Eric W. Sellers, Ph.D.

Director, ETSU Brain-Computer Interface Laboratory
Assistant Professor, Department of Psychology
East Tennessee State University
Johnson City, TN 37614
(office) 423.439.4476
(lab) 423.439.6924
(fax) 423.439.5695
Email: sellers@etsu.edu

Educational History

Ph.D., 2004 – Cognitive and Neural Sciences, Dept of Psychology, Univ. of South Florida. Thesis title: "A P300 based brain-computer interface: Testing an alternative method of communication."
Thesis advisor: Emanuel Donchin, Ph.D.

M.A., 1999 – Cognitive and Neural Sciences, Dept of Psychology, Univ. of South Florida. Thesis title: "Attention to objects in scenes: Space-based and object-based influences during scene perception."
Thesis advisor: Thomas Sanocki, Ph.D.

B.A., 1994 – Psychology, Univ. of South Florida

Research Experience/Employment History

2008 – Present – *Assistant Professor* – East Tennessee State University, Dept of Psychology
2006 – 2008 – *Research Scientist* –Wadsworth Center, NY State Department of Health
2004 – 2006 – *Postdoctoral Research Fellow* –Wadsworth Center, NY State Department of Health
2001 – 2004 – *Graduate Research Assistant* – Univ. of South Florida, Dept of Psychology
1997 – 2002 – *Graduate Research Assistant* – Univ. of South Florida, College of Nursing
1993 – 1995 – *Undergraduate Research Assistant* – Univ. of South Florida, Dept of Psychology

Teaching Experience

Spring 2010 – Perception
Spring 2009 – Behavioral Neuroscience, East Tennessee State University
Fall 2008; 2009 – Cognition, East Tennessee State University
Fall 2000 – General Psychology, University of Tampa
Spring 1997; Spring 1996; Fall 1995 – Research Methods Labs, University of South Florida
Fall 1996 – Cognitive Psychology, University of South Florida

Student Supervision

East Tennessee State University
- 2009 – Present – David Ryan; Daniel Berry, Graduate students Experimental Psychology
- 2009 – Present – Juliane Armstrong, Chrisptoper Hauser, Undergraduate Honors Students
- 2009 – Present –James Bailey, Brittany Berger, Gerald Frye, Tiffany Lewis, Stephany Mesa, Lee Regsdale, Kayla Winnen, Undergraduate Research Assistants
- 2008 – Present – Nicholas Schwartz B.S., Graduate student Experimental Psychology
- 2008 – Matthew Dorton, Christopher Hauser, Gerald Frye, Research Assistants

Wadsworth Center
- 2007 – Daniela Klobassa – M.A. student visiting from University of Graz
- 2007 – Chadwick Boulay – Ph.D. candidate University at Albany
- 2006 – Nicholas Schwartz – B.S. student visiting from Johns Hopkins
- 2005 – Guy Ohringer – B.S. student visiting from Oxford University

University of South Florida Honors Thesis Committees
- 2003 – Jennifer Kaltreider
- 2002 – Nathan Gates
- 2000 – Melissa F. Schulz

Committees

Fall 2008 – East Tennessee State University Hayward Grant Committee
January 2000 – January 2001 – Univ. of South Florida, Dept. of Psychology Graduate Funding Committee
January 1999 – January 2000 – Univ. of South Florida, College of Nursing Technology Committee
January 1998 – January 1999 – Univ. of South Florida, College of Nursing Research Committee

Honors and Awards
- 2009 – *Clinical Neurophysiology* Top 10 Cited Papers Award 2006 – 2008 (3rd most cited)
- 2008 – Saatchi & Saatchi Award for World Changing Ideas – Finalist
- 2007 – Society for Neuroscience Poster selected for a SfN Press Conference (~50 of 16,000 presentations/posters selected)
- 2006 – Society for Neuroscience Poster selected for the SfN Press Book (less than 4.5% of posters selected)
- 2006 – Poster selected to represent the Wadsworth Center Laboratory of Nervous System Disorders at the New York State Department of Health Poster Day
- 2006 – New York State Department of Health Commissioner's Recognition Award
- 2005 – Brain-Computer Interface Technology Third International Meeting – Vidal Poster Prize, 1st place, $500 prize.
- 2003 – Society for Psyschophysiological Research – Outstanding Student Poster Award, $300 prize.

Professional Affiliations

Society for Neuroscience
Association for Psychological Science

Ad Hoc Journal/Conference Review

Applied Psychophysiology and Biofeedback
Artificial Intelligence in Medicine
Clinical Neurophysiology
EURASIP Journal on Advances in Signal Processing
Human-Computer Interaction International (HCII)
IEEE Transactions on Neural Systems and Rehabilitation Engineering
International Conference on Field and Service Robotics (FSR)
International Journal of Computers and Applications
International Journal of Human-Computer Interaction
Journal of Neural Engineering
New England Journal of Medicine
Psychophysiology
Transactions on Accessible Computing

Ad Hoc Grant Review

National Institutes of Health
National Science Foundation
Natural Sciences and Engineering Research Council of Canada

Research Support

Submitted

Sponsor: National Institute of Neurological Disease and Stroke (NIH/NINDS–SBIR)
NIH/NINDS
PI: W. Soussou
Role: Co-Investigator
Amount requested: $100,000 (direct costs)
A Practical Dry Electrode Headset for BCI Applications
The goal is to develop a dry-electrode system and mounting device that performs better, is easier to use, and is more comfortable than traditional wet-electrodes for long-term daily BCI use.

Sponsor: East Tennessee State University- RDC Major Grant
PI: E.W. Sellers
Amount requested: $10,000 (direct costs)
A Longitudinal Study Investigating the Benefit of P300-Based Brain-Computer Interface in an ALS Population
The goal is follow a cohort of ALS patients for up to one year measuring the relationship between disease progression, EEG activity, BCI performance, and quality of life.

To begin May 1, 2010

Sponsor: National Institute on Deafness and other Communication Disorders (NIH/NIDCD–R15)
Title: Paradigm and attentional manipulations to improve P300-based BCI
PI: E.W. Sellers
Amount requested: $250,000 (direct costs)
The goal is to enhance P300-based brain-computer interface performance through paradigm manipulations and meditative and mindfulness induction training.

Active

Sponsor: National Institute on Deafness and other Communication Disorders (NIH/NIDCD–R21/R33)
Title: Towards clinical acceptability: Enhancing performance of the P300-based brain computer interface via improved stimulus selection and signal processing
Duke Co-PI: L.M Collins: *ETSU* Co-*PI*: E.W. Sellers
Amount funded: $1,475,000 (direct costs)
The goal is to investigate novel signal processing methods and novel presentation methods for a P300-based brain-computer interface in the R21 phase. In the R33 phase the goal is to test the most promising techniques with individuals severely disabled by amyotrophic lateral sclerosis (ALS).

Sponsor: National Institute of Biomedical Imaging and Bioengineering/ National Institute of Neurological Disorders and Stroke (NIH/Bioengineering Research Partnership)
Title: General Purpose Brain-Computer Interface (BCI) System
PI: J. R. Wolpaw
Role: Bioengineering Research Partner
Amount funded: $4,140,000 (direct costs)
The goal of this BRP is to continue development and comprehensive evaluation of a general-purpose BCI.

Completed

Sponsor: National Institute on Deafness and other Communication Disorders (NIH/NIDCD–R21)
Title: Utility of the P300 Brain-Computer Interface for Patients in Acute Care Settings
PI: L.R. Hochberg
Role: Co-Investigator
Amount funded: $275,000 (direct costs)
The goal is to examine if BCI is a practical communication option for patients who are in acute care settings and have no means of verbal communication.

Sponsor: National Institute of Neurological Disorders and Stroke (NIH/NINDS–Fast track SBIR I &II)
Title: Next Generation Dry Electrode Headset for BCI
ETSU Co- PI: E.W. Sellers: *Quasar Co-PI* P. Turner:
Amount requested: $850,000 – Scored unfunded
The goal is to compare a novel "dry" EEG sensor technology to standard "wet" electrodes in a brain-computer interface paradigm.

Sponsor: National Institute of Neurological Disorders and Stroke (NIH/NINDS–STTR)
Title: Hybrid EEG Sensor Array for Brain-Computer Interfaces
PI: E.W. Sellers
Amount funded: $100,000 (direct costs)
The goal is to compare a novel "dry" EEG sensor technology to standard "wet" electrodes in a brain-computer interface paradigm.

Sponsor: Helen Hayes Hospital
Title: Home Use of a Brain-Computer Interface
PI: T.M. Vaughan
Role: Co-Investigator
Amount funded: $200,000
The goal of this project is to provide severely disabled individuals with BCI system to be used in their home environment.

Sponsor: James S. McDonnell Foundation
Title: A Non-Invasive Brain-Computer Interface for Prosthesis Control
PI: J.R. Wolpaw
Role: Research Scientist
The goal is to show that a non-invasive brain-computer interface can control 3-D movements of a robotic arm.

Sponsor: National Institute of Biomedical Imaging and BioEngineering (NIBIB–R01)
Title: General Purpose Brain-Computer Interface System
PI: J.R. Wolpaw
Role: Research Scientist
The goal of this Bioengineering Research Partnership is to develop a general-purpose BCI system and establish its clinical value.

Peer-Reviewed Journal Articles

Jing, J. Allison, B.Z., **Sellers, E.W.**, Clemens, B., Horki, P., Wang, X., Neuper, C. (submitted). Adaptive P300 based control system. *Journal of Neural Engineering.*

Jing, J. Allison, B.Z., **Sellers, E.W.**, Clemens, B., Horki, P., Wang, X., Neuper, C. (submitted). Optimized P300 stimulus presentation pattern for an EEG-based control system. *IEEE Transactions on Neural System and Rehabilitation Engineering.*

Ryan, D.B., Frye, G.E., Townsend, G., Berry, D.R., Mesa G., S., **Sellers, E.W.** (accepted pending revision). Predictive spelling with a P300-based brain-computer interface: Increasing the rate of communication. *International Journal of Human-Computer Interaction*.

Sellers, E.W., Vaughan, T.M., Wolpaw, J.R. (accepted pending revision). A brain-computer interface for long-term independent home use. *Amyotrophic Lateral Sclerosis*.

Townsend, G., LaPallo, B.K., Boulay, C., Krusienski, D.J., Frye, G.E., Hauser, C.K., Schwartz, N.E., Vaughan, T.M., Wolpaw, J.R., **Sellers, E.W.** (in press). A novel P300-based brain-computer interface stimulus presentation paradigm: moving beyond rows and columns. *Clinical Neurophysiology*.

Sanocki, T., Mittelstadt, J., **Sellers, E**., Sulman, N. (in press). How high is visual short term memory capacity for object layout? *Attention, Perception, & Psychopsyics*.

Krusienski, D.J., Townsend, G., **Sellers, E.W.** (2009). Amplitude Quantization of Event Related Potentials. *Proceedings of the 4th International IEEE EMBS Conference on Neural Engineering,* 605-608.

Sellers, E.W., Turner, P., Sarnacki, W.A., McManus, T., Vaughan, T.M., Matthews, R. (2009). A novel dry electrode for brain-computer interface. *Proceedings of HCI International 2009*, 623-631.

Guger, C., Daban, S., **Sellers, E.**, Holzner, C., Krausz, G., Carabalona, R., Gramatica, F, Gunter Edlinger (2009). How many people are able to control a P300-based brain-computer interface (BCI)? *Neuroscience Letters,462*, 94-98.

Klobassa, D.S., Vaughan, T.M., Brunner, P., Schwartz, N.E., Wolpaw, J.R., Neuper, C., **Sellers E.W.** (2009). Toward a high-throughput auditory P300-based brain-computer interface. *Clinical Neurophysiology, 120*, 1252-1261.

Nijboer, F., **Sellers, E.W.**, Mellinger, J., Jordan, M.A., Matuz, T., Furdea, A., Mochty, U., Krusienski, D.J., Vaughan, T.M., Wolpaw, J.R., Birbaumer, N., & Kübler, A. (2008). A brain-computer interface for people with amyotrophic lateral sclerosis. *Clinical Neurophysiology, 119* (8), 1909-1916. PMID: 18571984.

Krusienski, D.J., **Sellers, E.W.**, McFarland, D.J., Vaughan, T.M., & Wolpaw, J.R. (2008). Toward Enhanced P300 Speller Performance. *Journal of Neuroscience Methods, 167*, 15-21. PMID: 17822777.

Krusienski, D.J., **Sellers, E.W.**, & Vaughan, T.M. (2007). Common Spatio-Temporal Patterns for the P300 Speller. *Proceedings of the 3nd International IEEE EMBS Conference on Neural Engineering,* 421-424.

Krusienski, D.J., **Sellers, E.W.**, Cabestaing, F., Bayoudh, S., McFarland, D.J., Vaughan, T.M., & Wolpaw, J.R. (2006). A Comparison of Classification Techniques for the P300 Speller. *The Journal of Neural Engineering, 3,* 299-305.

Sellers, E.W., Krusienski, D.J., McFarland, D.J., Vaughan, T.M., & Wolpaw, J.R. (2006). A P300 Event-Related Potential Brain-Computer Interface (BCI): The Effects of Matrix Size and Inter Stimulus Interval on Performance. *Biological Psychology, 73*, 242-252.

Sanocki, T., Michelet, K., **Sellers, E.,** & Reynolds, J. (2006). Representations of scene layout can consist of independent, functional pieces. *Perception & Psychophysics, 68*(3), 415-427.

Sellers, E.W., Kübler, A., & Donchin, E. (2006). Brain-computer interface research at the University of South Florida cognitive psychophysiology laboratory: The P300 speller. *IEEE Transactions on Neural System and Rehabilitation Engineering, 14* (2), 221-224.

Vaughan,T.M. McFarland,D.J., Schalk, G., Sarnacki, W.A., Krusienski, D.J., **Sellers, E.W.**, & Wolpaw J.R. (2006). The Wadsworth BCI research and development program: At home with BCI. *IEEE Transactions on Neural Systems and Rehabilitation Engineering, 14* (2), 229-234.

Sellers, E.W., & Donchin, E. (2006). A P300-based brain-computer interface: Initial tests by ALS patients. *Clinical Neurophysiology, 117* (3), 538-548.

Gonzalez, L. O., & **Sellers, E.** (2002). The effects of a stress-management program on self-concept, locus of control, and the acquisition of coping skills in school-aged children diagnosed with attention deficit hyperactivity disorder. *Journal of Child and Adolescent Psychiatric Nursing, 15* (1), 5-15.

Sanocki, T., & **Sellers, E.** (2001). Shifting resources to recognize a forming object: Dependencies involving object properties. *Visual Cognition, 8* (2), 197-235.

Berarducci, A., Burns, P.A., Lengacher, C.A., & **Sellers, E.** (2000). Osteoporosis-related health promoting educational practices of primary care providers. *Advanced Nurse Practitioner, 13(4),* 173-180.

Book Chapters

Sellers, E.W., McFarland, D.J., Vaughan, T.M., & Wolpaw, J.R. (in press). The Wadsworth Noninvasive brain-computer interface research program. In B. Graimann, B. Allison, G. Pfurtscheller, (Eds.), *Brain-Computer Interfaces: Non-Invasive and Invasive Techniques*. Springer.

Sellers, E.W., Krusienski, D.J., McFarland, D.J., & Wolpaw, J.R. (2007). Non-Invasive Brain-Computer Interface Research at the Wadsworth Center. In G. Dornhege, J. Millan, T. Hinterberger, D. McFarland, K. Müller (Eds.), *Toward Brain-Computer Interfacing*, (pp. 31-42). Cambridge, MA: The MIT Press.

Lengacher, C.A., & **Sellers, E.** (2002). The Women's Role Strain Inventory. In O. Strickland, and C. Dilorio (Eds.), *Measurement of Nursing Outcomes 2nd Edition, Volume 3: Self Care and Coping* (pp. 109-127). New York: Springer.

Invited Lectures

September 2009 – The P300 Brain-Computer Interface: Moving from Bench to Bedside. Psychiatry Grand Rounds, East Tennessee State University, Johnson City, TN.

May 2009 – Moving the Brain-Computer Interface from the Laboratory to the Home. Center for Neural Communication Technology, University of Michigan, Ann Arbor, MI.

January 2009 – A Novel Communication Method: The P300 Brain-Computer Interface. Department of Physics and Astronomy, East Tennessee State University, Spring 2009 Seminar Series, Johnson City, TN.

September 2008 – The P300 Brain-Computer Interface: A Novel Communication Method. Psychology Speaker Series, East Tennessee State University, Johnson City, TN.

March 2008 – Brain Computer Interface using the P300 Event Related Potential: Moving out of the Laboratory and into the Home. Clinical Neuroscience Grand Rounds, Duke University, Durham, NC.

January 2008 – Brain Computer Interface using the P300 Event Related Potential: Moving out of the Laboratory and into the Home. Psychology Department Colloquium, East Tennessee State University, Johnson City, TN.

January 2008 – Brain Computer Interface using the P300 Event Related Potential: Moving out of the Laboratory and into the Home. Psychology Department Colloquium, Clarkson University, Potsdam, NY.

July 2007 – A P300-based Speller using BCI2000. The 2nd BCI2000 Workshop: Beijing, China.

July 2007 – Brain-Computer Interface via the P300 Event-Related Potential. International Workshop on Brain-Computer Interface Technology – HCI2007 12th International Conference on Human-Computer Interaction: Beijing, China.

June 2006 – Brain-Computer Interface: Current and Potential Applications. Interagency Committee on Disability Research, Interagency Subcommittee on Technology Workshop: Washington, DC.

January 2006 – Brain-Computer Interface Using the P300 Event-Related Potential: The Past, Present, and Future. University of Tübingen, Institute of Medical Psychology and Behavioural Neurobiology: Tübingen, Germany

June 2005 – BCI2000 and the P300 Event-Related Potential. The 1st BCI2000 Workshop: Albany, NY.

February 2005 – Brain-computer interface using the P300 event-related potential. Rensselaer Polytechnic Institute, Department of Mathematical Sciences: Troy, NY.

December 2004 – The P300 event-related potential: A brain-computer interface application. New York State Department of Health, Neuroscience Lecture Series: Albany, NY.

March 2003 – An introduction to brain-computer interface devices. University of South Florida, Department of Psychology: Tampa, FL.

May 2002 – The P300 ERP as a typing tool. University of Tampa, Department of Psychology: Tampa, FL.

August 2000 – Inattentional blindness and change blindness: Why do we miss the change? University of South Florida, Department of Psychology: Tampa, FL.

February 1999 – Operationalization and measurement. University of South Florida, College of Nursing: Tampa, FL.

October 1998 – An introduction to correlation and regression. University of South Florida, College of Nursing: Tampa, FL.

June 1996 – How to teach t-tests in undergraduate research methods. University of South Florida, Department of Psychology Graduate Training Program: Tampa, FL.

Published Abstracts

Schwartz, N.E., Krusienski, D.J., Frye, G.E., Hauser, C.K., Vaughan, T.M., Johnson, G.D., **Sellers, E.W.** (2009). The P300 Brain-Computer Interface: Prediction of Success Through Waveform Analysis. Program No. 664.2. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

McCane, L., Vaughan, T.M., McFarland, D.J., Zeitlin, D., Tenteromano, L., Mak, J., **Sellers, E.W.**, Townsend, G., Carmak, C.S., Wolpaw, J.R. (2009). Evaluation of Individuals with ALS for In Home Use of a P300 Brain Computer Interface. Program No. 664.7. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Mak, J., Vaughan, T.M., McFarland, D.J., McCane, L.M., Carmack, C.S., Zeitlin, D.J., **Sellers, E.W.**, Townsend. G., Wolpaw, J.R. (2009). Independent use of P300 brain-computer interface (BCI) system by people with amyotrophic lateral sclerosis (ALS): optimizing the classification algorithm. Program No. 664.8. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Sellers, E.W., Townsend, G., Boulay, C., LaPallo, B.K., Vaughan, T.M., Wolpaw, J.R. (2008). The P300 brain-computer interface: A new stimulus presentation paradigm. 778.21. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Cormier, J., Cash, S.S., **Sellers, E.W.**, Jennings, T., Townsend, L.M., DiPietro, A., Vaughan, T.M., Wolpaw, J.R., Hochberg, L.R. (2008) Feasibility of a P300-based brain-computer interface in an acute care setting. 778.11. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Sellers, E.W., Vaughan, T.M., McFarland, D.J., Carmack, C.S., Schalk, G., Cardillo, R.A., Mackler, S.A., Braun, E.M., Halder, S., Lee, S.S., Fudrea, A., Kübler, A., Wolpaw, J.R. (2007). Brain-Computer Interface for people with ALS: long-term daily use in the home environment. Program No. 414.5. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Vaughan, T.M., **Sellers, E.W.**, McFarland, D.J., Carmack, C.S., Brunner, P., Fudrea, A., Braun, E.M., Lee, S.S., Kübler, A., Mackle, S.A., Krusienski, D.J., Miller, R.N., Wolpaw, J.R. (2007). Daily use of an EEG-based brain-computer interface by people with ALS: technical requirements and caretaker training. Program No. 414.6. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Klobassa, D.S., Vaughan, T.M., Brunner, P., Wolpaw, J.R., Neuper, C., **Sellers, E.W**. (2007). A high-throughput auditory P300-based brain-computer interface (BCI). Program No. 414.7. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Sellers, E.W., Vaughan, T.M., McFarland, D.J., Krusienski, D.J., Mackler, S.A., Cardillo, R.A., Schalk, G., Binder-Macleod, S.A., Wolpaw, J.R. (2006). Daily use of a brain-computer interface by a man with ALS. Program No. 256.1. 2006 Abstract Viewer/Itinerary Planner. A, DC: Society for Neuroscience. Online.

Vaughan, T.M., Krusienski, D.J., **Sellers, E.W.**, McFarland, D.J., Wolpaw, J.R. (2006). Assessing the spatio-temporal relationships elicited by the P300 speller matrix for a brain-computer interface. Program No. 256.4. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Nijboer, F., **Sellers, E.W.**, Matuz, T., Mellinger, J., Jordan, M., Mochty, U., Furdea, A., Kaiser, J., Wolpaw, J.R., Birbaumer, N., Kübler, A. (2006). Communication for people with amyotrophic lateral sclerosis (ALS): A P300 brain-computer interface (BCI). Program No. 256.2. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Sellers, E.W., Krusienski, D.J., McFarland, D.J., & Wolpaw, J.R. (2005). P300-based brain-computer interface (BCI) performance: effects of matrix size and presentation rate. Program No. 520.11. 2005 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.

Sellers, E.W., Donchin E., Nijboer, F., Kübler, A., & Wolpaw, J.R. (2005). Brain Computer Interface (BCI) using the P300 Event-Related Potential. *Psychophysiology, 42 (S1)*, S29.

Sellers, E., Schalk, G., & Donchin, E. (2004). A P300 based brain-computer interface (BCI): Moving toward a communication system for the locked-in. *Psychophysiology, 41 (S1)*, S76.

Sanocki, T., Michelet, K., & **Sellers, E.** (2003). How are elements of a scenic layout bound together? *Journal of Vision*, *3*(9), 642a.

Sellers, E., Schalk, G., & Donchin, E. (2003). The P300 as a typing tool: Tests of brain computer interface with an ALS patient. *Psychophysiology, 40 (S1)*, S77.

Sanocki, T., Swartz, K., & **Sellers, E.** (2002). Priming layout of mixed scenes: Evidence of non-semantic, locally organized layout representations? *Journal of Vision*, *2*(7), 496a.

Sanocki, T., **Sellers, E.**, & Mittelstadt, J. (2001). High-capacity visual short term memory for layout. *Journal of Vision*, *1*(3), 124a.

Sellers, E. & Sanocki, T. (1999). Localizing objects within scenes: Testing predictions of space-based and object-based models of attentional selection. *Investigative Ophthalmology & Visual Science*, 40, S414.

Sanocki, T. & **Sellers, E.** (1998). Shifting resources to recognize a forming object: Dependencies involving object properties. *Investigative Ophthalmology & Visual Science*, 39, S859.

Conference Presentations/Posters

King, J.G., Feldman, S.M., Vaughan, T.M., **Sellers, E.W**., Heiman-Patterson, T.D. (December, 2009). An examination of the effect of ground and reference electrode placement on the accuracy of the P300-based brain computer interface. Poster presented at the 20th International Symposium on ALS/MND, Berlin, Germany.

Schwartz, N.E., Krusienski, D.J., Frye, G.E., Hauser, C.K., Vaughan, T.M., Johnson, G.D., **Sellers, E.W.** (2009, October). The P300 Brain-Computer Interface: Prediction of Success Through Waveform Analysis. Program No. 664.2. Poster presented at the Society for Neuroscience annual meeting, Chicago, IL.

McCane, L., Vaughan, T.M., McFarland, D.J., Zeitlin, D., Tenteromano, L., Mak, J., **Sellers, E.W.**, Townsend, G., Carmak, C.S., Wolpaw, J.R. (2009, October). Evaluation of Individuals with ALS for In Home Use of a P300 Brain Computer Interface. Program No. 664.7. Poster presented at the Society for Neuroscience annual meeting, Chicago, IL.

Mak, J., Vaughan, T.M., McFarland, D.J., McCane, L.M., Carmack, C.S., Zeitlin, D.J., **Sellers, E.W.**, Townsend. G., Wolpaw, J.R. (2009, October). Independent use of P300 brain-computer interface (BCI) system by people with amyotrophic lateral sclerosis (ALS): optimizing the classification algorithm. Program No. 664.8. Poster presented at the Society for Neuroscience annual meeting, Chicago, IL.

Sellers, E.W., Townsend, G., Boulay, C., LaPallo, B.K., Vaughan, T.M., Wolpaw, J.R. (2008, November). The P300 brain-computer interface: A new stimulus presentation paradigm. Program No. 778.21. Poster presented at the Society for Neuroscience annual meeting, Washington, DC.

Cormier, J., Cash, S.S., **Sellers, E.W.**, Jennings, T., Townsend, L.M., DiPietro, A., Vaughan, T.M., Wolpaw, J.R., Hochberg, L.R. (2008, November) Feasibility of a P300-based brain-computer interface in an acute care setting. 778.11. Poster presented at the Society for Neuroscience annual meeting, Washington, DC.

LaPallo, B.K., **Sellers, E.W.**, Townsend, G., Boulay, C. Vaughan, T.M., Wolpaw, J.R. (2008, October). Novel Stimulus Presentation Pattern in a P300-Based Brain-Computer Interface. Poster presented at the Flexible Electronics for Biological and Life Science Applications (FlexEBio) IGERT External Advisory Board Meeting, Ithaca, NY.

Sellers, E.W., Vaughan, T.M., McFarland, D.J., Carmack, C.S., Schalk, G., Cardillo, R.A., Mackler, S.A., Braun, E.M., Halder, S., Lee, S.S., Fudrea, A., Kübler, A., Wolpaw, J.R. (2007, November). Brain-Computer Interface for people with ALS: long-term daily use in the home environment. Program No. 414.5. Poster presented at the Society for Neuroscience annual meeting, San Diego, CA.

Vaughan, T.M., **Sellers, E.W.**, McFarland, D.J., Carmack, C.S., Brunne, P., Fudrea, A., Braun, E.M., Lee, S.S., Kübler, A., Mackler, S.A., Krusienski, D.J., Miller, R.N., Wolpaw, J.R. (2007, November). Daily use of an EEG-based brain-computer interface by people with ALS: technical requirements and caretaker training. Program No. 414.6. Poster presented at the Society for Neuroscience annual meeting, San Diego, CA.

Klobassa, D.S., Vaughan, T.M., Brunner, P., Wolpaw, J.R., Neuper, C., **Sellers, E.W**. (2007, November). A high-throughput auditory P300-based brain-computer interface (BCI). Program No. 414.7. Poster presented at the Society for Neuroscience annual meeting, San Diego, CA.

Boulay, D., Townsend, G., Wolpaw, J.R., **Sellers, E.W**. (2007, October). Comparison of two different presentation methods for a P300-based brain-computer interface. Poster presented at the Universtiy at Albany, Department of Biomedical Sciences Annual Retreat, Rensselaerville, NY.

Sellers, E.W., Vaughan, T.M., McFarland, D.J., Krusienski, D.J., Mackler, S.A., Cardillo, R.A., Schalk, G., Binder-Macleod, S.A., Wolpaw, J.R. (2006, October). Daily use of a brain-computer interface by a man with ALS. Program No. 256.1. Poster presented at the Society for Neuroscience annual meeting, Atlanta, GA.

Vaughan, T.M., Krusienski, D.J., **Sellers, E.W.**, McFarland, D.J., Wolpaw, J.R. (2006, October). Assessing the spatio-temporal relationships elicited by the P300 speller matrix for a brain-computer interface. Program No. 256.4. Poster presented at the Society for Neuroscience annual meeting, Atlanta, GA.

Nijboer, F., **Sellers, E.W.**, Matuz, T., Mellinger, J., Jordan, M., Mochty, U., Furdea, A., Kaiser, J., Wolpaw, J.R., Birbaumer, N., Kübler, A. (2006, October). Communication for people with amyotrophic lateral sclerosis (ALS): A P300 brain-computer interface (BCI). Program No. 256.2. Poster presented at the Society for Neuroscience annual meeting, Atlanta, GA.

Sellers, E.W., Krusienski, D.J., McFarland, D.J., & Wolpaw, J.R. (2005, November). P300-based brain-computer interface (BCI) performance: effects of matrix size and presentation rate. Program No. 520.11. Poster presented at the Society for Neuroscience annual meeting, Washington, DC.

Sellers, E.W., Donchin E., Nijboer, F., Kübler, A., & Wolpaw, J.R. (2005, September). Brain Computer Interface (BCI) using the P300 Event-Related Potential. Lecture presented at the 45th annual meeting of the Society for Psychophysiological Research, Lisbon, Portugal.

Nijboer, F., Mochty, U., Mellinger, J. Matuz, T., Jordan, M., **Sellers, E.**, Vaughan, T.M., McFarland, D.J., Schalk, G., Wolpaw, J.R., Birbaumer, N., & Kubler, A. (2005, June). Comparing Sensorimotor Rhythms, Slow Cortical Potentials, and P300 for Brain-Computer Interface (BCI) use by ALS Patients – A Within Subjects Design. Poster presented at the Brain-Computer Interface Technology Third International Meeting, Rensselaerville, New York.

Krusienski, D., **Sellers, E.**, Vaughan, T.M., McFarland, D.J., & Wolpaw, J.R. (2005, June). P300 Matrix Speller Classification via Step-Wise Linear Discriminant Analysis. Poster presented at the Brain-Computer Interface Technology Third International Meeting, Rensselaerville, New York.

Sellers, E., & Donchin, M. (2005, June). Brain-Computer Interface (BCI) Research at the University of South Florida Cognitive Psychophysiology Lab: The P300 Event-Related Potential. Lecture presented at the Brain-Computer Interface Technology Third International Meeting, Rensselaerville, New York.

Kübler, A., Nijboer, F., Mellinger, J., Matuz, T., Kleber, B., Eitel-Braitsch, Y. **Sellers, E.**, Vaughan, T., Wolpaw, J., & Birbaumer, N. (2005, June). "Brain-computer interfaces" – communication with the P300. Lecture presented at the annual meeting of the Arbeitstagung Psychophysiologische Methoden , Bochum, Germany.

Sellers, E., Schalk, G., & Donchin, E. (2004, October). A P300 based brain-computer interface (BCI): Moving toward a communication system for the locked-in. Poster presented at the 44th annual meeting of the Society for Psychophysiological Research, San Diego, CA.

Sellers, E., Schalk, G., & Donchin, E. (2004, January). The P300 as a typing tool: Tests of brain computer interface with an ALS patient. Poster presented at the DARPA Augmented Cognition Conference: Improving Warfighter Information Intake Under Stress, Orlando, FL.

Vaughan, T.M., McFarland, D.J., Schalk, G., **Sellers, E.**, Goncharova, I., & Wolpaw, J.R. (2003, November). Multichannel data from an EEG-based BCI speller using an oddball paradigm. Poster presented at the annual meeting of the Society for Neuroscience, New Orleans, LA.

Sellers, E., Schalk, G., &Donchin, E. (2003, October). The P300 as a typing tool: Tests of brain computer interface with an ALS patient. Poster presented at the 43rd annual meeting of the Society for Psychophysiological Research, Chicago, IL.

Sanocki, T., Michelet, K., & **Sellers E.** (2003, May). How are elements of a scenic layout bound together? Poster presented at the Vision Sciences Society Annual Meeting, Sarasota, FL.

Sanocki, T., Michelet, K., & **Sellers, E.** (2002, November). Priming layout of mixed scenes: Evidence of piecemeal (only?) layout representation. Lecture presented at the Annual Meeting of the Psychonomic Society, Kansas City, MO.

Jevitt, C. M., Beckstead, J.W., & **Sellers, E.W.** (2002, May). Education, retirement and employment of Florida certified nurse-midwives: A 2001 survey. Lecture presented at the American College of Nurse-Midwives 47th Annual Meeting, Atlanta, GA.

Sanocki, T., Swartz, K., & **Sellers, E.** (2002, May). Priming layout of mixed scenes: Evidence of non-semantic, locally organized layout representations? Poster presented at the Vision Sciences Society Annual Meeting, Sarasota, FL.

Schulz, M.F., Peterson, M.A., Sanocki, T., & **Sellers, E.W.** (2001, November). Time course of perceptual grouping: A priming study. Lecture presented at the 9th Annual Workshop on Object Perception and Memory, Orlando, FL.

Sanocki, T., **Sellers, E.**, & Mittelstadt, J. (2001, May). High-capacity visual short term memory for layout. Lecture presented at the Vision Sciences Society Annual Meeting, Sarasota, FL.

Sellers, E. & Sanocki, T. (1999, November). Localizing objects within scenes: Object properties influence the mode of attentional selection. Poster presented at the Annual meeting of Object Perception and Memory (OPAM), Los Angeles, CA.

Berarducci, A., Burns, P.A., Lengacher, C.A., & **Sellers, E.** (1999, November). Osteoporosis-related health promoting educational practices of primary care providers. Poster presented at the Biennial meeting of Sigma Theta Tau International Honor Society, San Deigo, CA.

Sellers, E. & Sanocki, T. (1999, May). Localizing objects within scenes: Testing predictions of space-based and object-based models of attentional selection. Poster presented at the annual meeting of the Association for Research in Vision and Ophthalmology, Ft. Lauderdale, FL.

Berarducci, A., Burns, P.A., Lengacher, C.A., & **Sellers, E.** (1999, May). Osteoporosis-related health promoting educational practices of primary care providers. Poster presented at the annual National Conference for Nurse Practitioners, Washington, D.C.

Sanocki, T. & **Sellers, E.** (1998, May). Shifting resources to recognize a forming object: Dependencies involving object properties. Lecture presented at the annual meeting of the Association for Research in Vision and Ophthalmology, Ft. Lauderdale, FL.

Sanocki, T. & **Sellers, E.** (1996, November). Shifting attention to recognize an object: Dependencies involving initial stimulus information. Lecture presented at the Annual Meeting of the Psychonomic Society, Chicago, IL.

Schneider, S.L., Wright, R.C., Caffray, C.M., **Sellers, E.W.**, & Styers, R.D. (1995, June). Mapping cognitive representations of emotions: Asymmetries in relatedness ratings are rare. Lecture presented at the Seventh American Psychological Society Annual Convention, New York, NY.

Sellers, E. & Sanocki, T. (1995, March). Shifting resources to recognize an object. Poster presented at the 9th Annual Florida Conference on Cognition, Perception, Sensation, Language, and Action, Orlando, FL.