

DIVISION OF BIOMEDICAL ENGINEERING

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BME People

Misha Pavel

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Current Appointments

Professor & Division Head, [Division of Biomedical Engineering](#)

Professor, [Division of Biomedical Computer Science](#)

Office

Alternate Office at West Campus

Central Building: Room 108

Primary Office at Center for Health and Healing

3303 SW Bond Avenue

Mail code: CH13B

Rm #13043

Education

BS, Polytechnic Institute of Brooklyn, 1970

MS, Stanford University, 1971

PhD, New York University, 1980

Department(s)

[Biomedical Computer Science](#)

[Biomedical Engineering](#)

Research Interests

I am interested in mathematical modeling, statistical pattern recognition and information fusion in the area of Neural Engineering addressing clinically relevant problems such as gerontechnology. The applications include developing and testing unobtrusive techniques and computing technologies to support healthy aging and chronically ill patients. My expertise includes modeling of complex behaviors including visual and auditory signal processing, multimodal communication systems, adaptive systems, and the development of systems with human-like (anthropic) abilities for speech and video communication.

Research Project(s)

[Augmented Cognition](#)

[Neurotechnology for Intelligence Analysts](#)

[Novel Computerized Behavioral Assessment Methods for Attention Deficit Hyperactivity Disorder](#)

[Robust Information Filtering Techniques for Static and Dynamic State](#)

Research Group(s)

[Point of Care Laboratory](#)

[Center for Spoken Language Understanding](#)



Selected Publications

- Thomson, Judi, Hetzler, B, MacEachren, A., Gahegan, M, and Pavel, M., A Typology for Visualizing Uncertainty Conference on Visualization and Data Analysis 2005 (part of the IS&T/SPIE Symposium on Electronic Imaging 2005), 16-20 January 2005, San Jose, CA USA (2005)
- Araujo, C., Kowler, E., Pavel, M. Eye movements during visual search: The cost of choosing the optimal path. *Vision Research*. (2001)
- McGee, D. R., Pavel, M. and Cohen, P. R. (2001) "Context shifts: Extending the meanings of physical objects with language" *Human Computer Interaction*, 16, Context-aware computing. (2001)
- Syllable intelligibility for temporally filtered LPC cepstral trajectories T. Arai, M. Pavel, H. Hermansky, and C. Avendano:, *The Journal of the Acoustical Society of America*, 105, 2783-2791, (1999).
- Probabilistic image sensor fusion. Sharma, R.K., Leen, T.K., and Pavel, M. (1999). In M.S. Kearns, S.A. Solla, and D.A. Cohn (Eds.), *Advances in Neural Information Processing Systems 11*. Cambridge, MA: MIT Press (1999).
- Model-Based Sensor Fusion for Aviation, M.Pavel, R.K.Sharma, *SPIE Proceedings*, Vol. 3088, (April 1997).
- Exploratory Vision: The Active Eye M. Landy, L.T. Maloney, M. Pavel New York: Springer (1995)
- Sensor fusion for synthetic vision. Pavel, M., Larimer, J., & Ahumada, A. *Society for Information Display*, SID 92, 475-478. *Society for Information Display*, (1992).
- Engineering a visual system for seeing through fog. Larimer, J., Pavel, M., Ahumada, A., & Sweet, B. *22nd International Conference on Environmental Systems*, Vol 921130, . Seattle, Washington. *Society for Automotive Engineers*, (1992).
- Representations and models in psychology. Suppes, P., Pavel, M., & Falmagne, J.-C. *Annual Review of Psychology*, 45, 517-544. (1994)
- Extrapolation of linear motion. Pavel, M., Cunningham, H., & Stone, V. *Vision Research*, 32(11), 2177-2186, (1992).
- Target axis effects under transformed visual/motor mapping. Cunningham, H. A., & Pavel, M. In Ellis, S. R., Kaiser, M. K., and Grunwald A. C. (Eds.), *Pictorial Communication in Virtual and Real Environments* (pp. 283-294). New York: Taylor and Francis, (1991).
- Perception of rotation through apertures. Shiffrar, M., & Pavel, M. *Journal of Experimental Psychology: Human Perception and Performance*, 17, 749-761, (1991).
- The visible persistence of stimuli in stroboscopic motion. Farrell, J. E., Pavel, M., & Sperling, G. *Vision Research*, 30,921-936, (1990).
- Predictive control of eye movement. Pavel, M. In Kowler, E. (Eds.), *Eye Movements and Their Role in Visual and Cognitive Processes* (pp. 71-114). Amsterdam: Elsevier,(1990).
- Constraints on adaptive networks for modeling human generalization. Pavel, M., Gluck, M. A., & Henkle, V. In Touretzky, D. S. (Eds.), *Advances In Neural Network Information Processing Systems* (pp. 2-10). Los Altos, Ca: Morgan Kaufmann, (1989).

Current Project(s)**Early detection of Cognitive Decline**

(2004) Jimison, H.B., Pavel, M., McKanna, J., Pavel, J. Unobtrusive Monitoring of Computer Interactions to Detect Cognitive Status in Elders, *IEEE Transactions on Information Technology in Biomedicine*, Vol. 8, No. 3, September 2004, pp. 248-252.

(2003) Hayes TL, Pavel M., Schallau PK, Adami AM. Unobtrusive Monitoring of Health Status in an Aging Population. 5th International Conference on Ubiquitous Computing, October 12-15, 2003; Seattle, WA

Data Fusion for Unobtrusive assessment of mobility, Oregon Roybal Center for Translational Research on Aging;

Augmented Cognition

(2003) Pavel, M, Wang, G., Li, K., Kehai Li, Augmented cognition: Allocation of attention, *Proceedings of 36th Hawaii International Conference on System Sciences* January 6-9, 2003, Big Island, HI, USA. *IEEE Computer Society*, 2003, ISBN 0-7695-1874-5

Assessment of Sleep Patterns

(2003) Adami, A. M., Hayes, T. L. and Pavel, M, Unobtrusive Monitoring of Sleep Patterns, 25th Annual International Conference of the IEEE Engineering In Medicine And Biology Society, 17-21 September, 2003; Cancun, Mexico.

Implementation of Patient-Centered Medication Information System

Novel Computer-based Techniques for the Assessment of ADHD

Information Fusion based on high-Diminesional Representation

(2004) Song, X, Pavel, M., Performance Advantage of Combined Classifiers in Multi-category Cases: An Analysis. In Nikhil R. Pal, Nikola Kasabov, Rajani K. Mudi, Srimanta Pal, Swapan K. Parui (Eds.): Neural Information Processing, 11th International Conference, ICONIP 2004, Calcutta, India, November 22-25, 2004, Proceedings. Lecture Notes in Computer Science 3316 Springer 2004, ISBN 3-540-23931-6 750-757

(2003) G. Wang, M. Pavel, X. Song, "Robust Recognition Based on Combination of Weak Classifiers," International Joint Conference of Neural Networks, July 2003.

Research Group Director

Point of Care Laboratory

Related Links

Collaborations

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[Layton Aging & Alzheimer's Disease Center](#)

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Current and Upcoming Classes (through Spring 2009)

Class Number	CRN	Title	Term
EE 588	31562	Introduction to Biomedical Imaging	Spring 2008
EE 688	31563	Introduction to Biomedical Imaging	Spring 2008

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