

# Ramakrishna Chakravarthi

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## Education

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| 2009-   | Centre de Recherche Cerveau et Cognition, CNRS, Toulouse, France<br>Post Doctoral Fellow; <i>Advisor</i> : Dr. <b>Rufin VanRullen</b><br>Project: Neural mechanisms in attention, and neural representation of objects using single trial EEG analysis |
| 2007-09 | New York University, New York NY<br>Post Doctoral Fellow; Psychology and Neural Science; <i>Advisor</i> : Prof. <b>Denis Pelli</b><br>Project: The role of Gestalt laws in feature integration; Perceptual factors in reading.                         |
| 2002-07 | Harvard University, Cambridge MA<br>PhD in Psychology: Cognition, Brain and Behavior; <i>Advisor</i> : Prof. <b>Patrick Cavanagh</b><br>Thesis: Mechanisms of Visual Crowding: The Role of Attention   |
| 1999-01 | Birla Institute of Technology and Science, Pilani, India<br>M.S. in Consciousness Studies; Passed with Distinction<br>Dissertation: On the Timing of Conscious Experience: <i>A Critical Review of Libet's Work</i>                                    |
| 1993-99 | Manipal Academy of Higher Education, Manipal, India<br>M.B., B.S. (Bachelor of Medicine, Bachelor of Surgery); Passed with Distinction   |

## Grants and Funding

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| 2006-07 | Graduate Society Dissertation Completion Fellowship, Harvard University, \$ 18,000 |
| 2007    | Stimson Travel Grant for presenting at VSS conference 2007, \$ 500                 |
| 2006    | McMasters Travel Grant for presenting at VSS conference 2006, \$ 500               |
| 2005    | Graduate Society Fellowship Summer Award, Harvard University, \$ 3,000             |
| 2004    | Mind, Brain and Behavior Graduate Student Award, Harvard University, \$ 5,000      |
| 2003-04 | Harvard University Graduate Summer Awards, \$ 3,000/yr                             |
| 2002-07 | Harvard University GSAS Merit Fellowship, \$ <b>70,000</b>                         |
| 2000-01 | Sir Ratan Tata Trust Scholarship for the M.S. Program, INR 15,000                  |

## Awards and Prizes

2005	Certificate of Distinction in Teaching, Harvard University
1996	Dr. M.N. Guruswamy Prize for standing first in Pharmacology in M.B., B.S.
1995	Manoj Salian Memorial Prize for standing second in First M.B., B.S.
1993	15 <sup>th</sup> rank in engineering and 30 <sup>th</sup> rank in medical Common Entrance Test, Karnataka, India

## Current Projects

EEG	Decoding neural representations of object features
EEG/TMS	The causal role of gamma-theta interactions in Visual Short Term Memory
Crowding	Gestalt laws in crowding; crowding subitization; crowding in schizophrenia

## Teaching Experience

2010-11	Mentored 2 Masters students and currently mentoring a third: 3-month research internships, CNRS, France
2004-06	<u>Fall</u> : Teaching Fellow, The Evolution of Human Nature. Taught by Professors Marc Hauser and Richard Wrangham, Harvard University; <b>2 semesters</b> <u>Spring</u> : Teaching Fellow, The Human Mind. Taught by Professor Steven Pinker, Harvard University; <b>2 semesters</b>

## Professional Affiliations

Vision Sciences Society  
Karnataka Medical Council, India  
European Conference on Visual Perception

## Reviewer

Ad hoc	Attention, Perception and Psychophysics Journal of Cognitive Neuroscience Journal of Experimental Psychology: Human Perception and Performance Journal of Vision Vision Research
Review editor	Frontiers in Consciousness Research

## Publications

Freeman, J., **Chakravarthi, R.**, and Pelli, D. G. (in press). Compulsory pooling of crowded objects., *Attention, Perception and Psychophysics*.

**Chakravarthi, R.** and Pelli, D. G. (2011). The same binding in contour integration and crowding, *Journal of Vision*. 11 (8): 10, 1-12

**Chakravarthi, R.** and VanRullen, R. (2011). Bullet trains and steam engines: Exogenous attention zips but endogenous attention chugs along, *Journal of Vision*. 11 (4): 12, 1-12

**Chakravarthi, R.** and Cavanagh, P. (2009). Recovery of a crowded object by masking the distracters: Determining the locus of feature integration, *Journal of Vision*. 9 (10): 4, 1-9

**Chakravarthi, R.** and Cavanagh, P. (2009). Bilateral field advantage in visual crowding, *Vision Research*, 49 (13): 1638-1646.

Vickery, T. J., Shim, W. M., **Chakravarthi, R.**, Jiang, Y. V., and Luedeman, R. (2009). Supercrowding: Weakly masking a target expands the range of crowding, *Journal of Vision*, 9 (2): 12, 1-15.

**Chakravarthi, R.** and Cavanagh, P. (2007). Temporal properties of the polarity advantage effect in crowding, *Journal of Vision*, 7 (11): 1-12.

**Ramakrishna, C.** (2002). Real latencies and facilitation, *Consciousness and Cognition*, 11(2): 300-303.

## Manuscripts in progress

**Chakravarthi, R.** and VanRullen, R. (in preparation). Deployment of attention is a rhythmic process.

**Chakravarthi, R.**, Carlson, T. A., and VanRullen, R. (in preparation). Locations of 1<sup>st</sup> and 2<sup>nd</sup> order objects are represented in the same way but at different times, as revealed by single-trial decoding of EEG signals.

# Conference Presentations

**Chakravarthi, R.**, Carlson, T. A., Chaffin, J., Turret, J. and VanRullen, R. (2011). O brother, where art thou? Locations of 1<sup>st</sup> and 2<sup>nd</sup> order objects are represented in the same way but at different times, as revealed by single-trial decoding of EEG signals. Talk to be presented at the European Conference on Vision and Perception, Toulouse, France.

**Chakravarthi, R.** and VanRullen, R. (2011). Attention is a state of mind: Phase of ongoing EEG oscillations predicts the timing of attentional deployment. Poster presented at the 10<sup>th</sup> annual meeting of Vision Sciences Society, Naples.

Rosen, S., **Chakravarthi, R.**, and Pelli, D. G. (2010). Crowding is grouping. Talk presented at the 11<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

Rosen, S., **Chakravarthi, R.**, and Pelli, D. G. (2010). Grouping is fundamental to object recognition. Talk presented at the European Conference on Vision and Perception, Lausanne, Switzerland.

**Chakravarthi, R.** and Rosen, S. (2010). Pool party: Admit one. Talk presented at the 14<sup>th</sup> annual meeting of Association for the Scientific Study of Consciousness, Toronto, Canada.

**Chakravarthi, R.** and VanRullen, R. (2010). Beam me up Scotty! Exogenous attention teleports but endogenous attention takes the shuttle. Talk presented at the 10<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

Pelli, D. G., Freeman, J., and **Chakravarthi, R.** (2010). Crowding combines. Talk presented at the 10<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

Rosen, S., **Chakravarthi, R.**, and Pelli, D. G. (2010). Pool party, objects rule! Poster presented at the 10<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

Granata, Y., **Chakravarthi, R.**, Rosen, S., and Pelli, D. G. (2010). Size pooling. Poster presented at the 10<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

**Chakravarthi, R.**, Tillman, K., and Pelli, D. G. (2009). Features used or features available? Talk presented at the 9<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

Veenemans, A., Cavanagh, P., and **Chakravarthi, R.** (2009). Crowding by invisible flankers. Poster presented at the 9<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

**Chakravarthi, R.** and Pelli, D. G. (2008). What role does contour integration play in crowding? Talk presented at the 8<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

Rosen, S., **Chakravarthi, R.**, and Pelli, D. G. (2008). Nasotemporal asymmetry in crowding. Talk presented at the 8<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

Vickery, T. J., Shim, W. M., Jiang, Y. V., **Chakravarthi, R.**, and Luedeman, R. (2008). Supercrowding: Weakly masking a target greatly enhances crowding. Talk presented at the 8<sup>th</sup> annual meeting of Vision Sciences Society, Naples, FL.

Chatterjee, G. and **Chakravarthi, R.** (2008). Characterization of flickering-flanker induced blindness phenomenon. Poster presented at ECVF 2008, Utrecht, Netherlands.

**Chakravarthi, R.**, Rajagopal, A.K., and Usha Devi, A. R. (2008). Quantum mechanical basis of vision. Talk presented at India-US workshop on Science and Technology at the Nano-Bio Interface, Bhubaneshwar, India.

**Chakravarthi, R.** and Cavanagh, P. (2007). The effect of distracters on enumeration in the periphery. Poster presented at the 7<sup>th</sup> annual meeting of Vision Sciences Society, Sarasota, FL.

**Chakravarthi, R.** and Cavanagh, P. (2006). Hemifield independence in visual crowding. Talk presented at the 6<sup>th</sup> annual meeting of Vision Sciences Society, Sarasota, FL.

**Chakravarthi, R.** and Cavanagh, P. (2005). Temporal properties of the polarity advantage effect in crowding. Poster presented at the 5<sup>th</sup> annual meeting of Vision Sciences Society, Sarasota, FL.

## Invited Talks

2011	Object recognition. Presented at the School of Psychology, University of Aberdeen, Scotland
2011	When one's company, two's a crowd in object recognition. Presented at CerCo day Symposium, Camaran, France
2010	Object recognition and visual attention. Presented at the Center for Brain and Cognitive Sciences, University of Allahabad, India
2007	The role of attention in crowding. Presented at the Visual Attention lab, Harvard Medical School and Brigham & Women's Hospital, Boston.
2007	Mechanisms in Visual Crowding. Presented at the Cognition, Brain and Behavior Research Seminar, Harvard University.
2006	The Resolution of Visual Consciousness. Presented at Mind, Brain, and Behavior Graduate Seminar Series, Harvard University.

## Symposia and Seminars Organized

2011	Mechanisms in crowding and blink: what can they tell us about consciousness? Symposium organized and chaired at the 14 <sup>th</sup> annual meeting of Association for the Scientific Study of Consciousness, Toronto, Canada.
2005-06	Harvard Vision Lab Seminar Series. Organized bi-weekly talks by invited speakers.

## References

1. Patrick Cavanagh  
Professor, Laboratoire Psychologie de la Perception, Université Paris Descartes  
Email: [patrick.cavanagh@parisdescartes.fr](mailto:patrick.cavanagh@parisdescartes.fr)
2. Rufin VanRullen  
CNRS Researcher (DR2), Centre de Recherche Cerveau et Cognition, Université Paul Sabatier  
Email: [rufin.vanrullen@cerco.ups-tlse.fr](mailto:rufin.vanrullen@cerco.ups-tlse.fr)
3. Denis Pelli  
Professor, Psychology and Neural Science, New York University  
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4. Ken Nakayama  
Professor, Department of Psychology, Harvard University  
Email: [ken@wjh.harvard.edu](mailto:ken@wjh.harvard.edu)
5. Thomas Carlson  
Assistant Professor, Department of Psychology, University of Maryland  
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