



Exponent[®]
Engineering & Scientific Consulting

Kelly Byrne, Ph.D.

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Professional Profile

Dr. Byrne's scientific expertise is in visual perception and cognition with emphasis in the areas of visibility, attention, learning, and expectation. She leverages her specialized knowledge to analyze and understand human performance and information processing in a variety of contexts including transportation and pedestrian accidents; occupational and industrial accidents; consumer product use; and warnings and risk communication. Dr. Byrne has more than a decade of experience in designing, conducting, and analyzing psychophysical experiments with human subjects. She is also experienced in eye-tracking, neuroimaging, statistical programming, and large-scale literature review.

Dr. Byrne earned her Ph.D. in Vision Science at the University of California, Berkeley. In her doctoral research Dr. Byrne utilized a combination of psychophysical, behavioral, and pharmacological tools to quantify and characterize plasticity in the developed human visual system. Specifically, her work focused on the relationship between visual perceptual learning and neurochemical transmission in the brain. Dr. Byrne's graduate work also provided her with extensive experience in scientific communication to lay audiences. Through her work in STEM advocacy and outreach, Dr. Byrne has been invited to speak about her research and scientific experience by groups such as Mentoring in Medicine & Science, the National Student Leadership Conference, and Bay Area Scientists in Schools.

Academic Credentials & Professional Honors

Ph.D., Vision Science, University of California, Berkeley, 2019

B.A., Behavioral Neuroscience, Colgate University, 2011

Minnie F. Turner Memorial Award for Impaired Vision Research, 2016

Outstanding Teaching Award, Berkeley Optometry, UC Berkeley, 2014 & 2015

Berkeley Fellowship for Graduate Study, UC Berkeley, 2013-2015

Natural Sciences & Mathematics Research Fellowship, Colgate University, 2010

Professional Affiliations

Human Factors and Ergonomics Society

Society of Automotive Engineers

Vision Sciences Society

American Academy of Optometry

Society for Neuroscience

American Association for the Advancement of Science

Publications

Pandey, A. K., Ardekani, B. A., Kamarajan, C., Zhang, J., Chorlian, D. B., Byrne, K. N. H., & Porjesz, B. (2018). Lower Prefrontal and Hippocampal Volume and Diffusion Tensor Imaging Differences Reflect Structural and Functional Abnormalities in Abstinent Individuals with Alcohol Use Disorder. *Alcoholism: Clinical and Experimental Research*, 42(10), 1883-1896.

Kelly, S. D., Byrne, K., & Holler, J. (2011). Raising the ante in communication: Evidence for enhanced gesture use in high stakes situations. *Information*, 2, 579-593.

Presentations

Byrne, K.N. & Silver, M.A. (2019). Cholinergic facilitation of visual perceptual learning of texture discrimination. Presented at the 17th annual meeting of the Vision Sciences Society.

Mukerji, A., Byrne, K.N., Yang, E., Li, L., Levi, D.M., & Silver, M.A. (2018). Influence of visual cortical GABA concentration on perceptual suppression and binocular summation in amblyopia. *Society for Neuroscience Abstracts* 143.20.

Byrne, K.N., Peters, M.W., McDevitt, E.A., Sheremata, S.L., Mednick, S.C., & Silver, M.A. (2017). The effects of cholinergic enhancement and consolidation duration on perceptual learning of texture discrimination. Presented at the 15th annual meeting of the Vision Sciences Society.

Mukerji, A., Byrne, K.N., Yang, E., Li, L., Levi, D.M., & Silver, M.A. (2017). Influence of visual cortical GABA concentration on perceptual suppression and binocular summation in amblyopia. Presented at the 15th annual meeting of the Vision Sciences Society.

Kamarajan, C., Ardekani, B.A., Pandey, A.K., Chorlian, D.B., Byrne, K.N., Stimus, A., & Porjesz, B. (2017). Resting State Functional Connectivity Of fMRI and EEG in Alcoholics. Presented at the 40th annual meeting of the Research Society on Alcoholism.

Pandey, A.K., Byrne, K.N., Ardekani, B.A., Kamarajan, C., Zhang, J., Chorlian, D.B., Stimus, A., & Porjesz, B. (2017). Role of Right Hemisphere Inhibition Network Activation During Response Inhibition and its Deficiency in Alcohol Use Disorders: A Go/No-go fMRI Study. Presented at the 40th annual meeting of the Research Society on Alcoholism.

Byrne, K.N.H., Yang, E., Li, L., Levi, D.M., & Silver, M.A. (2016). Reduced binocular summation of fMRI responses to visual stimuli in ventral extrastriate cortex in anisometropic amblyopia is related to visual cortical GABA concentration. *Society for Neuroscience Abstracts* 48.01.

Ringer, R.V., Hansen, B.C., Byrne, K., Larson, A.M., & Loschky, L.C. (2012). Amplitude spectrum slope is more important than orientation in rapid scene categorization. Presented at the 10th annual meeting of the Vision Sciences Society.