

# **Curriculum Vitae**

Adam R. Aron, Ph.D.

*Prepared 5 May 2012*

## **CURRENT ADDRESS**

Department of Psychology  
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## **EDUCATION**

1999-2003: PhD., Cognitive Neuroscience, University of Cambridge, UK  
1996-1997: MSc, Cognitive Science, University of Edinburgh, UK  
1991-1994: BSc, Biochemistry/Philosophy, University of Cape Town, South Africa

## **EMPLOYMENT**

2011: Associate Prof., Dept. Psychology, University of California, San Diego  
2006-2011 Assistant Prof., Dept. Psychology, University of California, San Diego  
2003-2006: Postdoctoral Fellow, Dept. Psychology, University of California, Los Angeles  
1998-1999: Research Assistant, Dept. Experimental Psychology, University of Cambridge

## **DOCTORAL THESIS**

The neural basis of inhibitory functions in executive control  
*Advisors: Trevor Robbins and Barbara Sahakian*

## **RESEARCH INTERESTS**

Cognitive control/executive function  
Stopping, switching, working memory, emotional and motivation regulation  
Prefrontal cortex and basal ganglia  
Functional and structural magnetic resonance imaging of the brain  
Electrocorticography and encephalography  
Human lesion methodology, Deep Brain Stimulation and Transcranial Magnetic Stimulation  
Huntington's disease, ADHD, Tourette's and other impulse control disorders

## **AWARDS AND HONORS**

2012: Young Investigator Award, Cognitive Neuroscience Society  
2008: NARSAD Young Investigator Award (\$60 000)  
2008: Alfred P Sloan Foundation Fellowship (\$50 000)  
2006: UCLA Chancellor's Award for Postdoctoral Research  
2005: Travel Award – Organization for Human Brain Mapping  
2004: Travel Award – Society for Neuroscience and UCLA chapter  
2003: Travel Award – Brain (Oxford University Press)  
2001: Travel Award – Organization for Human Brain Mapping

1999-2003: PhD studentship – UK Medical Research Council  
1996: Harry Crossley Bursary for Overseas Study - University of Cape Town

## **GRANTS AND CONTRACTS**

### CURRENT

2009-2014. NIH, DA026452

Principal Investigator

Direct costs: \$1,231,767

*Fronto-basal-ganglia circuits for selective stopping and braking*

2009-2012. NSF, 0921168

Principal Investigator

Direct Costs: \$406,825

*Evaluating a Fronto-Basal-Ganglia White-Matter Network for Behavioral Stopping in Lesion Patients*

2011-2012. CHDI

Principal Investigator

Direct Costs: \$45,838

*Establishing the best longitudinal MRI biomarkers in premanifest Huntington's disease: analysis of multimodal data.*

2012-2013. Tourette's Syndrome Association

Co-Principal Investigator (PI: Chiu)

Direct Costs: \$75,000

*Using real-time fMRI in Tourette Syndrome.*

2012-2013. Kavli Institute of Mind and Brain

Co-Principal Investigator (PI: Wessel)

Direct Costs: \$30,000

*Parsing brain networks for self-control using simultaneous fMRI and EEG.*

### COMPLETE

2008-2010. CHDI

Principal Investigator

Direct Costs: \$501,323

*Longitudinal assessment of frontostriatal activation in patients with presymptomatic Huntington's disease*

2008-2010. NARSAD

Principal Investigator

Direct Costs: \$60,000

*Neuropsychiatric effects of deep brain stimulation in patients with Parkinson's disease: a model for hypomania?*

2007-2008. UCSD Academic Senate

Principal Investigator

Direct Costs: \$9,476

*Studying control functions in patients with frontal lobe damage*

2008-2009 UCSD Academic Senate

Principal Investigator

Direct Costs: \$10,460

*A functional magnetic resonance imaging study of the right inferior frontal cortex*

## PUBLICATIONS

*\*denotes senior author paper with my students or postdocs*

Chiu YC, **Aron AR**, Verbruggen F (in press). Response suppression by automatic retrieval of stimulus-stop association: evidence from Transcranial Magnetic Stimulation *J Cogn Neurosci*.

Ghahremani D, Lee B, Robertson C, Tabibinia G, Morgan A, De Shetler N, Brown A, Monterosso K, **Aron AR**, Poldrack RA, London ED (in press). Striatal dopamine D2/D3 receptors mediate response inhibition and related activity in fronto-striatal neural circuitry in humans. *J Neurosci*

Cai W, George J, Chambers C, Verbruggen F, **Aron AR\*** (2012). The role of the right presupplementary motor area in stopping action: two studies with event-related Transcranial Magnetic Stimulation *J Neurophysiol*

Aron AR, Obeso J (2012). Editorial: Is executive control used to compensate for involuntary movements in levopopa induced dyskinesia? *Movement Disorders*

Seibert T, Majid DSA, **Aron AR**, Corey-Bloom J, Brewer JB (2012). Stability of resting fMRI interregional correlations analyzed in subject-native space: a one-year longitudinal study in healthy adults and premanifest Huntington's disease. *Neuroimage*

Majid, D.S.A., Cai W, George, J., Verbruggen F, **Aron, A.R\*** (2012). Transcranial Magnetic Stimulation reveals dissociable mechanisms for global versus selective corticomotor suppression underlying the stopping of action. *Cerebral Cortex*

Greenhouse I, Oldenkamp C, **Aron AR\*** (2012). Stopping a response has global or non-global effects on the motor system depending on preparation. *Journal of Neurophysiology*

Cai W, Oldenkamp C, **Aron AR\*** (2011). Stopping speech suppresses the task irrelevant hand. *Brain and Language*.

Cai W, George JS, Chambers CD, Stokes MG, Verbruggen F, **Aron AR\*** (2011). Stimulating deep cortical structures with the Batwing Coil: how to determine the intensity for Transcranial Magnetic Stimulation using coil-cortex distances. *Journal of Neuroscience Methods*.

Swann NC, Cai W, Conner CR, Pieters TA, Claffey MP, George JS, **Aron AR**, Tandon N (2011). Roles for the pre-supplementary motor area and the right inferior frontal gyrus in stopping action: Electrophysiological responses and functional and structural connectivity. *Neuroimage*.

- Majid D.S.A, **Aron AR**, Thompson W, Sheldon S, Hamza S, Stoffers D, Holland D, Goldstein J, Corey-Bloom J, Dale AM (2011). Basal Ganglia atrophy in prodromal Huntington's disease is detectable over one year using automated segmentation. *Movement Disorders*
- Cai W, Oldenkamp C, **Aron A.R\*** (2011). A proactive mechanism for selective suppression of response tendencies. *Journal of Neuroscience*.
- Swann, N., Poizner, H., Houser, M., Gould, S., Greenhouse, I., Cai, W., Strunk, J., George, J. & **Aron, A.R\***. (2011) Deep brain stimulation of the subthalamic nucleus alters the cortical profile of response inhibition in the beta frequency band: a scalp EEG study in Parkinson's disease. *Journal of Neuroscience*.
- Tabibnia G, Monterosso J, Baicy K, **Aron AR**, Poldrack RA, Chakrapani S, Lee B, London ED (2011). Different forms of self-control share a neurocognitive substrate. *Journal of Neuroscience*
- Majid, D.S.A., Stoffers, D., Sheldon, S., Hamza, S., Thompson, W.K., Goldstein, J., Corey-Bloom, J. & **Aron, A.R\***. (2011) Automated structural imaging analysis detects premanifest Huntington's disease neurodegeneration within one year. *Movement Disorders*.
- Greenhouse I, Gould S, Houser M, Hicks G, Gross J, **Aron AR\*** (2011). Stimulation at dorsal and ventral electrode contacts targeted at the subthalamic nucleus has different effects on motor and emotion functions in Parkinson's disease. *Neuropsychologia*.
- Gupta N, **Aron AR\*** (2011). Urges for food and money spill over into motor system excitability before action is taken. *European Journal of Neuroscience*
- Aron, A.R** (2010). From proactive to reactive and selective control: developing a richer model for stopping inappropriate responses. *Biological Psychiatry*.
- Verbruggen F, **Aron AR**, Stevens M, Chambers C (2010). Theta burst stimulation dissociates attention and action updating in human inferior frontal cortex". *Proceedings of the National Academy of Sciences, USA*. [Epub ahead of print]
- Congdon E, Mumford J, Cohen J, Galvan A, **Aron AR**, Xue G, Miller E, & Poldrack RA (2010). Engagement of large-scale networks is related to individual differences in inhibitory control. *NeuroImage*. [Epub ahead of print]
- Rizk-Jackson A, Stoffers D, Sheldon S, Kuperman J, Dale A, Goldstein J, Corey-Bloom J, Poldrack RA, **Aron AR\*** (2010). Evaluating imaging biomarkers for neurodegeneration in presymptomatic Huntington's disease using machine learning techniques. *Neuroimage*
- Stoffers D, Sheldon S, Kuperman J, Goldstein J, Corey-Bloom J, **Aron AR\*** (2010) Contrasting grey- and white matter changes in preclinical Huntington's disease: an MRI study. *Neurology*, Apr 13;74(15):1208-16.
- Claffey M, Sheldon S, Stinear CM, Verbruggen F, **Aron AR\*** (2010). Having a goal to stop action is associated with advance control of specific motor representations. *Neuropsychologia*, Jan;48(2):541-8
- Swann, N., Tandon, T., Canolty, R., Ellmore, T., McEvoy, L., Dreyer, S., M, D., & **Aron, A. R\*** (2009). Intracranial EEG reveals a time- and frequency-specific role for the right inferior frontal gyrus and primary motor cortex in stopping initiated responses. *Journal of Neuroscience*, 7(29) 40:12675-85
- Jahfari, S., Stinear, C. M., Claffey, M., Verbruggen, F., & **Aron AR\*** (2009). Responding with restraint: what are the neurocognitive mechanisms? *Journal of Cognitive Neuroscience*

- Aron, A. R.,** & Verbruggen, F. (2008). Stop the presses: dissociating a selective from a global mechanism for stopping. *Psychological Science, 19*(11), 1146-1153.
- Xue, G., **Aron, A. R.,** & Poldrack, R. A. (2008). Common neural substrates for inhibition of spoken and manual responses. *Cerebral Cortex, 18*(8), 1923-1932.
- Aron, A. R.** (2008a). Progress in Executive Function Research: From tasks to functions to regions to networks. *Current Directions in Psychological Science.*
- Aron, A. R.** (2008b). Introducing a special issue on stopping action and cognition. *Neuroscience and Biobehavioral Reviews*
- Tohka, J., Foerde, K., **Aron, A. R.,** Tom, S. M., Toga, A. W., & Poldrack, R. A. (2008). Automatic independent component labeling for artifact removal in fMRI. *Neuroimage, 39*(3), 1227-1245.
- Huddy, V. C., **Aron, A. R.,** Harrison, M., Barnes, T. R., Robbins, T. W., & Joyce, E. M. (2008). Impaired conscious and preserved unconscious inhibitory processing in recent onset schizophrenia. *Psychological Medicine, 1*-10.
- Clark, L., Blackwell, A. D., **Aron, A. R.,** Turner, D. C., Dowson, J., Robbins, T. W., & Sahakian, B. J. (2007). Association between response inhibition and working memory in adult ADHD: a link to right frontal cortex pathology? *Biological Psychiatry, 61*(12), 1395-1401.
- Aron, A. R.** (2007). The neural basis of inhibition in cognitive control. *Neuroscientist, 13*(3), 214-228.
- Aron, A. R.,** Behrens, T. E., Smith, S., Frank, M. J., & Poldrack, R. A. (2007). Triangulating a cognitive control network using diffusion-weighted magnetic resonance imaging (MRI) and functional MRI. *Journal of Neuroscience, 27*(14), 3743-3752.
- Aron, A. R.,** Durston, S., Eagle, D. M., Logan, G. D., Stinear, C. M., & Stuphorn, V. (2007). Converging evidence for a fronto-basal-ganglia network for inhibitory control of action and cognition. *Journal of Neuroscience, 27*(44), 11860-11864.
- Aron, A. R.,** & Poldrack, R. A. (2006). Cortical and subcortical contributions to Stop signal response inhibition: role of the subthalamic nucleus. *Journal of Neuroscience, 26*(9), 2424-2433.
- Rodriguez, P. F., **Aron, A. R.,** & Poldrack, R. A. (2005). Ventral-striatal/nucleus-accumbens sensitivity to prediction errors during classification learning. *Human Brain Mapping.*
- Monterosso, J. R., **Aron, A. R.,** Cordova, X., Xu, J., & London, E. D. (2005). Deficits in response inhibition associated with chronic methamphetamine abuse. *Drug and Alcohol Dependence.*
- Aron, A. R.,** Gluck, M. A., & Poldrack, R. A. (2005). Long-term test-retest reliability of functional MRI in a classification learning task. *Neuroimage.*
- Aron, A. R.,** & Poldrack, R. A. (2005). The cognitive neuroscience of response inhibition: relevance for genetic research in attention-deficit/hyperactivity disorder. *Biological Psychiatry, 57*(11), 1285-1292.
- Aron, A. R.,** Monsell, S., Sahakian, B. J., & Robbins, T. W. (2004). A componential analysis of task-switching deficits associated with lesions of left and right frontal cortex. *Brain, 127,* 1561-1573.
- Aron, A. R.,** Shohamy, D., Clark, J., Myers, C., Gluck, M. A., & Poldrack, R. A. (2004). Human midbrain sensitivity to cognitive feedback and uncertainty during classification learning. *Journal of Neurophysiology, 10,* 10.
- Aron, A. R.,** Robbins, T. W., & Poldrack, R. A. (2004). Inhibition and the right inferior frontal cortex. *Trends in Cognitive Sciences, 8*(4), 170-177.

- Aron, A. R.**, Watkins, L., Sahakian, B. J., Monsell, S., Barker, R. A., & Robbins, T. W. (2003). Task-set switching deficits in early-stage Huntington's disease: implications for basal ganglia function. *Journal of Cognitive Neuroscience*, *15*(5), 629-642.
- Aron, A. R.**, Fletcher, P. C., Bullmore, E. T., Sahakian, B. J., & Robbins, T. W. (2003). Stop-signal inhibition disrupted by damage to right inferior frontal gyrus in humans. *Nature Neuroscience*, *6*(20), 115-116.
- Aron, A. R.**, Schlaghecken, F., Fletcher, P. C., Bullmore, E. T., Eimer, M., Barker, R., Sahakian, B. J., & Robbins, T. W. (2003). Inhibition of subliminally primed responses is mediated by the caudate and thalamus: evidence from functional MRI and Huntington's disease. *Brain*, *126*(Pt 30), 713-723.
- Aron, A. R.**, Sahakian, B. J., & Robbins, T. W. (2003). Distractibility during selection-for-action: differential deficits in Huntington's disease and following frontal lobe damage. *Neuropsychologia*, *41*(922639095), 1137-1147.
- Aron, A. R.**, Dowson, J., Sahakian, B. J., & Robbins, T. W. (2003). Methylphenidate improves response inhibition in adults with Attention Deficit/Hyperactivity Disorder. *Biological Psychiatry*, *54*, 1465-1468.
- Turner, D. C., Robbins, T. W., Clark, L., **Aron, A. R.**, Dowson, J., & Sahakian, B. J. (2003). Relative lack of cognitive effects of methylphenidate in elderly male volunteers. *Psychopharmacology*, *168*(4), 455-464.
- Turner, D. C., Robbins, T. W., Clark, L., **Aron, A. R.**, Dowson, J., & Sahakian, B. J. (2002). Cognitive enhancing effects of modafinil in healthy volunteers. *Psychopharmacology*, *165*(3), 260-269.

#### **AD HOC REVIEWER**

American Journal of Psychiatry; Archives General Psychiatry; Brain; Cerebral Cortex; Current Directions in Psychological Science; European Journal of Neuroscience; Exp Brain Research; Human Brain Mapping; Journal of Cognitive Neuroscience; Journal of Neurophysiology; Journal of Neurology Neurosurgery and Psychiatry; Journal of Neuroscience; Nature Neuroscience; Neuroimage; Neuron; Neuropsychologia; Neuropsychopharmacology; New York Academy of Sciences; PNAS; Psychological Medicine; Psychological Science; Psychological Review; Science; Trends in Cognitive Sciences.

#### **PROFESSIONAL DUTIES**

Scientific Advisory Board for Tourette's Syndrome Association (2011, 2012)  
 Editorial Advisory Board for Neuropsychologia (2007-current)  
 Grant Reviewer, National Science Foundation  
 Grant Reviewer, FWO Vlaanderen  
 Grant Reviewer, Netherlands Organization for Scientific Research, NWO  
 Grant Reviewer (Ad Hoc) NIH Study Sections, 2010, 2012x2

#### **PROFESSIONAL SOCIETIES**

Cognitive Neuroscience Society  
 Society for Neuroscience  
 Organization for Human Brain Mapping

## **POSTDOCTORAL FELLOWS AND GRADUATE STUDENTS**

### *Postdoctoral Fellows*

Jan Wessel, Ph.D, 2011-current

Yu-Chin Chiu, Ph.D, 2010-current

Weidong Cai, Ph.D, 2009-2012

Nitin Gupta, Ph.D, 2009-2010 (now postdoc at NIH)

Diederick Stoffers, Ph.D, 2008-2009 (now postdoc at Netherlands Inst. of Neuroscience)

### *Graduate Students*

Nicole Swann, M.A, 2007-current, Neuroscience Graduate Program, funded by NSF fellowship, NSF Socrates Fellowship, INC NIH training grant fellowship

Adnan Majid, B.S, 2009-current, Medical Student Training Program and Neuroscience Graduate Program, funded by NRSA (F31) predoctoral fellowship

Ian Greenhouse, B.A, 2007-current, Psychology Graduate Program, funded by INC NIH training grant fellowship.

Scott Freeman, BA, 2011-current, Psychology Graduate Program.

## **OTHER SUPERVISION**

### *Honors student projects*

Carol Lee, 2011-current

Caitlin Oldenkamp, 2010-2011

Sarah Sheldon, 2009-2010

Veronique Boucquey, 2008-2009 (now graduate student at UC Irvine)

### *199 volunteers (one or two quarters)*

Melissa Aguilar, Aiyana Bailin, Matt Johnson; Samar Hamza; Laura Vergel De Dios; Derek Huffman; Patti Shih; Minya Koruga; Caitlin Oldenkamp; Jon Strunk; Veronique Boucquey; Sarah Sheldon; Melissa Aguilar

### *Rotating UCSD Neuroscience Graduate Students*

Nicole Swann; Adnan Majid; Sirawaj Itthipurapat; Rachel Mak-McCully, Erik Kaestner

### *STARS minority program*

Gabriela Seropian, 2010, San Jose State

### *Visiting grad students*

Danielle De Weld, 2007 (6 months), University of Leiden, Netherlands

Sarah Jahfari, 2008 (6 months), University of Amsterdam, Netherlands

## **TEACHING**

Psyc108: *Undergraduate*, 'Introduction to Cognitive Neuroscience', 2007-12

Psyc193: *Undergraduate*, 'Cognitive control and the frontal lobe', 2007,09,11

Psyc272: *Graduate*, 'Impulsivity', 2010

Psyc272: *Graduate*, 'The role of the basal ganglia in action and cognition', 2008, 2012

Cogs200: *Graduate*, 'The cognitive neuroscience of motivation and emotion', 2011

## **UNIVERSITY SERVICE**

Steering committee, Keck Center for functional MRI, 2007-current

Psychology Department Colloquium Committee, 2011-current  
Organizer Cog Neuroscience Brownbag and Cog Neural Systems Seminar, 2008-current  
Sensation and Perception Search Committee, 2008  
Participant in Sustainability Across the Curriculum Workshop, Spring 2007  
Organizer of UCSD Workshop “Translational Aspects of Stopping”, 2007, 2010  
Neuroscience Graduate Program Thesis committee for Sarah Israel (2007-2010), Sam Nummella (2008), Nicki Swann (2007-), Adnan Majid (2010-), Emilie Schwager (2011, 2012).  
Psychology Graduate Program Qualifying committee or Thesis member for Tiffany Ho (2010), Ian Greenhouse (2010-current), Stephanie Carmack (2012), Galit Hoffree (2012), Mike Claffey (2010);

## **INVITED ADDRESSES**

*2012*

Magstim workshop on Transcranial Magnetic Stimulation – University of Oxford, UK  
NIMH Center on Executive Function & Dysfunction – University of Colorado, Boulder

*2011*

Department of Psychology – University of California Santa Barbara  
Colloquium – Department of Psychology - UCSD  
University of Michigan, Ann Arbor

*2010*

Donders Institute for Brain, Cognition and Behavior - Nijmegen, Netherlands  
Department of Psychology - University of Amsterdam - Netherlands  
UCSD Neuroscience retreat, Lake Arrowhead, California  
Dept of Psychiatry, Schwarz Symposium – Yale University  
Dept of Psychological and Brain Sciences – Johns Hopkins

*2009*

Tourette’s Syndrome Association - New York  
Merck Neuroscience Seminar series – UCSD

*2008*

Grand Rounds in Neurology – UCSD  
University of Texas Medical School at Houston

*2007*

UCSD Neuroscience retreat, Lake Arrowhead, California  
Scripps Green Hospital – San Diego  
Scripps Research Institute – San Diego  
UCSD Psychiatry Dept

*2006*

Cognitive Forum - UCLA  
Dept of Psychology - University of California, Berkeley  
Dept of Psychology - University of Arizona

*2005*

Grand Rounds – Veterans Administration W. Los Angeles  
UC Irvine  
Amsterdam Conference on Cognitive Control - Netherlands

*2004*

Advancing the Neuroscience of ADHD – Boston  
Ahmanson-Lovelace Brain Mapping Center Seminar Series –UCLA

