# CURRICULUM VITAE
## Alice J. O'Toole
(February, 2023)

## IDENTIFICATION DATA:

| Address: | School of Behavioral and Brain Sciences, GR4.1 The University of Texas at Dallas Richardson, TX 75083-0688 | Phone: (972) 883-2486 Fax: (972) 883-2491 Email: otoole@utdallas.edu Web: https://bbs.utdallas.edu/faculty/detail.php5?i=411 |
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## EDUCATION:

| 1988 | Ph.D. Experimental Psychology | Brown University, Providence, RI |
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| 1985 | M.Sc. Experimental Psychology | Brown University, Providence, RI |
| 1983 | B.A. Psychology (Minor: Philosophy) | The Catholic University of America, Washington, D.C. |

## ACADEMIC APPOINTMENTS:

| 2007-present | Aage and Margareta Møller Endowed Professor | The University of Texas at Dallas |
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| 1999-present | Professor | The University of Texas at Dallas |
| 1995-1999 | Associate Professor | The University of Texas at Dallas |
| 1989-1994 | Assistant Professor | The University of Texas at Dallas |
| 1989 | Postdoctoral Fellow | Ecole Nationale Superieure des Télécommunications Paris, France |
| 1988 | Postdoctoral Fellow | Université de Bourgogne, Dijon, France |

## PROFESSIONAL RECOGNITION, HONORS, MEMBERSHIPS:

| 1983 | *Phi Beta Kappa Society* |
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| 1988 | Postdoctoral Fellowship Award from the French Embassy to the United States for research at the Université de Bourgogne, Dijon, France |
| 1994-1995 | Sabbatical Fellowship Award from the Alexander von Humboldt Society for research at the Max Planck Institut für biologische Kybernetik, Tübingen, Germany |

2007        Polykarp Kusch Lecture Award "How we represent and recognize faces" The University of Texas at Dallas.

2007-       Aage and Margareta Møller Endowed Professorship
present

**PROFESSIONAL SERVICE:**
**Editorial**
Associate Editor, *Psychological Science,* 2012-2019
Associate Editor, *British Journal of Psychology,* 2014-present
Associate Editor, *Journal of Vision,* 2023-present
Associate Editor, *IEEE Transactions on Biometrics, Behavior, and Identity Science,* 2019-present
Editorial Board**,** *Vision Science Society*, Annual Meeting, 2002-2017
Co-Editor with G. Yovel and G. Avidan, *Visual Cognition*, *Special Issue: Person Perception, 2017*
Co-Editor with H. Gunes, C. Pelachaud, Y. Tong, *Image and Vision Computing*, Best of IEEE Workshop on Face and Gesture Recognition, *2018*

**Ad hoc Reviewer (selected, last 3 years):**
*Acta Psychological, Brain & Cognition, British Journal of Developmental Psychology, Cerebral Cortex, Cognitive Psychology, Current Biology, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Systems, Man & Cybernetics, Journal of Vision, Journal of Neuroscience, Memory & Cognition, Neuropsycholgica, Nature, Nature Neuroscience, Neurocomputing, Neuron, Perception, Perception & Psychophysics, Proceedings of the National Academy for Sciences, Psychological Science, Science, PloS Biology, Vision Research, Visual Cognition*

**Grant Proposal Review (selected, recent):**
NIMH Perception and Cognition, NSF Collaborative Research in Computational Cognitive Neuroscience, NSF (2006, 2008, 2010, 2012, 2013). NSF Site Visit Team (MIT, Brain and Mind Institute), 2016, National Eye Institute, 2017.

**Scientific Advisory Board**
Max Planck Institute for Biological Cybernetics, 2017

**Program Chair:**
*IEEE Automatic Face and Gesture Recognition, Psychological and Behavioral Analysis*, 2017, Washington, DC

**General Chair:**
*International Joint Conference on Biometrics*, 2023, Lubjana, Slovenia

**Area Chair:**

*IEEE Automatic Face and Gesture Recognition, Psychological and Behavioral Analysis*, 2013, Shanghai, China

*IEEE Automatic Face and Gesture Recognition, Psychological and Behavioral Analysis*, 2015, Ljubljana, Slovenia

*IEEE Automatic Face and Gesture Recognition, Psychological and Behavioral Analysis*, 2021, Jodhpur, India

**Co-Organizer with K. Bowyer, P. Jonathon Phillips & Eilidh Noyes:**

Workshop on Humans, Deep Networks, and Face Recognition, planned March, 13-14 2023, London, England
https://www.facialrecognition2023.org/

**Co-Organizer with P. Jonathon Phillips & Eilidh Noyes:**

Face Recognition at its Best Workshop, Oct. 18-19 2017, London, England
https://www.face-recognition2017.org

**Co-Organizer with Arun Ross & Maja Pantic:**

What's in a Face, *European Conference on Computer Vision*, 2012, Florence, Italy

**Co-chair with Daniel Levin:**

6th Annual Workshop on Object Perception and Memory - Dallas, TX 1998

**Mentorship**

Invited Presenter, *Doctoral Symposium and Career Pathways*, "How to build a long-term successful research program" *Biometrics: Theory, Application, & Systems Annual Meeting*, Washington DC. Sept 30 2013.

**PUBLICATIONS:** (*h*-Index 58, Google scholar)

Jeckeln, G., Hu, Y., Yates, A. N., Hahn, C. A., Tang, L., Phillips, P. J., & O'Toole, A.J. (2023, *in press*). Face Identification Proficiency Test Designed Using Item Response Theory. *Behavior Research Methods.*

Rachow, M., Karnowski, T. P., & O'Toole, A. J. (2023). Identity masking effectiveness and gesture recognition: Effects of eye enhancement in seeing though the mask. https://doi.org/10.48550/arXiv.2301.08408

Hu, Y. & O'Toole, A. J. (2022) First impressions from faces in the real world: Commentary on Sutherland and Young (2022). *British Journal of Psychology, 2022,00:1-3.* http://doi.org/10.1111/bjop.12621

Hu, Y. & O'Toole, A. J. (2022) First impressions: Integrating faces and bodies in personality trait perception. *Cognition: 105309*

Jeckeln, G. Mamassian, P. & O'Toole, A.J. (2022). Confidence judgments are associated with face identification accuracy: Findings from a confidence forced-choice task. *Behavior Research Methods.* arXiv:2301.08408v1

Rachow, M., Karnowski, T. P. & O'Toole, A. J. (2023). Identity masking effectiveness and gesture recognition: Effects of eye enhancement in seeing though the mask. arXiv.2301.08408

Parde, C. J., Strehle, V. E., Banerjee, V., Hu, Y., Cavazos, J. G., Castillo, C. D. (2022) Twin identification over viewpoint change: A deep convolutional neural network surpasses humans. arXiv:2207.05316

Mallick, S., Jeckeln, G. Parde, CJ & O'Toole (2022). The influence of the other-race effect on susceptibility to face morphing attacks. arXiv:2204.12591v1

Kobayashi, M. Kanazawa, S., Yamaguchi, M. & O'Toole, A. J. (2021). Cortical processing of dynamic bodies in the superior occipito-temporal regions of the infants' brain: difference from dynamic faces and inversion effect. *NeuroImage*, 244, 118598.

Cavazos, J. G., Jeckeln, G. & O'Toole, A. J. (2021). Collaboration to improve cross-race face recognition: Wisdom of the multi-racial crowd? 10.31234/osf.io/7uk8w

Parde, C. J., Colón, Y.I., Hill, M.Q., & Castillo, C. D., Dhar, P. & O'Toole, A. J. (2021). Face recognition by humans and machines: Closing the gap between single-unit and neural population codes: Insights from deep learning in face recognition. *Journal of Vision, 21(8), 15.*

O'Toole, A. J. & Castillo, C. D. (2021). Face recognition by humans and machines: Three fundamental advances from deep learning. *Annual Review of Vision Scienc*e, 7.

Colón YI, Castillo CD, O'Toole AJ. (2021). Facial expression is retained in deep networks trained for face identification. *Journal of Vision,* 21(4)-4. doi: 10.1167/jov.21.4.4. PMID: 33821927; PMCID: PMC8039571.

Noyes, E., Parde, C. J., Colón, Y. I., Hill, M. Q., Castillo, C. D., Jenkins, R., & O'Toole, A. J. (2021). Seeing through disguise: Getting to know you with a deep convolutional neural network. *Cognition*, *211*, 104611.

Baracgchizedeh, A., Jesudasen, P. R. & O'Toole, A. J. (2020) Identification of unfamiliar people from point-light biological motion: A perceptual reevaluation. *Visual Cognition.* 28 (9), 513-522

Hooge, K. D. O., Baragchizadeh, A., Karnowski, T. P., Bolme, D. S., Ferrell, R., Jesudasen, P. R., ... & O'Toole, A. J. (2020). Evaluating Automated Face Identity-Masking Methods with Human Perception and a Deep Convolutional Neural Network. *ACM Transactions on Applied Perception (TAP)*, *18*(1), 1-20.

Hu, Y., Baragchizadeh, A., & O'Toole, A. J. (2020). Integrating faces and bodies: Psychological and neural perspectives on whole person perception. *Neuroscience & Biobehavioral Reviews*, *112*, 472-486.

Cavazos, J.G. Phillips, P.J., Castillo, C.D. O'Toole, A. J. (2020) Accuracy comparison across face recognition algorithms: Where are we on measuring race bias? *IEEE Transactions on Biometrics, Behavior, and Identity Science, 3 (1),* 101-111

Hill, M. Q., Parde, C. J., Castillo, C. D., Colon, Y. I., Ranjan, R., Chen, J. C., Blanz, V. O'Toole, A. J. (2019) Deep convolutional neural networks in the face of caricature *Nature Machine Intelligence*, 1 (11), 522-529 https://doi.org/10.1038/s42256-019-0111-7

Parde, C. J., Hu, Y., Castillo, C., Sankaranarayanan, S., & O'Toole, A. J. (2019). Social trait information in deep convolutional neural networks trained for face identification. *Cognitive science*, *43*(6), e12729. https://doi.org/10.1111/cogs.12729

Cavazos, G., Noyes, E. & O'Toole, A. J. (2018). Learning context and the other-race effect: Strategies for improving face recognition. *Vision Research*. *157*, 169-183. https://doi.org/10.1016/j.visres.2018.03.003

Hu, Y., Hill, M. Q., & Mahmood, N., O'Toole, A. J. (2018) First impressions of personality traits from body shapes. *Psychological Science*. 29(12), 1969-1983. https://doi.org/10.1177/0956797618799300

Jeckeln, G. Hahn, C. A., Noyes, E. Cavazos, J. G., & O'Toole, A. J. (2018). Wisdom of the social versus non-social crowd in face identification. *British Journal of Psychology.* **https://doi.org/10.1111/bjop.12291**

Noyes, E. Hill, M. Q., & O'Toole, A. J. (2018). Face recognition ability does not predict person identification performance: Using individual data in the interpretation of group results. *Special Issue on Individual differences in face perception and person recognition*. (Eds. V. Bruce & K. Lander, & M. Bindemann), *Cognitive Research: Principles and Implications. 3(1), 23*.

O'Toole, A. J., Castillo, C. D., Parde, C. Hill, M. Q., & Chellappa, R. (2018). Face space representations in deep convolutional neural networks. *Trends in Cognitive Science, 22(9),* 794-809*.* https://doi.org/10.1016/j.tics.2018.06.006

Phillips, P. J., Yates, A. N., Hu, Y., Hahn, C. A., Noyes, E. Jackson, K. Cavazos, J. G., Jeckeln, G., Ranjan, R., Sankaranarayarnan, S., Chen, J.C., Castillo, C., Chellappa, R. White, D., & O'Toole, A. J. (2018). Face Recognition Accuracy of Forensic Examiners, Super-recognizers, and Algorithms. *Proceedings of the National Academy of Sciences*, 115 (24), 6171-6176 https://doi.org/10.1073/pnas.1721355115

Hu, Y., Jackson, K. Yates, A. White, D. Phillips, P. J. & O'Toole, A. J. (2017). Person recognition: Qualitative differences in how forensic face examiners and untrained people rely on the face vs. the body for identification. *Visual Cognition,* 25 (4-6), 492-506*.* http://dx.doi.org/10.1080/13506285.2017.1297339

Hahn, C. A. & O'Toole, A. J. (2016). Recognizing approaching walkers: Neural decoding of person familiarity in cortical areas responsive to faces, bodies, and biological motion. *NeuroImage*, http://dx.doi.org/10.1016/j.neuroimage.2016.10.042

Hill, M. Q., Streuber, S. Hahn, C. A., Black, M. J. & O'Toole, A. J. (2016). Creating body shapes from verbal descriptions by linking similarity spaces. *Psychological Science*, *27*(11), 1486–1497. **doi: 10.1177/0956797616663878.**

Streuber, S., Quiros-Rameirez, M. A., Hill, M. Q., Hahn, C. A., Zuffi, S., O'Toole, A. & Black, M. J. (2016). Crowd-shaping realistic 3D avatars with words. *ACM Transactions on Graphics*, 35, 54:1-54:14.

Yovel, G. & O'Toole, A. J. (2016). Recognizing people in motion. *Trends in Cognitive Science*. doi:10.1016/j.tics.2016.02.005

Hahn, C. A., O'Toole, A. J. & Phillips, P. J. (2016). Dissecting the time course of person recognition in natural viewing environments. *British Journal of Psychology*, *Volume 107(1), 117-135.* DOI: 10.1111/bjop.12125

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Na, J. Kim, S., Oh, H., Choi, I. & O'Toole, A. J. (2015). Facial inferences of competence predict American elections better than Korean elections. *Psychological Science,*

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Natu, V. & O'Toole, A. J. (2015). Spatiotemporal changes in neural response patterns to faces varying in visual familiarity. *NeuroImage.* 108, 151-159. E-publication ahead of print, doi: 10.1016/j.neuroimage.2014.12.027

Norell, K, Läthén, K. B., Bergström, P., Rice, A., Natu, V. & O'Toole, A. J. (2014) The effect of image quality and forensic expertise in facial image comparisons. *Journal of Forensic Psychology.* doi: 10.1111/1556-4029.12660.

O'Toole, A. J., Natu, V., An, X., Rice, A., Ryland, J. & Phillips, P. J. (2014). The neural representation of faces and bodies in motion and at rest. *NeuroImage. 91,* 1-11*.* http://dx.doi.org/10.1016/j.neuroimage.2014.01.038

Phillips, P. J. and O'Toole, A. J. (2014). Comparison of human and computer performance across face recognition experiments. *Image & Vision Computing, 32(1), 74-85.* (Editor's Choice Review Article)

O'Toole, A. J. & Natu, V. (2013). Computational perspectives on the other race effect. *Visual Cognition, 21(9-10),* 1121-1137. DOI: 10.1080/13506285.2013.803505

Natu, V. & O'Toole, A. J. (2013). Neural perspectives on the other race effect. *Visual Cognition*, *21(9-10),* 1081-1095. DOI: 10.1080/13506285.2013.811455

Rice, A., Phillips, P. J. and O'Toole, A. J. (2013). The role of the face and body in person identification. *Applied Cognitive Psychology.* 27, 761-768. DOI: 10.1002/acp.2969

Rice, A., Phillips, P. J., Natu, V., An, X., & O'Toole, A. J. (2013). Unaware person recognition from the body when face identification fails. *Psychological Science, 24(11)*, 2235-2243. doi: 10.1177/0956797613492986

O'Toole, A.J., An, X., Dunlop, J.P., Natu, V. & Phillips, P.J. (2012). Comparing face recognition algorithms to humans on challenging tasks. *ACM Transactions on Applied Perception.* Volume 9 Issue 4, Article 16.

O'Toole, A. J., Phillips, P.J., An, X. & Dunlop, J. (2012). Demographic effects on estimates of automatic face recognition. *Image & Vision Computing 30(3),*169-176*.*

Phillips, P.J., Beveridge, J. R., Draper, B. A., Givens, G., O'Toole, A.J., Bolme, D. Dunlop, J. Lui, Y. M. Sahizada, H. & Wiemer, S. (2012). An Introduction to the Good, Bad, & Ugly Challenge Problem. *Image & Vision Computing*, *30(3)*, 177-185.

Natu, V. & O'Toole, A. J. (2011). The neural processing of familiar and unfamiliar faces: A review and synopsis. *British Journal of Psychology*, *102*, 726-747.

Natu, V., Raboy, D. & O'Toole, A. J. (2011). Neural correlates of own-race and other-race face perception: Spatial and temporal response differences. *NeuroImage, 53(3),* 2547-2555.

O'Toole, A. J., Weimer, S. Dunlop, J. Barwick, R. Ayyad, J. & Phillips, P. J. (2011). Recognizing people from dynamic video: Dissecting identity with a fusion approach. *Vision Research*, 51, 74-83.

O'Toole, A. J. & Roark, D. A. (2010). Memory for moving faces: The interplay of two recognition systems. In (Eds. C. Curio, H.H. Bülthoff, M. Giese). *Dynamic Faces: Insights from Experiments and Computation.* MIT Press, Cambridge: MA.

Natu, V. S., Jiang, F. Narvekar, A., Keshvari, S., Blanz, V. & O'Toole, A. J. (2010). Dissociable neural patterns of facial identity across changes in viewpoint. *Journal of Cognitive Neuroscience, 22(7),* 1570-1582*.*

Phillips, P.J., Scruggs, W. T., O'Toole, A.J., Flynn, P. J., Bowyer, K. W., Schott, C. L., Sharpe, M. (2010). FRVT 2006 and ICE 2006 large-scale experimental results. *IEEE: Transactions on Pattern Analysis and Machine Intelligence, 32(5),* 831-846.

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Phillips, P.J., Jiang, F., Narvakar, A. Ayyad, J. & O'Toole, A. J. (2011). An other-race effect for face recognition algorithms. *ACM Transactions on Applied Perception*, 8(2), ART14.

Barrett, S.E., & O'Toole, A.J. (2009). Face adaptation to gender: Does adaptation transfer across age categories? *Visual Cognition*, *17(5),* 700-715.

Jiang, F., Blanz, V. & O'Toole, A. J. (2009). Three-dimensional information in face representation revealed by identity aftereffects. *Psychological Science*, *20(3),* 318-325.

Otsuka, Y., Konishi, Y., Yamaguchi, M., Abdi, H. & O'Toole, A.J. (2009). The recognition of moving and static faces by young infants. *Child Development, 80(4)* 1259-1271.

Jiang, F., Blanz, V. & O'Toole, A.J. (2007). The role of familiarity in three-dimensional view transferability of face identity adaptation. *Vision Research*, 47(4), 525-531.

O'Toole, A.J., Abdi, H., Jiang, F. & Phillips, P.J. (2007). Fusing face recognition algorithms and humans. *IEEE: Transactions on Systems, Man & Cybernetics*, *37(5),* 1149-1155.

O'Toole, A. J., Jiang, F., Abdi, H., Penard, N., Dunlop, J. P. & Parent, M. A. (2007). Theoretical, statistical, and practical perspectives on pattern-based classification approaches to functional neuroimaging analysis. *Journal of Cognitive Neuroscience*, *19,* 1735-1752.

O'Toole, A. J., Phillips, P. J., Jiang, F., Ayyad, J., Pénard, N., & Abdi, H. (2007). Face recognition algorithms surpass humans matching faces across changes in illumination. *IEEE: Transactions on Pattern Analysis and Machine Intelligence, 29(9)*, 1642-1646.

Jiang, F., Blanz, V. & O'Toole, A. J. (2006). Probing the visual representation of faces with adaptation: A view from the other side of the mean. *Psychological Science, 17,* 493-500.

Roark, D. A., Barrett, S. E., O'Toole, A. J. & Abdi, H. (2006). Learning the moves: The effect of familiarity and facial motion on person recognition across large changes in viewing format. *Perception*, *35,* 761-773.

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O'Toole, A. J., Jiang, F., Abdi, H. & Haxby, J. V. (2005). Partially distributed representations of objects and faces in ventral temporal cortex. *Journal of Cognitive Neuroscience, 17(4)*, 580-590.

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*Workshop on Analysis and Modeling of Faces and Gestures*, International Conference on Computer Vision, Nice, France.

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Howard, J. H., O'Toole, A. J. & Rice, S. (1986). The role of frequency and informational cues in uncertain frequency detection. *Journal of the Acoustical Society of America, 79,* 788-791.

O'Toole, A. J. (1985). A word processing-linked FORTRAN data base of journal and book references. *Behavior Research Methods, Instruments, & Computers, 17,* 126-127.

Howard, J. H., O'Toole, A. J., Parasuraman, R. & Bennett, K. B. (1984). Pattern-directed attention in uncertain frequency detection. *Perception & Psychophysics, 35,* 256-264.

Bennett, K. B., Parasuraman, R., Howard, J. H., & O'Toole, A. J. (1984). Auditory induction of discrete tones in signal detection tasks. *Perception & Psychophysics, 35,* 570-578.

## CONFERENCE PRESENTATIONS

Parde, C.J., Strehle, G., Banerjee, V. Hu, Y., Cavazos, J. G., Castillo, C., O'Toole, A.J. (2022). Comparing human and deep convolutional neural network performance on twin identification. *19th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May, 2022.*

Jeckeln, G., Mamassian, P., & O'Toole, A.J. (2022). People can evaluate the correctness of their face-identification judgments using comparative confidence judgments. *19th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May, 2022.*

Hill, M. Q., Castillo, C., & O'Toole, A.J. (2022). Representation of face shape and surface reflectance in deep convolutional neural networks. *19th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May, 2022.*

Mallick, S. , Jeckeln, G. Parde, C.J., Castillo, C., & O'Toole, A.J. (2022). The influence of the other-race effect on morphed face identification. *19th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May, 2022.*

P. J. Phillips, A. N. Yates, J. Cavazos, Y. Hu, G. Jeckeln, L. Tang, A. J. O'Toole, "Why Calibrated Face Ability Tests Are Necessary," *ITL Science Day*, National Institute of Standards and Technology, Gaithersburg, MD, November 6, 2019.

O'Toole, A. J. (2019). Other-race effects for face recognition algorithms: Strategies for measuring and minimizing bias. Invited Talk, Workshop: *Bias Estimation in Face Analytics*, *Computer Vision Pattern Recognition, 2019*, June 17, Long Beach, CA.

Colón, Y.I., Hill, M.Q., Parde, C.J., Castillo, C., Ranjan, R., O'Toole, A.J. (2019). Facial expression information in deep convolutional neural networks trained for face Identification. *16th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May, 2019.*

Parde, C. J., Colon, Y. I., Hill, M. Q., Ranjan, R., Castillo, C., & O'Toole, A. J. (2019). Density of top-layer codes in deep convolutional neural networks trained for face identification. *16th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May, 2019.*

Cavazos, J. G., Noyes, E. O'Toole, A. J. (2018). Strategies for improving own- and other-race face recognition with learning context and multiple image training. *15th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2018.*

Hill, M. Q., Parde, C. J., Chen, J.C., Castillo, C. D., Blanz, V. & O'Toole, A. J. (2018). Hierarchical representations of viewpoint, and illumination in deep convolutional neural networks trained for face identification. Talk presented at the *15th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2018. Journal of Vision, 18(10),* 353.

Hu, Y., Parde, C. J., Hill, M. Q., Mahmood, N. & O'Toole, A. J. (2018). Personality trait inferences from three-dimensional body shapes. Poster presented at the *15th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2018.*

Kobayashi, M., Kanazawa, S., Yamaguchi, M. K., & O'Toole, A. J. (2018). Recognition of approaching walkers in infancy. Poster presented at the *15th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2018.*

Noyes, E. C., Colon, Y. I., Hill, M. Q., Parde, C. J., Castillo, C. D. Sankaranarayanan, S. O'Toole, A. J. (2018). Face familiarity in deep convolutional neural networks. Poster presented at the *15th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2018. Journal of Vision, 18(10),* 1093.

Parde, C. J., Hu, Y. Castillo, C., Sankaranarayanan, S & O'Toole, A. J. (2018) Social networks Analyzing social information in deep convolutional neural networks trained for face identification. Poster presented at the *15th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2018. Journal of Vision, 18(10),* 1342.

Noyes, E. Parde, C., Colon, Y. Hill, M. Q., Castillo, C. Chen J.C., Jenkins, R. & O'Toole, A. J. (2017). Comparing human and deep convolutional neural network face-matching performance on disguised face images. *14th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2017. Journal of Vision, 17(10),* 1003.

Parde, C., Castillo, C., Hill, M. Q., Colon, Y. Chen J.C., Sankaranarayanan, S. & O'Toole, A. J. (2017). Face representations in deep convolutional neural networks. *14th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2017. Journal of Vision, 17(10),* 1093.

Jeckeln, G. Noyes, E., Hahn, C.A., & O'Toole, A. J. (2017). Does social collaboration benefit face-matching accuracy over simply fusing individuals' responses? *14th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2017.*

Baragchizedeh, A. & O'Toole, A. J. (2017). Identity matching of unfamiliar people from point-light biological motion. *14th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2017.*

Hu, Y., Jackson, K. Yates, A. White, D. Phillips, P. J. (2017). Qualitative differences between professional forensic face examiners and untrained people in person recognition are revealed by item analysis. *14th Annual Meeting of the Vision Science Society, St. Pete Beach, FL May 2017.*

Hahn, C. A., Phillips, P.J., & O'Toole, A.J. (2015). Decoding activity in response to approaching familiar and unfamiliar people in face and body selective areas. Talk presented (by C. Hahn) at the *Annual Meeting of the Society for Neuroscience*, Chicago, IL., Oct. 19, 2015.

Hahn, C. A., O'Toole, A. J. & Phillips, P.J. (2015). Classifying neural responses to familiar and unfamiliar people over viewing distances in face and body selective areas. *12th*

*Annual Meeting of the Vision Science Society, May 2015.*

Hill, M. Q., Streuber, S. Hahn, C. A., Black, M. J., & O'Toole, A. J. (2015). Exploring the relationship between body shapes and descriptions by linking similarity spaces. *12th Annual Meeting of the Vision Science Society, May 2015.*

Ryland, J. W., O'Toole, A. J. & Golden, R. M. (2015). Orientation, rotary motion, and congruency effects. *12th Annual Meeting of the Vision Science Society, May 2015.*

White, D., Phillips, J.P., Hahn, C. A., Hill, M. Q. & O'Toole, A.J. (2014). Expertise in facial image comparison. *Annual Meeting of the Psychonomic Society Meeting*, Long Beach, CA.

White, D., Phillips, J.P., Hahn, C. A., Hill, M. Q., Towler, A., Kemp, R. & O'Toole, A.J. (2014). Inversion effects in forensic facial image examiners. *Configural Processing Consortium Annual Meeting*, Long Beach, CA.

Hill, M. Q., Hahn, C.A. & O'Toole, A. J. (2014) A perceptual space for describing human bodies. *11th Annual Meeting of the Vision Science Society, May 2014*

Hahn, C. A., Phillips, P. J., & O'Toole, A. J. (2014) Contributing factors of personal recognition in natural environments. *11th Annual Meeting of the Vision Science Society, May 2014*

Hahn, C. A., Hart, E., Flanagan, K., Phillips, J. P., & O'Toole, A. J. (2013). Time course of person recognition in a naturalistic environment. Abstract from the *13th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2013.

Rice, A., Phillips, P. J., & O'Toole, A. J. (2013). Variable use of the face and body for person recognition. Abstract from the *13th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2013.

Natu, V. & O'Toole, A. J. (2012) Spatial and temporal characteristics of the neural representation of face familiarity. *Journal of Vision, 12(9)*, 978. Abstract from the *12th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2012.

O'Toole, A. J., Natu, V., Rice, A. & Phillips, P.J. (2012) A pattern classification approach to discriminating neural responses to faces and bodies in motion. *Journal of Vision, 12(9)*, 1181. Abstract from the *12th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2012.

Rice, A. Phillips, P. J. Natu, V. An, X. & O'Toole, A. J. (2012). Unconscious use of the body in identifying the face. *Journal of Vision, 12(9)*, 979. Abstract from the *12th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2012.

Barrett, S. E., Hermetet, K. & O'Toole, A. J. (2011). Developmental changes in the strength of identity-specific expression aftereffects. *11th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2010.

Natu, V., Raboy, D. & O',Toole, A. J. (2010). Differential spatial and temporal response patterns for own- and other-race faces. *10th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2010.

O'Toole, A. J., Weimer, S. Dunlop, J. Barwick, R. Ayyad, J. & Phillips, P. J. (2010). Recognizing people from dynamic video: Dissecting identity with a fusion approach. *10th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2010.

Raboy, D., Sekunova, A., Scheel, M., Natu, V., Weimer, S. Duchaine, B., Barton, J. & O'Toole, A. J. (2010) The recognition of static versus dynamic faces in prosopagnosia. 10th Annual Meeting of the Vision Science Society, Naples, FL, May, 2010.

O'Toole, A. J., Phillips, P.J. Weimer, S., Barwick, R. & Ayyad, J. (2009). Recognizing people from dynamic video: Dissecting identity with a fusion approach. *50th Annual Meeting of the Psychonomic Society*, Boston: MA, Nov 19th-22nd.

Natu, V., Wolfe, C., Jain, J., O'Toole, A.J. (2009). Dissociable neural responses for Caucasian versus Asian faces using a pattern-classification approach. *Annual Meeting of the Society for Neuroscience,* Chicago, IL, Oct. 19, 2009.

O'Toole, A. J. (2008). Understanding the neural representation of facial identity and viewpoint: A pattern-classification approach. *Invited Presentation. Winter Conference on Brain Research,* Copper Mountain, CO, Jan. 26, 2009.

Natu, V., Jiang, F., Narvekar, A., Keshvari, S., & O'Toole, A. J. Dissociable representations of view-invariant facial identity in ventral temporal cortex. *Annual Meeting of the Society for Neuroscience,* Washington, DC, Nov. 16, 2008.

O'Toole, A. J., Phillips, P. J., Narvekar, A., Jiang, F., & Ayyad, J. Face recognition algorithms and the other-race effect. *8th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2008.

Natu, V., Jiang, F., Narvekar, A., Keshvari, S., & O'Toole, A. J. Representations of facial identity over changes in viewpoint. *8th Annual Meeting of the Vision Science Society,* Naples, FL, May, 2008.

Narvekar, A., Phillips, P. J., Jiang, F. & O'Toole, A. J. Illumination effects on the inverse relationship between face typicality and recognition. *8th Annual Meeting of the Vision Science Society, Naples,* FL, May, 2007.

Barrett, S. E., O'Toole, A. J., & Richards, L. Familiarity and emotion adaptation. *7th Annual Meeting of the Vision Science Society,* Sarasota, FL, May, 2007.

Natu-Wasson, V., Müller, K.M. & O'Toole, A.J. Transfer of adaptation between simple visual forms and faces. *7th Annual Meeting of the Vision Science Society,* Sarasota, FL, May, 2007.

Jiang, F., Blanz, V. & O'Toole, A. J., Transfer of face adaptation effects across changes in illumination. *7th Annual Meeting of the Vision Science Society,* Sarasota, FL, May, 2007.

Otsuka, Y. Kanazawa, S. Yamaguchi, M., Abdi, H, & O'Toole, A. J., The development of face discrimination skill in infants. *7th Annual Meeting of the Vision Science Society, Sarasota ,* FL, May, 2007.

Roark, D. A. O'Toole, A.J. & Abdi, H. (2007) The role of diversification of experience during learning on person recognition from novel viewing formats. *Seventh Meeting of the Society for Applied Research in Memory and Cognition.* Lewiston, Maine, July 2007.

Barrett, S. E., O'Toole, A. J., Jiang, F. Chomiak, L. B., Gray, A. L. Highhill, D.S., Gender adaptation effects across shape-based categories of faces. *6th Annual Meeting of the Vision Science Society, Sarasota ,* FL, May, 2006.

Jiang, F., Blanz, V., & O'Toole, A. J. (2006). The role of familiarity in view-based transferability of face identity adaptation. *6th Annual Meeting of the Vision Science Society, Sarasota,*

O'Toole, A. J., Phillips, P. J., Jiang, F. Ayyad, J. Pénard, N. & Abdi, H. (2006). Face recognition algorithms surpass humans matching face images that vary in illumination. *6th Annual Meeting of the Vision Science Society, Sarasota,* FL, May, 2006.

Roark, D. A., Abdi, H., & O'Toole, A. J. (2006). When does an unfamiliar face become familiar? The effect of image type and familiarity on face recognition. *6th Annual Meeting of the Vision Science Society, Sarasota,* FL, May, 2006.

O'Toole, A. J. (2005). Pattern-based classification of fMRI data: A "brain-reading" approach to understanding neural representation. Neural Information Processing Systems Workshop on Decoding brain states with machine learning: Applications to fMRI. Dec 9, Whistler, BC, Canada.

O'Toole, A. J., Jiang, F. & Blanz, V. (2005). Three-dimensional shape and surface reflectance contributions to opponent-based face identity adaptation. *5th Annual Meeting of the Vision Science Society*, Sarasota, FL, May, 2005.

Otsuka Y., Kanazawa, S., Yamaguchi, M. K., O'Toole, A. J., & Abdi, H. (2005). The effect of motion information on infants' recognition of unfamiliar faces. *Japanese Psychomonic Society Meeting*.

Jiang, F., O'Toole, A. J., Abdi, H., & Haxby, J. Partially distributed representations of objects and faces in ventral temporal cortex : evidence from the structure of object categories and neural response patterns. *Vision Sciences Society: 4th Annual Meeting*. Sarasota FL, May, 2004.

O'Toole, A. J., Ayyad, J., Franklin, R., Goswami, S., Wu, A., Roark, D. A. & Abdi, H. (2004). Perceptual matching of identity between faces and video. *Vision Sciences Society: 4th Annual Meeting*. Sarasota FL, May, 2004.

Roark, D. A., Barrett, S. E., Abdi, H., O'Toole, A. J (2004). Repetition-based familiarity improves person recognition in novel contexts. *Vision Sciences Society: 4th Annual Meeting*. Sarasota FL, May, 2004.

O'Toole, A. J., Jiang, F. & Blanz, V. (2004). Facial identity adaptation induced by shape- and reflectance-normalized antifaces. *45th Annual Meeting of the Psychonomic Society*, Minneapolis, MN, Nov, 2004.

O'Toole, A.J., Haxby, J. & Abdi, H. (2003). Classification-based approaches to the analysis of functional neuroimaging data. *Vision Sciences Society: 3nd Annual Meeting*. Sarasota FL, May, 2003.

Roark, D. A., O'Toole, A. J. & Abdi, H. (2003) Recognizing people from naturalistic video: The effects of motion and familiarity. *Vision Sciences Society: 3nd Annual Meeting*. Sarasota FL, May, 2003.

Abdi, H. Jiang, F., O'Toole, A.J., & Haxby, J. V. (2003). Pattern-based analyses for brain-imaging data: Applications to face processing. *44rd Annual Meeting of the Psychonomic Society*, Vancouver, BC, Nov, 2003.

O'Toole, A.J., Roark, D. & Abdi, H. (2002). Recognizing people from naturalistic video: The effects of facial motion and familiarity. *Vision Sciences Society: 3nd Annual Meeting*. Sarasota FL, May, 2002.

O'Toole, A.J., Roark, D. & Abdi, H. (2002). Recognizing moving faces: A psychological and neural synthesis. *43rd Annual Meeting of the Psychonomic Society*, Kansas City, MO, Nov, 2002.

Leopold, D. A., Bondar, I. V., O'Toole, A. J. & Logothethis, N. K. (2002). Exploring face representation in humans and monkeys with high-level after-effects. *European Conference on Visual Perception*, Glasgow Scotland, August, 2002.

O'Toole, A.J., Roark, D. & Abdi, H. (2002). Recognizing moving faces: A psychological and neural synthesis. *Vision Sciences Society: 2nd Annual Meeting*. Sarasota FL, May, 2002.

Snow, S., Lannen, G., O'Toole, A. J. & Abdi, H. (2002). Memory for moving faces: Effects of rigid and non-rigid motion. *Vision Sciences Society: 2nd Annual Meeting*. Sarasota FL, May, 2002.

O'Toole, A. J., Leopold, D., Vetter, T. & Blanz V. (2001) Prototype-references shape perception: Adaptation and after-effects in multidimensional face space. *Vision Science Society, 1st Annual Meeting*, Sarasota FL, May.

Furl, N., O'Toole, A. J. & Phillips, J. (2000). The interaction of expression and identity in face recognition. *41st Annual Meeting of the Psychonomic Society.* New Orleans, LA.

O'Toole, A. J., Cheng, Y., & Abdi, H. (2000). Computational approaches to sex classification of Adults' and Children's faces. *Investigative Ophthalmology and Visual Science*, *31*, 1163.

O'Toole, A. J., Blanz, V., Vetter, T. & Wild, H. A. (1999). On the other side of the mean: Perceiving the dissimilarity of faces. *40th Annual Meeting of the Psychonomic Society.* Los Angeles, CA.

O'Toole, A. J., Wild, H. A., & Barrett, S. E. (1998). Gender classification and recognition of children's faces without sex-stereotyped cues. *39th Annual Meeting of the Psychonomic Society.* Dallas, TX.

Deffenbacher, K. A., Johanson, J., Vetter, T., & O'Toole, A. J. (1998). The face typicality-recognizability relationship : Encoding or retrieval locus? *39th Annual Meeting of the Psychonomic Society.* Dallas, TX.

O'Toole, A. J., Vetter, T., Volz, Salter, E. M. (1997). Three-dimensional facial caricatures : Distinctiveness and the perception of facial age. *38th Annual Meeting of the Psychonomic Society.* Philadelphia, PA.

Deffenbacher, K. A., Vetter, T., Johanson, J. O'Toole, A. J. (1997). Relation of facial caricature to aging, attractiveness, and distinctiveness effects. *38th Annual Meeting of the Psychonomic Society.* Philadelphia, PA.

O'Toole, A. J., Vetter, T., Volz, Salter, E. M. (1997). Three-dimensional facial caricatures : Distinctiveness and the perception of facial age. *38th Annual Meeting of the Psychonomic Society.* Philadelphia, PA.

Edelman, S. & O'Toole, A. J. (1997). Face distinctiveness in recognition across viewpoint. *Annual Meeting of the Society for Mathematical Psychology*, University of Indiana, Bloomington, IN.[1]

O'Toole, A. J. (1997). Current issues in computational modeling of human perception and memory for faces: What's <u>right</u> about everybody's model? *Annual Meeting of the Society for Mathematical Psychology*, University of Indiana, Bloomington, IN.

O'Toole, A. J., Vetter, T., Volz, H. & Salter, E. M. (1997). Caricatures of three-dimensional human heads: As we get older do we get more distinct? *Supplement to Investigative Ophthalmology and Visual Science*, *38*, 4662.

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[1] Delivered by A. O'Toole

O'Toole, A. J., Vetter, T., Troje, N. F. & Bülthoff, H. H. (1996). Classifying faces by sex is more accurate with 3D shape information than with texture. *Supplement to Investigative Ophthalmology and Visual Science, 37,* 840.

O'Toole, A. J., Edelman, S. & Bülthoff, H. H. (1996). Face recognition over view-point change. *37th Annual Meeting of the Psychonomic Society.* Los Angeles, CA.

O'Toole, A. J., Peterson, J., & Deffenbacher, K. A. (1995). An "Other-race Effect" for categorizing faces by gender. *36th Annual Meeting of the Psychonomic Society.* Los Angeles, CA.

Deffenbacher, K. A., Huff, D. P., Hendrickson, C., O'Toole, A. J., & Abdi, H. (1995). Manipulating face gender: Effects on categorization and recognition judgment. *36th Annual Meeting of the Psychonomic Society.* Los Angeles, CA.

O'Toole, A. J., Deffenbacher, K. A., McKee, K., Huff, D., Valentin, D., & Abdi, H. (1994). Face gender differences in the use of stimulus structure. Paper presented at the *Annual Meeting of the Psychonomic Society*, St. Louis, MO.

O'Toole, A. J. & Walker, C. (1993). Disparity as a visual primitive: The competing role of surface percepts. Association for Research in Vision & Ophthalmology, *Supplement to Investigative Ophthalmology and Visual Science, 34,* 2381.

O'Toole, A. J., Deffenbacher, K. A., Abdi, H., & Valentin, D. (1992). Categorical and identity information in faces. Paper presented at the *Annual Meeting of the Psychonomic Society*, St. Louis, November.

O'Toole, A. J., Deffenbacher, K. A., Valentin, D., & Abdi, H. (1992). Same and other-race facial characteristics mediating/moderating recognition memory. Poster presented at the *Annual Meeting of the Psychonomic Society*, St. Louis, November.

Abdi, H. , O'Toole, A. J., Valentin, D., & Deffenbacher, K. A. (1991) Generalization of the linear autoassociative network and its implications for visual facial prototype abstraction. *24th Annual Meetings of the Society for Mathematical Psychology*, Indiana University, Bloomington Indiana.

O'Toole, A. J. (1992). The spatial and temporal aspects of stereopsis. Association for Research in Vision & Ophthalmology, *Supplement to Investigative Ophthalmology and Visual Science, 33,* 1375.

O'Toole, A. J., Deffenbacher, K. A., Abdi, H., & Bartlett, J. (1990). Paper presented at the *Annual Meeting of the Psychonomic Society*, New Orleans, LA, November.

O'Toole, A. J. & Kersten, D. J. (1988). What we learn to see when we learn to see random-dot stereograms. Paper presented at the *Annual Meeting of the Optical Society of America*, Santa Clara, California. *Technical Digest.*

O'Toole, A. J. & Kersten, D. J. (1986). An adaptive connectionist approach to structure from stereo. Paper presented at the Annual Meeting of the Optical Society of America, Seattle, Washington. *Technical Digest, THEE4.*

**INVITED TALKS AND COLLOQUIA**

O'Toole, A. J. (2022). Understanding face representations in deep convolutional neural networks. *19th International Summer School for Biometrics:* June 8, 2022.

O'Toole, A. J. (2021). Understanding face representations in deep convolutional neural networks: Turning the black box white. *Geek Brief*, Oakridge National Laboratories. Virtual Event, Nov. 10, 2021.

O'Toole, A. J. (2021). Face recognition by humans and machines: Three fundamental advances from deep learning. *Vision Brunch*, Stanford University, Virtual Event, Sept. 22, 2021.

O'Toole, A. J. (2021). Understanding face representations in deep convolutional neural networks. *18th Summer School for Advanced Studies in Biometric Authentication:* Virtual Event, June 10, 2021.

Jeckeln, G. , Hu, Y., Cavazos, J. G., Yates, A.N., Hahn, C. A., Tang, L., Phillips, P. J., & O'Toole, A. J. (2021) Designing calibrated facial proficiency tests. *Virtual 10th Annual Forensic Science Symposium* (delivered by Jeckeln)

Jeckeln, G. , Mamassian, P., & O'Toole (2021) Confidence judgments are associated with face-identification accuracy: Findings from a confidence forced-choice task. *2nd Annual Different Minds Collaborative Virtual Spring 2021 Conference* (delivered by Jeckeln)

Jeckeln, G. , Mamassian, P., & O'Toole (2021) Confidence indicates face-identification accuracy: Findings from a confidence forced choice task. Poster presented at the *Virtual 18th International Summer School for Advanced Studies on Biometrics for Secure Authentication*, 2021. (delivered by Jeckeln)

Cavazos, J. G., Phillips, P. J., Castillo, C., & O'Toole, A.J. (2021). Accuracy Comparison Across Face Recognition Algorithms: Where Are We on Measuring Race Bias? Invited talk for *Forensic Psychology Lab,* at the University of New South Wales, Australia (virtual) (delivered by Cavazos)

O'Toole, A. J. (2021). Understanding face representations in deep convolutional neural networks. *Multiforsee:* MULTI-modal Imaging of FOREnsic Science Evidence tools for Forensic Science Conference, Virtual Event, July 13, 2021.

O'Toole, A. J. (2020). Understanding face representations in deep convolutional neural networks. *16th Summer School for Advanced Studies in Biometric Authentication,* Virtual Event 2020.

O'Toole, A. J. (2020). Face recognition by humans and machines. Presented in "Evaluating face identification expertise: Turning theory into best practice." Workshop sponsored by the *Academy of the Social Sciences in Australia* University of New South Wales, Sydney, Australia, January, 6-7, 2020

O'Toole, A. J. (2020). Turning a face recognition black box white: Understanding what deep convolutional neural networks learn about faces. Keynote Talk at the *Unfamiliar Face Identification Group Annual Meeting.* University of New South Wales, Sydney, Australia, January, 8-9, 2020

O'Toole, A. J. (2019). Turning a face recognition black box white: Understanding what deep convolutional neural networks learn about faces. *Center for Research in Security and Privacy, Distinguished Lectures Series in Cybersecurity*, June 3, 2019.

O'Toole, A. J. (2019). Understanding face representations in deep convolutional neural networks: Face space theory evolves. *15th Summer School for Advanced Studies in Biometric Authentication: Biometrics in the Era of Deep Convolutional Neural Networks.* Alghero, Italy, May 27-31, 2019.

O'Toole, A. J. (2019). Understanding face representations in deep convolutional neural networks: Face space theory evolves. *Distinguished Lecturer, School of Behavioral and Brain Sciences, The University of Texas at Dallas*, 2019.

O'Toole, A. J., (2018). Understanding face representations in deep convolutional neural networks: Face space theory evolves. *International Face Performance Conference (IFPC).* November 27-29**,** 2018, National Institute of Standards and Technology.Gaithersburg, MD.

O'Toole, A. J. (2018). Understanding face representations in deep convolutional neural networks: Face Space Theory evolves In Multidisciplinary approaches to understanding face perception, *Center for Cognitive Neuroscience. Dartmouth College* (Aug. 29-30, 2018).

O'Toole, A. J. (2017). Face representations in Deep Convolutional Neural Networks, Invited Colloquium, *Max Planck Institute for Biological Cybernetics*, Tübingen, Germany.

O'Toole, A. J. (2017). Understanding the information in human bodies. *Invited Colloquium,* Neurocolloquium of the Marburg Center for Mind, Brain and Behavior, MCMBB*, University of Marburg, Marburg, Germany.* Nov. 16, 2017.

O'Toole, A. J. (2017). Biological recognition of human faces and bodies. *14th Summer School for Advanced Studies in Biometric Authentication: How biometrics meets forensics, security, and e-society challenges of tomorrow.* Alghero, Italy, June 12-19, 2017.

O'Toole, A. J. (2017). Understanding the information in human bodies. *Invited Colloquium, Department of Psychology, University of California, Berkeley,* March 14, 2017.

O'Toole, A. J. (2017). Understanding the information in human bodies. *Symposium to accompany 45th Annual Sir Frederic Bartlett Prize, awarded to Andy Young, Experimental Psychology Society Meeting, January, University College London, UK.* Jan. 5, 2017.

O'Toole, A. J. (2016). Understanding person recognition: Psychological, neural, and computational perspectives. *Neurolecture Speaker Series*, The University of Nevada, Reno, NV) Feb. 19, 2016.

O'Toole, A. J. (2015). Understanding person recognition: Psychological, neural, and computational perspectives. *Visiting Scientist Lecture,* for NIH-funded MARC (Maximizing Access to Research Careers) scholar program at California State University, Fullerton, Dec. 2, 2015.

Phillips, P. J. & O'Toole, A. J. (2015) Methodology issues in the era of crowd-sourcing and web-scraping: A Face recognition case study. Presented by P. J. Phillips at the *Biometric Working Group Meeting*, October, London, England.

O'Toole, A. J. (2015). Understanding human bodies and their contribution to identifying people: Psychological, neural, and computational perspectives. Invited talk, Michigan State University, Fall 2015 *Cognitive Science Distinguished Speaker Series*, October 5, 2015.

O'Toole, A. J. (2015). Face recognition by humans and computers. *13th Summer School for Advanced Studies in Biometric Authentication: How biometrics meets forensics, security, and e-society challenges of tomorrow.* Alghero, Italy, June 10-15, 2016.

O'Toole, A. J. (2015). Comparing face (and person) recognition by humans and computers. Invited Talk in Workshop on *Turing++ Questions: Face ID Challenge,* Center for Brains, Minds, & Machines, Massachusetts Institute of Technology*.* Cambridge MA, Sept. 4, 2015*.*

O'Toole, A. J. (2014). Face recognition by humans and computers. *12th Summer School for Advanced Studies in Biometric Authentication: How biometrics meets forensics, security, and e-society challenges of tomorrow*. Alghero, Italy, June 10-15, 2014.

O'Toole, A. J. (2015). Understanding human bodies and their contribution to person identification. Invited Talk in Workshop *On faces bodies, and voices: Multimodal mechanisms of person recognition.* Jerusalem, Israel, March 16-19, 2015*.*

O'Toole, A. J. (2015). Understanding human bodies and their contribution to person identification. Invited Talk*, ARC Center of Excellence in Cognition and its Disorders International Workshop on Person Perception.* University of Western Australia Perth Australia, March 17-28, 2015*.*

O'Toole, A. J. (2014). Face recognition by humans and computers. *11th Summer School for Advanced Studies in Biometric Authentication: How biometrics meets forensics, security, and e-society challenges of tomorrow*. Alghero, Italy, June 10-15, 2014.

O'Toole, A. J. (2013). Computational models of face recognition: Where are we now? Where do we go next? *Invited Colloquium, Dept. of Electrical and the Center for Cognitive and Brain Sciences, Ohio State University, Columbus, OH.* Nov. 6, 2013.

O'Toole, A. J. (2013). Tutorial: Face recognition by humans and machines. *Boiometrics: Theory, Applications, and Systems Annual Meeting*. Washington, DC, September 29, 2013.

O'Toole, A. J. (2013). Face recognition by humans and computers. *10th Summer School for Advanced Studies in Biometric Authentication: How biometrics meets forensics, security, and e-society challenges of tomorrow*. Alghero, Italy, June 10-15, 2013.

O'Toole, A. J. (2012). Understanding the neural representation of face identity, race, and viewpoint. International Symposium on Face Perception and Representation, 43rd National Institute for Physiological Sciences Symposium. Okasaki, Japan. Oct 31-Nov. 3, 2012.

O'Toole, A. J. (2012). Interdisciplinary agenda for facial analysis and interpretation. What's in a face workshop at the European Conference on Computer Vision, Florence Italy, October 12, 2012.

O'Toole, A. J. (2012). Face recognition by humans and computers. 9*th Summer School for Advanced Studies in Biometric Authentication: Understanding Man Machine Interactions in Forensics and Security Applications*. Alghero, Italy, June 11-15, 2012.

O'Toole, A. J. (2012). Computational models of face recognition: Where are we now? Where do we go next? *Invited Colloquium, Dept. of Computer Science/Electrical Engineering and the Center for Visual Neuroscience, University of Texas, Austin, TX.* Apr. 9, 2012.

O'Toole, A. J. (2012). Computational models of face recognition: Where are we now? Where do we go next? *Invited Address at The Experimental Psychology Society Meeting Symposium in Honor of the Prof. A. M. Burton's Mid-Career Prize, University College of London, London, England,* Jan. 5, 2011.

O'Toole, A. J. (2011). Understanding the neural representation of facial identity, race, and viewpoint: Constraining the neural with the perceptual. *Invited Colloquium, Psychology Department, State University of North Dakota, Fargo, ND,* Nov. 5, 2011.

O'Toole, A. J. (2011). Human-Machine Fusion: How to improve state-of-the-art face recognition systems. *Biometric Exhibition and Conference, London, England,* October 19, 2011.

O'Toole, A. J. (2011). Recognizing people from dynamic video: Dissecting identity with a fusion approach. *Home Office, London, England,* October 17, 2011.

O'Toole, A. J. (2011). Understanding the neural representation of facial identity, race, and viewpoint: Constraining the neural with the perceptual. *Workshop on Neural Computation of High Level Representations.* Dartmouth College, Hanover NH, August, 2011.

O'Toole, A. J. (2011) Progress in understanding human and computer-based face recognition performance. *Face Memory and Deception Detection Workshop*, Arlington VA, July 28, 2011.

O'Toole, A. J. (2011). Face recognition by humans and computers. Invited Colloquium, *Department of Electrical Engineering and Computer Science*, Notre Dame University, South Bend IN, April 13, 2011.

O'Toole, A. J. (2011). Face recognition by humans and computers. 8$th$ *Summer School for Advanced Studies in Biometric Authentication: New Technologies in Forensics and Security*. Alghero, Italy, June 6-10, 2011.

O'Toole, A. J. (2011). Understanding the neural representation of facial identity, race, & viewpoint: A pattern classification approach. *The University of Texas Medical School at Houston, Dept. of Neurobiology and Anatomy*. Houston, TX, March 10, 2011.

O'Toole, A. J. (2010). Face recognition by humans and computers. 7$th$ *Summer School for Advanced Studies in Biometric Authentication: Forensics, Security and Remote Identification*. Alghero, Italy, June 7-11, 2010.

O'Toole, A. J. (2010). Face recognition performance: Humans versus machines. Invited Address. *Face Identification Scientific Working Group (FISWG).* April 29, 2010, Orlando, FL.

O'Toole, A. J. (2009). Insights from the intersection of psychological and computational approaches to face and body biometrics. *Invited Address. IEEE Third International Conference on Biometrics: Theory, Applications and Systems.* Washington, DC. Sept. 30, 2009.

O'Toole, A. J. (2009). Understanding the neural representation of facial identity and viewpoint: A pattern-classification approach. *Invited Colloquium. Center for Brain Research, The University of Texas at Dallas.* Dallas, TX, Aug. 31, 2009.

O'Toole, A. J. (2009). Face recognition by humans. 6$th$ *Summer School for Advanced Studies in Biometric Authentication: Multi-modal systems and identity management.* Alghero, Italy, June 8-12, 2009.

O'Toole, A. J. (2009). Understanding the neural representation of facial identity and viewpoint: A pattern-classification approach. *Invited Colloquium. Center for Brain Research, University of British Columbia.* Vancouver, Canada, Jan. 30, 2009.

O'Toole, A. J. (2008) Human benchmarking of the Multiple Biometric Grand Challenge video evaluation. *Invited Presentation.* At the *Multiple Biometric Grand Challenge Workshop*. Mitre Corp., Mclean, VA, Dec. 4, 2008.

O'Toole, A. J. (2008) Comparing face recognition algorithms with humans: Benchmarks from the Face Recognition Grand Challenge and Face Recognition

Vendor Test 2006. *Invited Presentation.* At *Robust Biometrics: Understanding Science and Technology*. Honolulu, Hawaii, Nov. 4, 2008.

O'Toole, A.J. (2008) Understanding the neural representation of facial identity and viewpoint: A pattern-based classification approach. *Invited Presentation,* Dept. of Psychiatry and the Advanced Imaging Research Center, University of Texas Southwestern Medical School. Oct. 17, 2008.

O'Toole, A. J. (2008). Comparing face recognition algorithms with humans: Benchmarks from the Face Recognition Grand Challenge and Face Recognition Vendor Test 2006. *Invited Presentation, Biometric Symposium 2008.* Tampa, Florida, Sept. 24, 2008.

O'Toole, A. J. (2008). Understanding the neural representation of facial identity and viewpoint: A pattern-based classification approach. *Invited Colloquium:* Dept. of Psych. Université catolique de Louvain, Louvain-la-Neuve, Belgium. Sept. 15, 2008.

O'Toole, A. J. (2008). Biological recognition of human faces. 5$^{th}$ *Summer School for Advanced Studies in Biometric Authentication: New Technologies for Security and Privacy*. Alghero, Italy, June 9-13, 2008.

O'Toole, A. J. (2008). Representing the visual information in faces: A view from the other-side of the mean. *Invited Colloquium Cognitive Psychology Speaker Series (Cognoscenti)*, Texas A&M University, College Station, TX, January, 2008.

O'Toole, A. J. (2007). Biological recognition of human faces. *4$^{th}$ Summer School for Advanced Studies in Biometric Authentication: New Technologies and Embedded Systems*. Alghero, Italy, June 11-15, 2007.

O'Toole, A. J. (2007). Benchmarking and fusing automatic face recognition algorithms and humans. *5$^{th}$ IEEE Workshop on Automatic Identification Advanced Technologies*. Alghero, Italy June 7-8, 2007.

O'Toole, A. J. (2006). Psychological, computational, and neuroscience approaches to understanding human face recognition: The Great divide. *Computational Cognitive Neuroscience Conference*, *Symposium on Face and Object Recognition, Are Faces Special or Just a Special Case?* Houston, TX, November 15., 2006.

O'Toole, A. J. (2006). Wandering through face space: Probing high level visual codes for faces using adaptation. *Invited Vision Sciences Colloquium*, Massachusetts Institute of Technology, Cambridge, MA, April 7., 2006.

O'Toole, A. J. (2006). Face recognition: Humans versus machines. *Face Recognition Grand Challenge Meeting-2006*, Arlington VA, March 22, 2006

O'Toole, A. J. (2006) Biological recognition of human faces. *3$^{rd}$ Summer School for Advanced Studies in Biometric Authentication: New Sensors and Large Scale Evaluation*. Alghero, Italy June 12-16, 2006.

O'Toole, A. J. (2005). Evaluating Face Recognition algorithms against human benchmarks. *Face Recognition Advanced Study Workshop*, Morgantown, WV, Nov. 11-13.

O'Toole, A. J. (2005). Shape and reflectance contributions to adaptation of human faces. *Invited Colloquium*, Cornell University, Ithaca NY, March 10, 2005.

O'Toole, A. J. (2005). Partially distributed representations of objects and faces in ventral temporal cortex. *Invited Seminar Speaker*, Cornell University, Ithaca NY, March 9, 2005.

O'Toole, A. J. (2005). Wandering through face space: Explorations into the opponent processes underlying face representations. *The 4th Annual Conference on Neuroesthethics,* Jan. 15, University of California, Berkeley, Museum of Art, Berkeley, California.

O'Toole, A. J. (2005). Facial identity adaptation induced by reflectance- and shape-normalized faces. *Invited Colloquium,* Department of Psychology, University of Nevada, Reno, Jan. 18, 2005.

O'Toole, A. J. (2004). Adaptation in a computationally derived face space: The role of 3D head structure and surface reflectance in face perception. *The Fat Tire Conferences Workshop on Face Recognition*. The University of Texas at El Paso, October, 2004.

O'Toole, A. J. (2004). Partially distributed representations of objects and faces in ventral temporal cortex. *Neural Computation ONR Investigators Meeting*, Aug. 19-22, University of Nevada, Reno.

O'Toole, A. J. (2004). How well do people recognize faces: Establishing a performance baseline. 14th Annual CardTech SecurTech Conference, Advances in Biometric Technology and Testing, Apr. 26-28, Washington, DC.

O'Toole, A. J. (2003). Partially distributed representations of faces in ventral temporal cortex. *About Faces: A Multidisciplinary Approach to the Science of Face Perception.* Princeton University, Sept. 18-21, 2003

O'Toole, A. J. (2003). *Invited Panelist*, NSF Sponsored Workshop for a Biometric Research Agenda. April 30- May 2, 2003

O'Toole, A. (2003) Pattern-based classification of functional neuroimaging data. *Invited Talk*, Perceptual Expertise Network Group, Vanderbilt University, March, 2003.

O'Toole, A. J. (2002). Recognizing moving faces: A Psychological and Neural Synthesis. *Next Generation Face Recognition Workshop*, RAND Corp., March Washington, DC.

O'Toole, A. J. (2002) Reconnaissance des visages: Chez L'Homme et chez l'ordinateur. Université de Bourgogne, *Invited Colloquium,* April, 2002, Dijon, France.

O'Toole, A. (2001) Prototype-references shape perception. *Invited Colloquium*, Indiana University, April, 2001.

O'Toole, A. (2001) Prototype-references shape perception. *Invited Talk*, Perceptual Expertise Network Group, Brown University, November, 2001.

O'Toole, A. J. (2000). Quantifying the Human Face: Trajectories through face space. In Symposium "Perceiving and remembering the human face. *Invited Talk, American Psychological Association Conference,* August 4-6, 2000, Washington DC.

O'Toole, A. J. (1999). Caricatures, distinctiveness, and human representations for faces : Implications for improving the accuracy of machine recognition. *Invited Plenary Talk, Second International Conference on Audio- and Visual Biometric Person Authentication,* March 22-23, 1999, Washington DC.

O'Toole, A. J. (1999). Psychological representations and computational models of face perception. *Invited Colloquium Cognitive Science Department, Univ. of California at San Diego,* Feb. 12, 1999, La Jolla, CA.

O'Toole, A. J. (1999). Psychological representations and computational models of face perception. *Invited Colloquium Child Development Group, Univ. of Texas at Austin,* March 26, 1999, Austin, TX.

O'Toole, A. J. (1999). Psychological representations and computational models of face perception. *24th Annual Interdisciplinary Conference*, Jan. 31-Feb. 6, 1999, Jackson Hole, Wyoming.

O'Toole, A. J. (1998). Computatiol issues in modeling human memory for faces. Invited Colloquium, University of Texas at Arlington, Nov. 1998.

O'Toole, A. J. (1998). Caricatures of three-dimensional laser scans of human heads : As we get older, do we get more distinct? *23rd Annual Interdisciplinary Conference*, Feb 1-6, 1998, Jackson Hole, Wyoming.

O'Toole, A. J. (1997). Gender classification and caricaturing of a three-dimensional representation of human heads. *Invited talk, Colloquium Series in Cognitive Science, Indiana University,* Bloomington, IN.

O'Toole, A. J., Vetter, T., Volz, Salter, E. M. (1997). Three-dimensional facial caricatures : Distinctiveness and the perception of facial age. *Eighth Annual Australasian Mathematical Society Meeting,* University of Western Australia, Perth, Australian.

O'Toole, A. J. (1996). Psychophyiscal and computational studies of the perceptual face categories of race and gender. *Symposium on Face and Object Recognition*, ATR, Kyoto, Japan.

O'Toole, A. J. (1995). Face recognition across viewpoint. *Third Annual Pre-Psychonmics workshop on Object Perception and Memory*, Los Angeles, CA.

O'Toole, A. J. (1995). A perceptual learning theory of the "other-race" effect. *Neuroscience Colloquium Series*, University of Tübingen, Tübingen, Germany.

O'Toole, A. J., A perceptual learning/statistical structure theory of the information in faces. *Max Planck Institute for Biological Cybernetics*. Sept., 1993, Tübingen, Germany.

O'Toole, A. J., A perceptual learning/statistical structure theory of the information in faces. *International Conference on Face Processing*. Sponsored by the British Psychological Association. Sept., 1993, Cardiff, Wales.

Abdi, H., Valentin, D., & O'Toole, A. J., Neural network models of face perception. *International Conference on Face Processing*. Sept., 1993, Cardiff, Wales.[2]

O'Toole, A. J., The structure of the other-race effect. *Psychology Department Seminar*. Department of Psychology, University of Oklahoma, Norman, Oklahoma, 1993.

O'Toole, A. J., A neural network model of the perceptual information in faces. *Institute for Neural Computation Seminar Series*, University of California at San Diego, Department of Cognitive Science, May 20, 1993, San Diego, California.

O'Toole, A. J., The structure of the other-race effect. *Special seminar in Cognitive Science*. University of California at San Diego, Department of Cognitive Science, May 21, 1993, San Diego, California.

O'Toole, A. J., Recent psychophysics suggesting a reformulation of the computational problem of structure-from-stereopsis. *Workshop on Unsupervised Learning and Self-Organization in Vision, Neural Information Processing Society*, December, 1991, Vail, Colorado.

O'Toole, A. J., Attentional and perceptual learning explanations of learning effects with random-dot stereograms: Implications for the computational problem of

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[2] Delivered by H. Abdi.

structure-from-stereopsis. *Cognitive Science Seminar*, The University of California at Irvine October, 1991.

## Technical Reports

Phillips, P.J., Narvekar, A., Jiang, F. & O'Toole, A. J. (2010). An other-race effect for face recognition algorithms. *National Institute of Standards and Technology, Technical Report NISTIR 7666,* February, 2010.

Phillips, P.J., Scruggs, W., T. O'Toole, A.J., Flynn, P. J., Bowyer, K. W., Schott, C. L., Sharpe, M. (2008). FRVT 2006 and ICE 2006 Large Scale Results. *National Institute of Standards and Technology, Technical Report NISTIR 7498,* March, 2007.

Phillips, P.J., Scruggs, W., T. O'Toole, A.J., Flynn, P. J., Bowyer, K. W., Schott, C. L., Sharpe, M. (2007). FRVT 2006 and ICE 2006 Executive Summary. *National Institute of Standards and Technology, Technical Report.* June 22, 2007.

Phillips, P.J., Scruggs, W., T. O'Toole, A.J., Flynn, P. J., Bowyer, K. W., Schott, C. L., Sharpe, M. (2007). FRVT 2006 and ICE 2006 Large Scale Results. *National Institute of Standards and Technology, Technical Report NISTIR 7498,* March, 2007.

O'Toole, A. J., Vetter, T., Volz, H. & Salter, E. M. (1997). As we get older, do we get more distinct? *Technical Report 49*, Max Planck Institute for Biological Cybernetics, Tübingen, Germany.

O'Toole, A. J., Edelman, S. & Bülthoff, H. H. (1996). Stimulus-specific effects in face recognition over changes in viewpoint. *Technical Report 31,* Max Planck Institute for Biological Cybernetics, Tübingen, Germany.

O'Toole, A. J., Bülthoff, H. H., Troje, N. F., & Vetter, T. (1995). Face recognition across large changes in viewpoint. *Technical Report 9*, Max Planck Institute for Biological Cybernetics, Tübingen, Germany.

O'Toole, A. J., Bülthoff, H. H., C. L. Walker (1995). Face recognition across viewpoint. *Technical Report 21,* Max Planck Institute for Biological Cybernetics, Tübingen, Germany.

O'Toole, A. J., Vetter, T., Bülthoff, H. H. & Troje, N. F. (1995) The role of texture and three-dimensional shape in sex classification. *Technical Report 23*, Max Planck Institute for Biological Cybernetics, Tübingen, Germany.

## United States/International Patents Awarded

Crowdshaping realistic 3D avatars with words
S Streuber, MAQ RAMÍREZ, M Black, S Zuffi, A O'toole
US Patent 11,282,256

Crowdshaping realistic 3D avatars with words
S Streuber, MAQ RAMÍREZ, M Black, S Zuffi, A O'toole
US Patent 10,818,062

## Media Coverage of Research

Wall Street Journal Masks come off and nobody recognizes each other – Jennifer Levitz May 18, 2021.

https://www.wsj.com/articles/masks-come-off-and-everyone-asks-who-are-all-these-strangers-11621353323?st=p53pajuikriv4yd&reflink=mobilewebshare_twitter

"The great debate: study proves whether people or algorithms are best at facial ID" has appeared *Biometric Technology Today*, October 2018 Issue, pp. 5.


Coverage of Hu, Y., Hill, M. Q., & Mahmood, N., O'Tooe, A. J. (2018) First impressions of personality traits from body shapes. *Psychological Science*.

Bianca Castro at KXAS, the NBC affiliate in Dallas aired a piece on this paper that was picked up for wider distribution and appeared in 44 markets. Largest among those were Baltimore, Memphis, New Orleans, Bakersfield and Albuquerque. In Texas, it turned up in El Paso, Lubbock, Tyler-Longview, Beaumont and Amarillo. In addition, the work was covered by the *Atlantic*, the *Daily Mail*, *MSN Health*, *Vice, Inc. Online*, *Science Daily*, *La República* and *El Mundo* (Spain) and several major Indian sites.


How Good — And How Secure — Is Facial Recognition Technology? *National Public Radio, All things considered*. A. Chang interviewer. October 8, 2018

https://www.npr.org/2018/10/08/655635901/how-good-and-how-secure-is-facial-recognition-technology

UT Dallas Professor On The Strides And Setbacks Of Facial Recognition Technology http://www.keranews.org/post/ut-dallas-professor-strides-and-setbacks-facial-recognition-technology, National Public Radio, Interviewer, JUSTIN MARTIN • SEP 19, 2018

Facial-Recognition Software Might Have a Racial Bias Problem, *Atlantic Monthly*, April 7, 2016.
http://www.theatlantic.com/technology/archive/2016/04/the-underlying-bias-of-facial-recognition-systems/476991/

*Psychology Today*, Aug. 15, 2015. How important is it to look competent? By Lawerence White, press coverage of Na, J. Kim, S., Oh, H., Choi, I. & O'Toole, A. J. (2015). Facial inferences of competence predict American elections better than Korean elections. *Psychological Science, 26(7),* 1107-1113. doi: 10.1177/0956797615576489 https://www.psychologytoday.com/blog/culture-conscious/201508/how-important-is-it-look-competent

Press coverage of: White, D., Phillips, P. J., Hahn, C. A., Hill, M. Q., O'Toole, A.J. (2015, in

press). Perceptual expertise in forensic facial image comparison, *Proceedings of the Royal Society B*.

*der Spiegel Online*, **Gesichtserkennung: Das ist er doch, oder? Sept. 3, 2015**
*Von Haluka Maier-Borst*
[http://www.spiegel.de/wissenschaft/mensch/gesichtserkennung-forensische-spezialisten-sind-besser-a-1051040.html](http://www.spiegel.de/wissenschaft/mensch/gesichtserkennung-forensische-spezialisten-sind-besser-a-1051040.html)

*Australian Broadcasting System Science,* Experts put to the test. Sept. 2, 2015
[http://www.abc.net.au/science/articles/2015/09/02/4304123.htm](http://www.abc.net.au/science/articles/2015/09/02/4304123.htm)

*National Geographic Phenomena* Do you have a face-finding super-power for fighting crime? By Erika Engelhaupt, Sept. 2, 2015.
[http://phenomena.nationalgeographic.com/2015/09/01/do-you-have-a-face-finding-superpower-for-fighting-crime/](http://phenomena.nationalgeographic.com/2015/09/01/do-you-have-a-face-finding-superpower-for-fighting-crime/)

Interview *New York Times* – Sept. 20, 2015
[http://www.nytimes.com/2015/09/20/nyregion/the-science-behind-they-all-look-alike-to-me.html](http://www.nytimes.com/2015/09/20/nyregion/the-science-behind-they-all-look-alike-to-me.html)

Interview *Washington Post* - March, 28, 2016
[https://www.washingtonpost.com/news/speaking-of-science/wp/2016/03/28/what-one-snarky-facial-expression-could-teach-us-about-the-evolution-of-language/](https://www.washingtonpost.com/news/speaking-of-science/wp/2016/03/28/what-one-snarky-facial-expression-could-teach-us-about-the-evolution-of-language/)

Australian Broadcasting Company, TV Interview, January, 20, 2015. Catalyst Passport Story to air in February, 2015.

Dallas Museum of Art Lecture – Art + Science at the DMA in partnership with the Perot Museum of Nature and Science, *The science of facial expression in portraiture*, Gallery talk.  April 12, 2014.

British Broadcasting System – Today Program Radio 4, *Recognizing people from their bodies.* October 11, 2013.

National Public Radio *"Science Friday" – Program Guest* – Machines slowly mastering the art of recognizing faces, January 22, 2010.
feed://www.npr.org/rss/podcast.php?id=510221

Dallas WWFA-News (Channel 8) The face looks familiar but can humans match the eyes? Interview with News reporter David Schechter. July 28, 2010.
http://www.wfaa.com/news/technology/The-Face-Looks-Familiar-99501094.html

Dallas Museum of Art Lecture – Late Nights Lecture and Discussion, in conjunction with the Exhibit *Face to Face*, Alice O'Toole and Devon Newlin (Portrait Artist). February 17, 2012.

Association for Psychological Science, press release. October 7, 2013.
http://www.psychologicalscience.org/index.php/news/releases/identifying-people-by-their-bodies-when-faces-are-no-help.html

**RESEARCH FUNDING:**
**Current Funding**

| | |
|---|---|
| 2022-2023 | Designing tests of forensic facial identification experts: Identifying other-race faces. National Institute of Standards and Technology: 70NANB21H150 11/1/2022-10/31/23 Award Total $250,000 Project PI: A. O'Toole |
| 2019-2023 | Human Face Representation in Deep Convolutional Neural Networks National Institute of Health 1 R01 EY029692-04 3/01/2019-2/28/2024 Year 1 funds: $387,918 Year 2 funds: $385,202 Year 3 funds: $361,988 Year 4 funds: $ Total funds: $1,520,770 |
| 2021-2023 | Automated Identity Masking Experimental Design and Execution for Multi-modal Sensor Analytics and Learning for Transportation Studies Oak Ridge National Laboratories: DOE Contract # DE-AC05-00OR22725 Award Total $101,539 Project PI: A. O'Toole |
| 2021-2023 | Designing tests of forensic facial identification experts: Identifying other-race faces. National Institute of Standards and Technology: 70NANB21H109 Award Total $150,000 – no-cost extension, 2023 Project PI: A. O'Toole |
| 2021-2023 | MORFI³US: Multimodal Opportunistic Robust Fusion of Incomplete Identity Information in Unconstrained Scenarios IARPA/DOD Systems & Technology Research (PI Jonathan Williford) |

Johns Hopkins University (PI Rama Chellappa)
UT-Dallas (PI O'Toole- subcontracted from JHU)

Phase 1 - Award Total: $302,000
Phase 2 (Option, 2023-2025): $200,000
Phase 3 – (Option 2025-2026): $200,000


**Previous Funding**


2018-2021   Automated identity masking: Facial behavioral preservation and
recognition prevention.
Oak Ridge National Laboratories
Award Total $200,551
Project PI: A. O'Toole


2014-2020   Sparse heterogeneous representations and domain adaptive
matching for unconstrained face recognition.
*IARPA Janus Program*
Phase I UTD- Award $262,500 Subcontract PI A. J. O'Toole
Phase II UTD-Award $337,500 Subcontract PI A. J. O'Toole
Phase III UTD-Award $225,500 Subcontract PI A. J. O'Toole
Phase IV  UTD-Award $200,000 Subcontract PI A. J. O'Toole
Transition Phase UTD-Award $212,000 Subcontract PI A. J. O'Toole
Project PI Rama Chellappa, University of Maryland


2016-2019   Design and Implementation of Forensic Facial Identification Experts
Test
*National Institute of Justice*
Award Total: $639,450
Project PI A. J. O'Toole

2014-2018   Designing a test of forensic facial identification experts.
*National Institute of Standards and Technology*
11.608 Measurement and Engineering Research and Standards
Award Total $85,000
Project PI: A. J. O'Toole

2014-2016   Automated identity masking: Facial behavioral preservation and
recognition prevention.
Oak Ridge National Laboratories
Award Total $94,524,
Project PI: A. O'Toole

| | |
|---|---|
| 2012-2014 | Person recognition by humans and algorithms using low quality images and video. Combating Terrorism Technical Support/DOD Award total $529,554, PI A. O'Toole |
| 2010-2012 | Biometric recognition performance: Humans versus machines. Technical Support Working Group/DOD Award total $429,907, PI A. O'Toole |
| 2006-2009 | Face recognition performance: Man versus machine. Technical Support Working Group/DOD Award total $485,000, PI A. O'Toole, (Co-PI H. Abdi) |
| 2004-2006 | Evaluating face and person recognition algorithms with human benchmarks. Technical Support Working Group/DOD Award total $325,000, PI A. O'Toole, (Co-PI H. Abdi) |
| 2003-2005 | Benchmarking human face matching performance over changes in photometric conditions Technical Support Working Group/DOD Award total $203,000, PI A. O'Toole, (Co-PI  H. Abdi) |
| 2003-2004 | Person recognition from video using multiple biometric cues (continued). DARPA/ONR Award total $545,000, PI A. O'Toole, (Co-PI H. Abdi) |
| 2000-2003 | Person recognition from video using multiple biometric cues. DARPA/AFOSR Award total $628,000 PI A. O'Toole, (Co-PI H. Abdi) |
| 2000 | Human ID Program Initiative. DARPA Award total $22,000 PI A. O'Toole |
| 1998-2000 | Assessing algorithms as computational models for human face recognition. National Institute of Standards and Technology. Award total $150,000, P.I. A. O'Toole |
| 1995-1997 | Natural language as an approach to software generation. Texas Instruments, Award total $50,000 (Role: Co-PI with W. Katz) A perceptual learning theory of the information in faces. |
| 1994-1999 | NIMH, Award total $480,000, PI  A. O'Toole |
| 1994 | Laboratory instrumentation for research in cognitive science State of Texas Permanent University Fund ($46,000) (Role: Co-PI with Golden, R. M., Abdi, H., Assmann, P., Cauller, L.,) |
| 1992 | A Computational Model of Structure-from-Stereopsis Texas Instruments ($15,000) (PI A. O'Toole) |
| 1990 | Laboratory Instrumentation for Applied Cognition & Neuroscience Master's Program State of Texas Permanent University Fund ($85,000) (Role: Co-PI with Dowling, W.J., Abdi, H., Assmann, P., Bartlett, J.) |

**PROFESSIONAL SERVICE**

**COURSES TAUGHT:**
**Undergraduate**
> Experimental Projects, Perception, Cognitive Science, (standard version and University Honors Course version), Strategies of Research, Experimental Projects

**Graduate**
> Perception, Cognitive Science, Seminar in Face Processing

**POSTDOCTORAL AND GRADUATE STUDENTS SUPERVISED (last 15 years):**
Matthew Hill (Ph.D., expected 2023)
Connor Parde (Ph.D., expected 2023)
Geraldine Jeckeln (Ph.D., expected 2023)
James Ryland (Ph.D., 2021) (with R. Golden)
Ying Hu (Ph.D., 2021). Assistant Prof., Chinese Academy of Sciences
Asal Baragchizadeh (Ph.D., 2021) American Airline, data analyst.
Jacqueline Castro (Ph.D., 2020) Post-doctoral fellow, University of California-Irvine.
Eilidh Noyes (postdoctoral supervision at UT-Dallas) lecturer at University of Huddersfield, U.K.).
Amanda Carina Hahn (Ph.D., 2018). National Institute of Standards and Technology
Vaidehi Natu-Wasson (Ph.D., 2012), Post-doctoral fellow. Stanford University, 2013-2017. Now at University of Texas Southwestern Medical School, 2017-present.
Fang Jiang (Ph.D., 2007), Associate Prof. at University of Nevada, Reno.
Dana Roark (Ph.D., 2007), Instructor at The University of Texas at Dallas.
Nicolas Furl (M.S., 2005), Lecturer, Royal Halloway University, London, 2014-present.
Abhijit Narvekar (M.S., 2007), Research scientist, Alcon Labs, 2007-present.