jr., W.², Coleman, M.¹ (2006, March). **Using Eye-Tracking And Video Rewards To Modify Face-Gaze - Preliminary Data**. Paper at the International Meeting for Autism Research, Montreal, Quebec, CA.
- Trepagnier, C.Y., Sebrechts, M.M., Finkelmeyer, A.¹, Woodford, J.², & Stewart, W. Jr.² (2006, September). **Virtual social environment for preschoolers with autism – preliminary data**. Paper presented at the 6th International Conference on Disability, Virtual Reality and Associated Technologies. Musikhuset, Esbjerg, Denmark.
- Sun, L. Mahmassani, H. & Sebrechts, M.M. (2006, September). **Data Mining Based Adaptive Regression for Equilibrium Static: Traffic Speed-Density Relationships**. Poster presented at the National Science Foundation.
- Finkelmeyer, A.¹ & Sebrechts, M.M. (2007, May). **Perception of Amount of Self-Rotation in a Virtual Environment**. Poster presented at the Annual Meeting of the Association for Psychological Science, Washington, DC.
- Stewart, Jr., W.C.² & Sebrechts, M.M. (2007, May). **Transfer of Transparent Virtual Environment Training**. Poster presented at the Annual Meeting of the Association for Psychological Science, Washington, DC.

- Sebrechts, M.M., Finkelmeyer, A.¹, & Trepagnier, C.Y. (2007, March). **Gaze Behavior in Autistic Children: Assessment and training using virtual character interactions.** Presented at the 2007 APA Div 21, Div 19, & HFES Potomac Chapter Annual Symposium on Applied Experimental Research, George Mason University, Fairfax, VA.
- Sebrechts, M.M., Spitaletta, J.A.¹, & Miles, J.M.³ (2007, November). **Map Drawing Reveals Spatial Mental Model Development Following Virtual Navigation.** Poster presented at the 48th Annual Meeting of the Psychonomic Society, Long Beach, CA.
- Finkelmeyer, A.¹ & Sebrechts, M.M. (2007, November). **Visual Perception of Self-Rotation in a Virtual Environment.** Poster presented at the 48th Annual Meeting of the Psychonomic Society, Long Beach, CA.
- Skinner, A.¹, Vice, J., Lathan, C., Fidopiastis, C., Berka, C., Sebrechts, M.M.. (2009, July). **Perceptually-informed Virtual Environment (PerceiVE) Design Tool.** Paper presented at HCI International 2009, San Diego, CA.
- Sebrechts, M.M., Miles, J.M., Arena, A.R.³, & Knapp, A. E.³ (2009, November). **Serial Position and Salience Effects in VR Route Learning.** Poster presented at the 50th Annual Meeting of the Psychonomic Society, Boston, MA.
- Clawson, D.M., Schuberg, K.E.², & Sebrechts, M.M. (2009, November). **Planning and Complex Prospective Memory in Virtual Reality.** Poster presented at the 50th Annual Meeting of the Psychonomic Society, Boston, MA.
- Johnigan, D.² & Sebrechts, M.M. (2010, May). **Personality Effects on Driving Behavior Are Mediated by Safety Knowledge.** 2010 Association for Psychological Science Annual Convention, Boston, MA.
- Sebrechts, M.M. (2010, May). **Virtual Environment Transparency Produces More Accurate Survey Representations.** 2010 Association for Psychological Science Annual Convention, Boston, MA.
- Clawson, D.M., Settle, J.R.¹, & Sebrechts, M.M. (2010, November). **Initial Planning and Complex Prospective Memory in a Virtual Environment.** Poster presented at the 51st Annual Meeting of the Psychonomic Society, St. Louis, MO.
- Skinner, A.¹, Berka, D., Ohara-Long, L., & Sebrechts, M.M. (2010, November). **Impact of Virtual Environment Fidelity on Behavioral and Neurophysiological Response.** Paper presented at the Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC). Orlando FL.
- Vice, J., Skinner, A.¹, Barber, D., Berka, C., Reinerman, L., Sebrechts, M.M., Pojman, N., Lathan, C., Tan, V. (2011, July). **Use of Neurophysiological Metrics within a Real and Virtual Perceptual Skills Task to Determine Optimal Simulation Fidelity Requirements.** Paper presented at HCI International 2011.
- Quach, V.¹ & Sebrechts, M.M. (2011, May). **Survival Encoding Produces Limited Benefit for Image and Location Recall.** Poster presented at the 2011 Association for Psychological Science Annual Convention, Washington, DC.
- Clawson, D.M., Settle, J.R.¹, Isaac, B.², Fritsch, E.², & Sebrechts, M.M. (2011, May). **Best-Laid Plans: Benefits and Risks of Planning for Prospective Memory Tasks.** Poster presented at the 23rd Annual Convention of the Association for Psychological Science Annual Convention, Washington, DC.

- Settle, J.R.¹, & Sebrechts, M.M. (2011, May). **Map Drawing Strategies Indicate that Transparent Virtual Environments Engender Survey Representations.** Poster presented at the 23rd Annual Convention of the Association for Psychological Science Annual Convention, Washington, DC.
- Sebrechts & Seaman, K.L.² (2011, May). **Explanations of Phase Change Graphs Demonstrate Students' Graphical and Chemical Misconceptions.** Poster presented at the 23rd Annual Convention of the Association for Psychological Science Annual Convention, Washington, DC.
- Skaarup, W.A.¹, & Sebrechts, M.M. (2011, May). **Repeated Visual Search Indicates Limited Implicit Retention of Target Location.** Poster presented at the 23rd Annual Convention of the Association for Psychological Science Annual Convention, Washington, DC.
- Spitaletta, J.A.¹, & Sebrechts, M.M. (2011, May). **Intolerance of Uncertainty Related to Preservation of Working Memory Capacity Under Ambiguity.** Poster presented at the 23rd Annual Convention of the Association for Psychological Science, Washington, DC.
- Vice, J., Skinner, A.¹, Berka, C., Reinerman-Jones, L., Barber, D., Pojman, J., Tan, V., Sebrechts, M. & Lathan, C. (2011). **Use of Neurophysiological Metrics within a Real and Virtual Perceptual Skills Task to Determine Optimal Simulation Fidelity Requirements.** Paper presented at HCII International, Orlando, FL (July 12)
- Settle, J.R.¹, Schaefer, E.F.³, Siuzdak, C.F.³, Clawson, D.M., Sebrechts, M.M. (2011, August). **Executive Functions in Completing Tasks in Virtual Reality: Planning and Prospective Memory.** Poster presented at the 119th Annual Convention of the American Psychological Association, Washington, DC.
- Fritsch, E.², Settle, J.R.¹, Mortimer, J.³, Clawson, D.M., Sebrechts, M.M. (2012, May). **Characterizing Everyday Planning Behaviors.** Poster presented at the 23rd Annual Convention of the Association for Psychological Science, Chicago, IL.
- Skinner, A.¹, Lathan, C., Meadors, M.¹ & Sebrechts, M.M. (2012, November). **Training and Retention of Laparoscopic Surgical Skills.** Paper presented at the 2012 Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC).
- Hughes, N.¹ & Sebrechts, M.M. (2013, May). **Auditory Alarm Impedes Initial Visual Search Without a Distinctive Eye Gaze Strategy.** Poster presented at the 25th Annual Convention of the Association for Psychological Science, Washington, DC.
- Quach, V.¹ & Sebrechts, M.M. (2013, May). **Pleasantness Encoding Benefits Recognition Memory for Spatial Location.** Poster presented at the 25th Annual Convention of the Association for Psychological Science, Washington, DC.
- Gareau, M.¹ & Sebrechts, M.M. (2014, May). **Playing real-time strategy video games affects executive function and working memory.** Poster presented at the 26th Annual Convention of the Association for Psychological Science, San Francisco, CA.
- Spitaletta, J.¹ A. & Sebrechts, M.M. (2014, August). **The Relationship of Intolerance of Uncertainty and Ambiguity to the Preservation of Working Memory Capacity.** Paper presented at the 3rd International Congress on Soldiers' Physical Performance (ICSPP), Boston, MA.
- Sebrechts, M.M. & Freedman, A.M.³ (2015, November). **Target Location in Visual Search Is Retained Over Long Periods.** Poster presented at the 56th Annual Meeting of the Psychonomic Society, Chicago, IL.

Settle, J.R.¹, Resnick, J.B., McFarland, A.B., Auslander, M. B., Clawson, D.M., Sebrechts, M.M., French, L.M., & Duncan, C.C. (2015). **Prospective Memory in Mild Traumatic Brain Injury**. Presented at the National Capital Area TBI Research Symposium 2015, Bethesda, MD.

Momen, A.² Sebrechts, M.M., Allaham, M. (2016, April 4) **Avatars as a Support for Feedback-based Learning**. Poster presented at the 23rd Annual Meeting of the Cognitive Neuroscience Society, New York, NY.

Johnson, J.¹ & Sebrechts, M.M. (2016, April 15). **Working Memory and Visual Distraction Predict Flight Simulator Performance**. Poster presented at CUA Research Day, Washington, DC.

Rahill, K.² & Sebrechts, M.M. (2016, April 15). **The Effects of Personally Adaptive Avatars on Game Performance**. Poster presented at CUA Research Day, Washington, DC.

Momen, A.² Sebrechts, M.M., Allaham, M. (2016, April 15) **Can Computer Agents Improve Basic Learning Through Social Presence**. Poster presented at CUA Research Day, Washington, DC.

Johnson, J.¹ & Sebrechts, M.M. (2016, May). **Working Memory and Visual Distraction Predict Concurrent Task Performance**. Poster presented at the 28th Annual Convention of the Association for Psychological Science, Chicago, IL.

Rahill, K.² & Sebrechts, M.M. (2016, May). **Personally Adaptive Avatar Design Leads to Improved Game Performance**. Poster presented at the 28th Annual Convention of the Association for Psychological Science, Chicago, IL.

Momen, A.² & Sebrechts, M.M., Allaham, M. Mowafak (2016; Sept 22). **Virtual Agents as a Support for Feedback- Based Learning**. Presented at the Human Factors and Ergonomics Society 2016 Annual Meeting. Washington DC.

Rahill, K.² & Sebrechts, M.M. (2017, April). **Lunar Psychophysics: Effects of Atmospheric Light Scattering on Perceptual Distortions In a Lunar Virtual Environment**. Poster presented at The Catholic University of America Research Day, Washington DC.

INVITED TALKS, WORKSHOPS, PANELS, and TUTORIALS

The use of modularity in training word-processing skills. Invited talk at IBM Watson Research Center, Yorktown Heights, NY, 1982.

Designing a language for improved computer instruction: A psychologist's approach. Invited talk at International Telephone and Telegraph Corporation Integrated Systems Center, Shelton, CT, 1982.

What's good about perceptual pattern goodness? Invited talk at Psychology Department, Harvard University, 1982.

A diagrammatic representation for word-processing instruction: Design and application. Invited talk at Technical Seminar Series, Digital Equipment Corporation, Hudson, Massachusetts, 1982.

Session Leader for workshop on "The Cognitive Science Major: Program Considerations." **Teaching Cognitive Science to Undergraduates**. Vassar College, Poughkeepsie, NY, June 1985.

Speaker on Computer Developments and the Wesleyan Cognitive Science Program.
Faculty/Administration Panel for Alumni Admissions (ASC) Volunteer Workshop. Middletown, CT, Sept. 1985.

Cognitive Engineering: Mental Models and Computer Skill Acquisition. Invited talk at Vassar College, Poughkeepsie, New York, February, 1986.

Session Leader for workshop on "AI Programming on Microcomputers in the Undergraduate Curriculum." **Workshop on Teaching Cognitive Science.** Hampshire College, MA, August, 1986.

Speaker at "Workshop on Teaching Cognitive Science." **Eighth Annual Conference of the Cognitive Science Society.** University of Massachusetts, Amherst, August, 1986.

Generalized Intention-based diagnosis in intelligent tutoring. Invited talk at Department of Communication, Computing and Technology in Education, Teachers College, Columbia University, February, 1987.

Mental Models and Human-Computer Interaction. Invited talk at Army Research Institute. Arlington, VA, October, 1987.

Goal mediation of command naming and procedure retention. Invited talk at Bell Communications Research, Morristown, NJ, January, 1988.

Matching computer technology to instructional objectives. Invited talk at Educational Testing Service, Princeton, NJ, October, 1988.

Influences of secondary memory process on short-term memory. Invited talk at Yale University Psychology Department, November, 1988.

Assimilative structuring, fragmented structuring, and integrative modeling. Invited talk at The Potomac Chapter of the Software Psychology Society, September, 1988.

Discovering Mental Models. Invited talk at Yale University Psychology Department, January, 1989.

Matching changing technology to instruction: Examples using artificial intelligence and hypertext. Invited talk presented at Educational Testing Service, Princeton, NJ, November, 1989.

Hypermedia and Interface Design: A Case Study in Echocardiography. Invited talk at The Capitol Area Researchers in Educational Technology, University of the District of Columbia, April, 1991.

Participant at Educational Testing Service conference on **Student Modelling in Mathematics and Science Assessment.** Princeton, NJ, May, 1991.

Where's the Reality in Real World Mathematical Problem Solving. Invited talk at Educational Testing Service Research Seminar. Princeton, NJ, February 8th, 1992.

Getting behind trying to get ahead: Prospects for managing information overload. Invited talk at MedPro Meeting at HeSCA. Rockville, MD, June 6th, 1992.

Hypermedia: Prospects and Limitations. Tutorial Presentation at the National Photographic Interpretation Center. Washington, DC, August, 1992.

Organized and directed (with D. Boehm-Davis) **Workshop on Consortium Resources in Human-Computer Interaction.** At The Catholic University of America under the sponsorship of the Consortium of Universities of the Washington Metropolitan Area. Washington, DC, March 1993.

Organized and directed (with B. Silverman, D. Boehm-Davis, Kent Norman), **Workshop on Television Use for Collaborative Distance Learning in the Washington Consortium.** At The George Washington University under the sponsorship of the Consortium of Universities of the Washington Metropolitan Area. Washington, DC, December 1993.

Organized and directed (with B. Silverman, D. Boehm-Davis, Kent Norman), **Workshop on Computer Use for Collaborative Distance Learning in the Washington Consortium**. At The George Washington University under the sponsorship of the Consortium of Universities of the Washington Metropolitan Area. Washington, DC, March 1994.

A Cognitive Model of Algebra Word Problem Solving: Empirical Data and Expert System Analysis. Invited talk at Department of Psychology, The University of Maryland, April 20, 1994.

Careers in Academia Panel member. CUA Career Services Office. February 4, 1999.

Virtual Un-Reality and the Acquisition of Spatial Mental Models. Invited talk at the Department of Psychology, University of Virginia, March 24, 1999.

Evaluating Interfaces for Information Visualization: Comparing Text, 2D and 3D Designs of NIRVE. Talk presented to the DC-CHI SIG, Washington, DC. February, 22, 1999.

RERC Video Teleconference. Comments on R8 - Configuration in autism. Washington DC, April 24, 2001.

HCI-Universal Access review pane, National Science Foundation, Arlington, VA, August 20-21, 2001.

Human-Computer Interaction: A 30,000 Foot Psychological Perspective and Some Flybys. Invited Presentation at the Defense Science Research Council Workshop on The Brain, Cognition, and the Psychology of Groups and Individuals. Arlington, VA., December 10, 2002.

Cognition and Virtual Reality Laboratory Description and Demonstration. Invited talk and demonstration presented to the Human Factors and Ergonomics Society Potomac Chapter meeting, September 10, 2003.

Visualizing Information in Virtual Space: Prospects and Pitfalls. Invited talk presented at the "Visual Artifacts for the Organization of Information and Knowledge: Searching for Synergies for Enhancing Learning" International Workshop at the Knowledge Media Research Center (KMRC), Tubingen, Germany, May 13, 2004.

Fighting Entropy: Science as the Psyche's Struggle Against Intellectual Chaos. Talk presented as part of the CUA Educating the Whole Person series, Oct. 26, 2004.

Using Virtual Reality to Decompose Spatial Learning. Invited talk presented at the George Mason University Psychology Department, Oct. 26, 2005.

Virtual Buddy Autism Intervention Project. Presentation at the Cure Autism Now Walk, National Mall, Oct. 21, 2006.

Gaze behavior in autistic children: Assessment and training using virtual character interactions. Presented at the 2007 APA Div 21, Div 19, & HFES Potomac Chapter Annual Symposium on Applied Experimental Research, George Mason University, Fairfax, VA, March 2.

Joint-Attention Training for Young Children with Autism. Invited talk presented at the George Mason University Psychology Department Colloquium, Oct. 31, 2007.

Foundations of Neurally Enabled Human Machine Interfaces, DARPA Workshop, April 22-23, 2008, Arlington, VA

College Board Advanced Placement Psychology Faculty Colloquium, Participant. Chicago, IL, April 23-24, 2010.

Virtue and Intellectual Life Panel. Moderator. CUA Presidential Symposium, Washington, DC April 11, 2011.

Mind and Technology: Allies or Enemies. Keynote address. Phi Beta Kappa, CUA, May 16, 2014.

Raising Ghosts. Panel Discussion, Molotov Theatre Group, Washington DC, April 22, 2015.

Changing Your Mind through Technology. Presentation to Honors Seminar (Hitchhiker's Guide to Culture series). CUA, October 23, 2015.

Evidence about Learning as a Path to Better Teaching. Orientation for New Teaching Assistants and Fellows, CUA, August 24, 2015.

Evidence about Learning as a Path to Better Teaching. Colloquium on Teaching & Learning in Theology and Religious Studies, CUA, December 3, 2015.

How Technology Changes Our Mind. Invited talk to the DC Area Phi Beta Kappa Association. November 12, 2016.

RESEARCH GRANTS

Principal Investigator. National Science Foundation, Division of Information Science and Technology. **The role of schemata in the acquisition and use of complex Systems: Computer text-editing and file manipulation**. 1983-1985. (\$109,000)

Principal Investigator. Digital Equipment Corporation. Equipment Grant. **Human-Computer Interaction**. 1983-1987.

Principal Investigator. Digital Equipment Corporation. External Research Program Award. **Documentation design strategies**. 1983-1985.
Computer Networks. 1983-1987.

Principal Investigator. Wesleyan University. Project Grants and Supplementary Grants. **Projects in Human-Computer Interaction, Intelligent Tutoring, and Visual Perception**. 1980, 1981, 1982, 1985, 1986, 1987.

Principal Investigator. The Catholic University of America. Equipment Grant. **Hypermedia as an instructional tool in cardiology**. 1991.

Principal Investigator. Educational Testing Service. **Toward a Cognitive Basis for Quantitative Ability Measures**. 1991-1992.

Principal Investigator. National Photographic Interpretation Center. **Using Hypermedia to Combine and Structure Information from Multiple Sources**. 1991-1992.

Principal Investigator. Educational Testing Service. **Pilot Computer Based Algebra Test**. 1992.

Principal Investigator. Battelle. **Revised Cognitive Models for New Modes of Visualization**. 1992.

Co-Principal Investigator (with D. Boehm-Davis, George Mason University). Consortium of Universities of the Washington Metropolitan Area. **Defining Consortium Resources in Human-Computer Interaction.** 1992 -1993.

Principal Investigator. Apple Computer. **Intelligent Learning Technologies.** Equipment Grant, 1993.

Co-Principal Investigator (with B. Silverman, George Washington University, D. Boehm-Davis, George Mason University, and Kent Norman, University of Maryland). Consortium of Universities of the Washington Metropolitan Area. **Collaborative Distance Learning in the Consortium: Designing a Course in Human-Computer Interaction.** 1993 -1994.

Principal Investigator (with B. Silverman, George Washington University, D. Boehm-Davis, George Mason University, and Kent Norman, University of Maryland). Consortium of Universities of the Washington Metropolitan Area. **Infrastructure Analysis for Collaborative Distance Learning in the Consortium.** 1994 -1995.

Principal Investigator. Educational Testing Service. **The Effects of Structured Problem Aids on Mathematical Problem Solving.** 1995-1996. (\$11,500)

Principal Investigator (with B. Silverman, George Washington University, D. Boehm-Davis, George Mason University, and Kent Norman, University of Maryland). Consortium of Universities of the Washington Metropolitan Area. **Implementing a Collaborative Course on Human-Computer Interaction Using Computer-Based Video Conferencing: The CIRCLE Project, Phase 3.** 1995 -1996. (\$5,200)

Principal Investigator. National Photographic Interpretation Center. **Revised HCI Guidelines for Image Analysis.** 1995-1996. (\$46,000)

Principal Investigator. National Institute of Standards and Technology. **Using cognitive science and human factors to improve the design and evaluation of 3D visualization techniques.** 1996-1997. (\$70,097)

Principal Investigator. Office of Naval Research. **Improving the use of spatial models through enhanced virtual reality,** 1997-1999. (\$156,749)

Principal Investigator (with D. Clawson). Army Research Institute. **Using virtual reality to improve the learning, retention, and application of spatial mental models.** 1996-2000. (\$282,084)

Principal Investigator. National Institute of Standards and Technology. **Evaluating the use of 3D visualization to identify structure in information spaces.** 1996-2000. (\$80,020)

Principal Investigator. **Virtual reality display and gaze angle monitoring to investigate acquired and congenital impairments of visual processing.** CUA subcontract on Assistive Technology and Neuroscience Research Center grant to the National Rehabilitation Hospital, 1999-2005. (\$177,432)

Co-Investigator (Cheryl Trepagnier, PI). **Development of an interactive virtual environment for delivery of rehabilitative interventions to children with social cognitive deficits.** National Science Foundation. 2002-2004. (\$98,000)

Co-Principal Investigator (with Cheryl Trepagnier). **Developing novel computer-aided early intervention for social cognitive deficits.** National Institute of Mental Health, RFA MH-01-010., 2003-2006. (\$300,000)

Investigator (M. J. Rosen, J. Winters, & J. Speier, PIs). **Rehabilitation Engineering Research Center (RERC) in Telerehabilitation** at National Rehabilitation Hospital, The Catholic University of America, and Sister Kenny Institute, National Institute on Disabilities and Rehabilitation Research. 2000-2004.

Principal Investigator. **Transforming Responses to Asymmetric Threats: Using Technology to Improve Individual Training and Performance.** National Defense University. 2002-2005. (\$74,913)

Principal Investigator. **VR Worlds Software for Neurobehavioral Research.** Psychology Software Tools. 2004-2005. (\$10,000)

Co-Principal Investigator. (James Youniss, PI). **To Explore a Program for Youth Research and Policy.** Life Cycle Institute, The Catholic University of America. (\$1,750)

Co-Principala Investigator. (LuSun, PI, Hani S. Mahmassani , UMD, co-PI). **Collaborative Research: Modeling Human Cognitive Behavior And Response With Application To Traffic Flow Simulation.** National Science Foundation (0527508), 2005-2010. (\$750,000)

Consultant. **Research Methods and Experimental Design of Real World (RW) and 3D Virtual Environment (VE) tasks.** Anthrotronix, Inc subcontract from Office of Naval Research. 2008-2010. (\$40,000)

Principal Investigator. CUA Grant-in-Aid. **Effects of Real-time Strategy Video Game Playing on Measures of Executive Function, Attention, and Dual-Task Performance.** 2012-2013. (\$3,750)

TEACHING EXPERIENCE:

Cognitive Psychology / Cognitive Science

Applied Cognitive Science	Cognitive Science Seminar
Cognition and Instruction	Mind, Brain, and Machine
Cognitive Psychology	Seminar on Connectionism
Memory at the Movies	Psychology, Biology, and Technology
Cognitive Disabilities (includes 1st Psychology fully online course)	

Cognition and Technology

Artificial Intelligence	Intelligent Tutoring Systems
Artificial Intelligence Programming	Visualization and Virtual Reality
Human Factors	
Human-Computer Interaction (Includes multi-university collaborative Internet-based class)	

Perception

Perception	Seminar in Perception
Psychology of Visual Art	Research Methods and Techniques in Perception

Statistics and Methods

Data Analysis	Research Methods
Psychological Statistics	

General Psychology

Senior Seminar in Psychology	History of Psychology
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Honors Program

Individuals, Society, and Technology (University Honors Program)
Senior Seminar in Technology and Culture (University Honors Program)

Completed Methods in Distance Education Certification Course (2013)

Summary of Activities

Research

My research examines applied issues in human cognition, with special attention to how technology (artificial intelligence, virtual reality, eye-tracking) can be used to better understand human perception and cognition. I have engaged in a number of collaborations with colleagues at other institutions: with Educational Testing Service, we explored using artificial intelligence techniques as a mechanism for diagnosing errors in mathematics. with National Institute of Standards and Technology colleagues, we designed visualization for large databases, with National Rehabilitation Hospital colleagues, we explored using visual reinforcement feedback and eye tracking to improve social engagement of young children with autism, with Nuclear Regulatory Commission colleagues, we examined cognitive components of simulated nuclear control room tasks, with Engineering colleagues, we examined cognitive influences on traffic flow patterns, and with Uniformed Services University colleagues, we examined techniques for improving prospective memory for those with mild TBI.

Current research projects include: (1) assessing perceptual judgements on a lunar-like surface using a virtual reality simulation ("lunar psychophysics"); (2) use of a virtual environment to determine how encoding information in term of survival relevance ("survival encoding") impacts location retention; (3) use of eye tracking to examine how reading and retention are influenced by interruptions; (4) determining the impact of computer agent gender on the level of trust in its decision-making; (5) comparison of repeated study, conceptual mapping, and testing ("testing effect") on far-transfer.

Teaching

I regularly teach undergraduate, masters, and doctoral students. I have taught a variety of courses in psychology, ranging from Statistics to Psychology of Visual Art, although my major content focus has been courses broadly dealing with technology and cognition, including Human Factors, Human-Computer Interaction, and Visualization and Virtual Reality. I have worked to integrate technology into the classroom, using various response systems (clickers), and learning management systems, and I designed and taught our Department's first online course, Cognitive Disabilities. In addition to my own coursework, I have supported innovative program options. I recently oversaw the design and development of a B.S. degree in Psychological and Brain Sciences, as well as a Neuroscience minor, in addition to our long-standing B.A. degree in Psychology. I initiated a course in Meditation and Mindfulness, building on our joint dialogues with Georgetown University and the Office of Tibet. I have both undergraduates and graduates working in my laboratory, and have directed some 32 MA Theses and 14 PhD Dissertations.