

# Taylor R. Hayes | CV

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## Education

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### Ohio State University

*Ph.D., Cognitive Psychology, Columbus, OH*

2014

### Ohio State University

*M.A., Cognitive Psychology, Columbus, OH*

2011

### Ohio State University

*B.A., Philosophy, Columbus, OH*

2006

## Research Interests

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### Attention

*Attentional control, Individual differences, Mechanisms of relational reasoning*

### Perceptual Learning

*Neurophysiological mechanisms of visual perceptual learning*

### Pupillometry

*Using pupillometry as an index of cognitive load and noradrenergic activity to understand visual cognition*

### Computational Cognitive Neuroscience

*Biologically plausible neural network models of cognitive systems*

## Publications

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Hayes, T. R. & Petrov, A. A. (Submitted). Learning is in the eye of the beholder: Phasic pupil diameter decreases during perceptual learning. 1-15.

Hayes, T. R. & Petrov, A. A. (Submitted). Pupil diameter tracks the exploration-exploitation trade-off during analogical reasoning and explains individual differences in fluid Intelligence. 1-8.

Hayes, T. R. & Petrov, A. A. (In press). Mapping and correcting the influence of gaze position on pupil size measurements. *Behavior Research Methods*, 1-16.

Hayes, T. R. & Petrov, A. A. & Sederberg, P. B. (2015). Do we really become smarter when our fluid-intelligence test scores improve? *Intelligence*, 48, 1-14.

Hayes, T. R. & Petrov, A. A., & Sederberg, P. B. (2011). A novel method for analyzing sequential eye movements reveals strategic influence on Raven's Advanced Progressive Matrices. *Journal of Vision*, 11(10):10, 1-11.

Petrov, A. A. & Hayes, T. R. (2010). Asymmetric transfer of perceptual learning of luminance- and contrast-modulated motion. *Journal of Vision*, 10(14):11, 1-22.

## Conference Presentations

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Hayes, T. R. & Sederberg, P. B. & Siefke, B. & Petrov, A. A. (2014). Pupillometry reveals role for norepinephrine in the isolation effect. In *Proceedings of the 14th Annual Meeting of the Vision Sciences Society*, .

Hayes, T. R. & Petrov, A. A. (2013). Pupillometry as a method for tracking shifts in control state

during visual relational reasoning. In *Proceedings of the 13th Annual Meeting of the Vision Sciences Society*, .

Petrov, A. A. & Hayes, T. R. (2013). Phasic locus coeruleus activity changes with practice: A pupilometry study. In *Proceedings of the 10th Annual Meeting of Computational and Systems Neuroscience*, 1475.

Hayes, T. R. & Petrov, A. A. (2012). Pupil diameter changes systematically and non-monotonically with perceptual learning. In *Proceedings of the 53rd Annual Meeting of the Psychonomic Society*, 3004.

Hayes, T. R. & Petrov, A. A. (2012). Pupil diameter changes non-monotonically with perceptual learning. In *Proceedings of the 12th Annual Meeting of the Vision Sciences Society*, 1475.

Petrov, A. A. & Hayes, T. R. & Sederberg, P. B. (2011). Sequential eye-movement analysis reveals strategic processing on Raven's Advanced Progressive Matrices. In *Proceedings of the 51st Annual Meeting of the Psychonomic Society*, 237.

Petrov, A. A. & Hayes, T. R. & Sederberg, P. B. (2011). Sequential eye-movement analysis reveals strategic processing on Raven's Advanced Progressive Matrices. In *Proceedings of the 44th Annual Meeting of the Society for Mathematical Psychology*, 52.

Petrov, A. A. & Hayes, T. R. & Sederberg, P. B. (2011). Learning affects strategic processing on Raven's Advanced Progressive Matrices. In *Proceedings of the 44th Annual Conference of the Cognitive Science Society*, 3395.

Hayes, T. R. & Sederberg, P. B. & Petrov, A. A. (2011). A new technique for the analysis of sequential eye movements. *Journal of Vision*, 11(11), 501.

Hayes, T. R. & Petrov, A. A. (2009). Asymmetrical transfer of perceptual learning between Luminance- and Contrast-Defined motion: Evidence for shared and distinct processing. In *Proceedings of the 50th Annual Meeting of the Psychonomic Society*, 5095.

Hayes, T. R. & Petrov, A. A. (2009). Perceptual learning transfers from luminance- to contrast-defined motion. *Journal of Vision*, 9, 884.

## Programming and Technical Experience

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### Programming

*Matlab, R, Python*

Numerous experiments written using Matlab and the Psychophysics Toolbox. Extensive statistical analysis and data modeling in R and Matlab.

### Eye Tracking

*EyeLink 1000 eye tracker, EyeLink Toolbox, Experiment Builder, Data Viewer*

Extensive experience writing and running eye tracking experiments on the EyeLink 1000 using Experiment Builder with custom Python coding and the EyeLink Toolbox in Matlab.

### fMRI

*Siemens 3T Trio, Brain Voyager*

Group seminar in fMRI that involved designing, implementing, and running an fMRI experiment and the subsequent analysis of the data within Brain Voyager.

### IRB

*Experience preparing and updating IRB protocols*

### OS

*MacOS, Linux, Microsoft*

### Publishing

*TEX, L<sup>A</sup>T<sub>E</sub>X, Omnigraffle*

## Research Awards

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### **OSU Graduate Student Conference Presentation Award**

*Travel award to present research at the 13th annual meeting of the Vision Sciences Society* 2014

### **Graduate Student Research Excellence Award**

*Summer research fellowship awarded to top 15 graduate students for outstanding research ability* 2014

### **James Mosher Klein Award**

*Awarded to the most outstanding dissertation proposal within the Cognitive Psychology department* 2013

### **Presidential Fellowship**

*The most prestigious award given by the Graduate School to recognize outstanding scholarship* 2013

### **Herbert Toops Award**

*Award for the most outstanding article published by a graduate student in the Psychology department* 2012

### **Graduate Student Research Excellence Award**

*Summer research fellowship awarded to 15 graduate students for outstanding research ability* 2012

### **OSU Graduate Student Conference Presentation Award**

*Travel award to present research at the 12th annual meeting of the Vision Sciences Society* 2012

### **Graduate Student Research Excellence Award**

*Summer research fellowship awarded to 15 graduate students for outstanding research ability* 2011

### **Center for Cognitive Science Travel Award**

*Travel award to present research at the 34th annual meeting of the Cognitive Science Society* 2011

### **OSU Graduate Student Conference Presentation Award**

*Travel award to present research at the 50th annual meeting of the Psychonomic Society* 2010

### **OSU Graduate Student Conference Presentation Award**

*Travel award to present research at the 9th annual meeting of the Vision Sciences Society* 2009

## Scientific Membership and Conferences

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### **Scientific Memberships**

*Vision Sciences Society, Psychonomic Society*

### **Attended Conferences and Workshops:**

Vision Sciences Society Proceedings (2014)

Vision Sciences Society Proceedings (2013)

Psychonomic Society Proceedings (2012)

Society for Mathematical Psychology Proceedings (2012)

Vision Sciences Society Proceedings (2012)

Psychonomic Society Proceedings (2011)

Cognitive Science Society Proceedings (2011)

Society for Mathematical Psychology Proceedings (2011)

Vision Sciences Society Proceedings (2011)

Psychonomic Society Proceedings (2010)

Vision Sciences Society Proceedings (2009)

## Teaching Experience

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### **Ohio State University**

*Graduate Lecturer* 2013

Psych 100: Introduction to Psychology

**Ohio State University**

*Guest Lecturer*

2012

Psych 312: Memory and Cognition

**Ohio State University**

*Graduate Lecturer*

2011–2012

Psych 100: Introduction to Psychology

**Ohio State University**

*Graduate Lecturer*

2009–2010

Psych 100: Introduction to Psychology

**Ohio State University**

*Teaching Associate*

Summer 2009

Psych 313: Introduction to Behavioral Neuroscience

**Ohio State University**

*Teaching Associate*

2008–2009

Psych 220: Introduction to Behavioral Statistics

## References

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### Alexander Petrov

Lab for Cognitive Modeling and Computational Cognitive Neuroscience

Department of Psychology

The Ohio State University

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### Roger Ratcliff

Ratcliff and McKoon Cognition and Language Lab

Department of Psychology

The Ohio State University

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☎ 614-292-7916

### Per Sederberg

Computational Memory Lab

Department of Psychology

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