

David Paul Crabb – Curriculum Vitae

Professor of Statistics and Vision Research,

Department of Optometry and Visual Science,
City University London,
Northampton Square,
London
EC1V 0HB

Telephone: +44 (0)207 040 0191 (Work)
Mobile: +44 (0)7952544295
Email: d.crabb@city.ac.uk
Web: <http://www.staff.city.ac.uk/d.crabb>

Education and Qualifications

1996	City University London.	Ph.D. Statistics / Vision Science
1989	University of Sheffield.	M.Sc. Statistics
1986	Westminster College, University of Oxford.	B.Ed. (Hons) Mathematics Class: 2:1

Recent Employment

02/2010-	Professor
09/2005-	Reader Department of Optometry and Visual Science, City University London.
09/1999 - 09/2005	Lecturer/Senior Lecturer in Statistics. School of Biomedical and Natural Sciences, Nottingham Trent University.
09/1994 – 09/1999	Research Fellow. Institute of Ophthalmology, University College London.

Other Positions

- Honorary Consultant in Visual Science at Moorfields Eye Hospital, London (2006-)
- Leader of the Applied Vision Research Group, City University London (2007-)
- Fellow of the Royal Statistical Society (2000-)

Research Funding

2011 £114,000

Merck Investigator Studies Program

Project Grant (fEC)

Principal Investigator

Title: *Measurements in glaucoma: What matters to the patient?*

2011 £295,000

NIHR Health Services Research (HSR) Program

Project Grant (fEC)

Principal Investigator

Title: *Frequency of visual field testing when monitoring patients newly diagnosed with glaucoma*

2010 £35,000

Allergan Inc., Irvine CA, US.

Unrestricted donation to research laboratory (Not fEC)

Principal investigator

2010 £245,000 (from a total of £1,480,000)

US National Institute for Health (NIH)

Project Grant (part fEC)

Co-Investigator with Dr B. Swanson (University of Indiana, US)

Title: *Application of Psychophysical Models to Visual Disorders*

Grant Number: NIH 2R01EY007716 - 19A2

2009 £21,216

International Glaucoma Association

Project Grant (Charity)

Principal Investigator

Title: *How does glaucoma look?*

2009 £47,000

NHS Moorfields Eye Hospital Special Trustees.

Project grant (Charity)

Principal Investigator

Title: *Visual impairment and Quality of Life in glaucoma*

2009 £40,000

Emerald Fund Standard Grant, London Development Agency.

Project grant (not fEC)

Principal Investigator

Title: *eyeVisor: a comprehensive portable visual function testing system*

2009 £32,624 (from a total of £349,856)

NIHR Health Technology Assessment (HTA) Programme

Project grant (fEC)

Co-Investigator with Dr J. Burr (University of Aberdeen)

Title: *Optimal Surveillance Regimes for Individuals with Ocular Hypertension (OHT):*

Modelling and economic evaluation.

2009 £19,726 (from a total of £390,988)

Medical Research Council (MRC)

Platform IES grant (fEC)

Co-Investigator with Dr J. Burr (University of Aberdeen)

Title: *Developing the intervention & outcome components of a proposed RCT of screening for open angle glaucoma (OAG).*

- 2009 £20,000**
Allergan Inc., Irvine CA, US.
Unrestricted donation to research laboratory (Not fEC)
Principal investigator
- 2008 £68,427**
Pfizer Inc., New York, US.
Independent Investigator Research Grant (fEC)
Principal Investigator
Title: Visual disability in glaucoma
- 2008 £58,646**
NHS New and Emerging Applications of Technology (NEAT) Awards
Project grant (fEC)
Principal Investigator
Title: Detecting Glaucoma: PC based perimetry.
- 2008 £77,100 (from a total of £156,145)**
UK Guide Dogs for the Blind Association.
Project grant (Charity)
Co-Investigator with Professor S Vernon (University of Nottingham)
Title: Biological shape analyses of optic nerve head images
- 2007 £18,000**
Optovue Inc. Fremont, CA, US.
Unrestricted donation to research laboratory (not fEC)
Principal investigator
- 2007 £83,300**
Pfizer Inc., New York.
Unrestricted funding (not fEC)
Principal Investigator with Mr. D. Garway-Heath (Moorfields Eye Hospital)
Title: Integration of longitudinal visual field and imaging data from the UKGTS
- 2005 £184,000**
NHS Moorfields Eye Hospital Special Trustees.
Project grant (Charity)
Principal Investigator
Title: Measurement techniques and information systems in visual science
- 2005 £63,800**
Heidelberg Engineering, Germany.
Unrestricted funding (not fEC)
Principal Investigator with Mr. D. Garway-Heath (Moorfields Eye Hospital)
Title: Improving the analysis of HRT data in glaucoma

Peer Reviewed Published Papers

2008-Present

Zhu, H., **Crabb, D.P.**, Fredette, M.J., Anderson, D.R., and Garway-Heath DF. (2011). Quantifying discordance between structure and function measurements in the clinical assessment of glaucoma. *Arch Ophthalmol.* (in press).

Zhu, H., **Crabb, D.P.**, Schlottmann, P.G., Wollstein, G. and Garway-Heath DF. (2011). Aligning scan acquisition circles in optical coherence tomography images of the retinal nerve fibre layer. *IEEE Trans Med Imaging.* 30(6):1228-38.

Smith, N.D., **Crabb, D.P.**, and Garway-Heath, D.F (2011). An exploratory study of visual search performance in glaucoma. *Ophthalmic Physiol Opt.* **31**:225-32.

Bergin, C., Redmond, T.R., Nathwani, N., Verdon-Roe, G.M., **Crabb, D.P.**, Anderson, R.S., and Garway-Heath, D.F (2011). The effect of induced intraocular straylight on perimetric tests. *Invest Ophthalmol Vis Sci* **52**:3676-82.

Crossland, M.D., **Crabb, D.P.**, and Rubin GS. (2011). Task specific fixation behavior in macular disease. *Invest Ophthalmol Vis Sci* **52**:411-6

O'Leary, N., **Crabb, D.P.**, and Garway-Heath, D.F (2010). An *in silico* model of scanning laser tomography image series: an alternative benchmark for the specificity of progression algorithms. *Invest Ophthalmol Vis Sci* **51**:6472-82.

Zhu, H., **Crabb, D.P.**, Schlottmann, P.G., Ho, T. and Garway-Heath DF. (2010). Floating Canvas: quantification of 3D retinal structures from spectral domain optical coherence tomography. *Opt Express* **18**:24595-610.

Zhu, H., **Crabb, D.P.**, Schlottmann, P.G., Lemij, H., Reus, N.J., Healey, P.R., Mitchell, P., Ho, T. and Garway-Heath DF. (2010). Predicting Visual Function from the Measurements of Retinal Nerve Fibre Layer Structure. *Invest Ophthalmol Vis Sci* **51**:5657-66.

Myint, J., Edgar, D.F., Kotecha, A., **Crabb, D.P.**, and Lawrenson JG. (2010). Development of a competency framework for optometrists with a specialist interest in glaucoma. *Eye* 24(9):1509-14

Crabb, D.P., Smith, N.D., Rauscher, F.G., Chisholm, C.M., Barbur, J.L., Edgar, D.F., and Garway-Heath, D.F. (2010). Exploring eye movements in patients with glaucoma when viewing a driving scene. *PLoS One.* **16**;5(3):e9710.

O'Leary, N., **Crabb, D.P.**, Mansberger, S.L., Fortune, B., Twa, M.D., Lloyd, M.J., Kotecha, A., Garway-Heath, D.F., Cioffi, G.A. and Johnson C.A. (2010). Glaucomatous Progression in Series of Stereoscopic Photographs and Heidelberg Retina Tomograph Images. *Arch Ophthalmol.* **128**: 560-568.

Artes, P.H., and **Crabb, D.P.** (2010) Estimating Normative Limits of Heidelberg Retina Tomograph Optic Disc Rim Area with Quantile Regression. *Invest Ophthalmol Vis Sci* **51**: 355-361.

Kotecha, A., **Crabb, D.P.**, Spratt, A., and Garway-Heath (2009). The relationship between diurnal variations in intraocular pressure measurements and central corneal thickness and corneal hysteresis. *Invest Ophthalmol Vis Sci* **50**: 4229-4236.

Wall, M., Johnson, C.A., Kardon, R.H., and **Crabb, D.P.** (2009). Use of a Continuous Probability Scale to Display Visual Field Damage. *Arch Ophthalmol.* **127**: 749-756.

Kotecha, A., O’Leary, N., Melmoth, D., Grant, S., and **Crabb, D.P.** (2009). The functional consequences of glaucoma for eye-hand co-ordination. *Invest Ophthalmol Vis Sci* **50**: 203-213.

Owen, V.M.F., **Crabb, D.P.**, White E.T., Viswanathan, A.C., Garway-Heath, D.F, and Hitchings, R.A. (2008). Glaucoma and fitness to drive: using binocular visual fields to predict a milestone to blindness *Invest Ophthalmol Vis Sci* **49**: 2449-2455.

Bergin, C., Garway-Heath, D.F, and **Crabb, D.P.** (2008) Evaluating the effect of the new alignment algorithm for longitudinal series of Heidelberg retina tomography images. *Acta Ophthalmol* **86**: 207-214.

Before 2008

Strouthidis, N.G., Scott, A., Viswanathan, A.C., **Crabb, D.P.**, and Garway-Heath, D.F. (2007). Monitoring Glaucomatous Visual Field Progression: The Effect of a Novel Spatial Filter. *Invest Ophthalmol Vis Sci* **48**: 251-257.

Owen, V.M.F., Strouthidis, N.G., Garway-Heath, D.F, and **Crabb, D.P.** (2006). Measurement variability in Heidelberg Retina Tomograph imaging of neuroretinal rim area. *Invest Ophthalmol Vis Sci* **47**: 5322-5330.

Strouthidis, N.G., Vinciotti, V., Tucker, A.J., Gardiner, S.K., **Crabb, D.P.**, and Garway-Heath, D.F. (2006). Structure and Function in Glaucoma: The Relationship between a Functional Visual Field Map and an Anatomic Retinal Map. *Invest Ophthalmol Vis Sci* **47**: 5356-5362.

Patterson, A.J., Garway-Heath, D.F, and **Crabb, D.P.** (2006). Improving the repeatability of topographic height measurements in confocal scanning laser imaging using maximum-likelihood deconvolution. *Invest Ophthalmol Vis Sci* **47**: 4415-4421.

Patterson, A.J., Garway-Heath, D.F, Strouthidis, N.G., and **Crabb, D.P.** (2005). A new statistical approach for quantifying change in series of retinal and optic nerve head topography images. *Invest Ophthalmol Vis Sci* **46**: 1659-1667.

Crabb, D.P., and Viswanathan, A.C. (2005). Integrated visual fields: A new approach to measuring the binocular field of view and visual disability. *Graefe’s Arch Clin Exp Ophthalmol* **243**: 210-216.

Crabb, D.P., Fitzke, F.W., Hitchings, R.A and Viswanathan, A.C. (2004). A practical approach to measuring the visual field component of fitness to drive. *Br J Ophthalmol* **88**: 1191-1196.

Gardiner, S.K., **Crabb, D.P.**, Fitzke, F.W. and Hitchings, R.A. (2004). Reducing noise in suspected glaucomatous visual fields by using a new spatial filter. *Vision Research*. **44**: 839-848.

Viswanathan, A.C., **Crabb, D.P.**, McNaught, A.I., Westcott, M.C., Garway-Heath, D.F., Kamal, D.S., Hitchings, R.A. and Fitzke, F.W. (2003). Interobserver agreement on visual field progression in glaucoma: a comparison of methods. *Br J Ophthalmol* **87**: 726-730.

Gardiner, S.K. and **Crabb, D.P.** (2002). Frequency of testing for detecting visual field progression. *Br J Ophthalmol* **86**: 560-564.

Gardiner, S.K. and **Crabb, D.P.** (2002). Examination of different pointwise linear regression methods for determining visual field progression. *Invest Ophthalmol Vis Sci* **43**: 1400-1407.

Crabb, D.P., Fitzke, F.W. and Hitchings, R.A. (1999). Detecting gradual and sudden sensitivity loss in series of visual fields. In *Perimetry Update 1998/1999*. (Eds M.Wall and J.M. Wild) Kugler, Amsterdam. pp. 131-138.

Viswanathan, A.C., McNaught, A.I., Poinoosawmy, D., Fontana, L., **Crabb, D.P.**, Fitzke, F.W. and Hitchings, R.A. (1999). Severity and Stability of Glaucoma: Patient Perception compared with Objective Measurement. *Arch Ophthalmol.* **117**: 450-454.

Edgar, D.F, **Crabb, D.P.**, Rudnicka, A.R., Lawrenson, J.G., Guttridge, N.M. and O'Brien, C.J. (1999). Effects of dipivefrin and pilocarpine on pupil diameter, automated perimetry and LogMAR acuity. *Graefe's Arch Clin Exp Ophthalmol.* **237**: 117-124.

Westcott, M.C., Fitzke, F.W., **Crabb, D.P.** and Hitchings, RA. (1999). Characteristics of frequency-of-seeing curves for a motion stimulus in glaucoma eyes, glaucoma suspect eyes, and normal eyes. *Vision Research.* **39**: 631-639.

Crabb, D.P., Viswanathan, A.C., McNaught, A.I., Poinoosawmy, D., Fitzke, F.W. and Hitchings, R.A. (1998). Simulating binocular visual field status in glaucoma. *Br J Ophthalmol* **82**: 1236-1241.

Crabb, D.P., Fitzke, F.W., McNaught, A.I. and Hitchings, R.A. (1997). A profile of the spatial dependence of pointwise sensitivity across the glaucomatous visual field. In *Perimetry Update 1996/1997*. (Eds M.Wall and A. Heijl), Kugler, Amsterdam, pp. 301-310.

Westcott, M.C., McNaught, A.I., **Crabb, D.P.**, Fitzke, F.W. and Hitchings, RA. (1997). High spatial resolution automated perimetry in glaucoma. *Br J Ophthalmol* **81**: 452-459.

Bhandari, A., **Crabb, D.P.**, Poinoosawmy, D., Fitzke, F.W., Hitchings, R.A and Nouredin, B.N. (1997). Effect of surgery on visual field progression in normal tension glaucoma. *Ophthalmology* **104**: 1131-1137.

McNaught, A.I., **Crabb, D.P.**, Fitzke, F.W. and Hitchings, R.A. (1995). Modelling series of visual fields to detect progression in normal-tension glaucoma. *Graefe's Arch Clin Exp Ophthalmol* **233**: 750-755.

Crabb, D.P., Fitzke, F.W., McNaught, A.I., Edgar, D.F. and Hitchings, RA. (1997). Improving the prediction of visual field progression in glaucoma using spatial processing. *Ophthalmology* **104**: 517-524

McNaught, A.I., **Crabb, D.P.**, Fitzke, F.W. and Hitchings, R.A. (1996). Visual field progression: comparison of Humphrey Statpac2 and pointwise linear regression. *Graefe's Arch Clin Exp Ophthalmol* **234**: 411-418.

Fitzke, F.W., Hitchings, R.A., Poinoosawmy, D., McNaught, A.I. and **Crabb, D.P.** (1996). Analysis of visual field progression in glaucoma. *Br J Ophthalmol* **80**: 40-48.

Crabb, D.P., McNaught, A.I., Fitzke, F.W. and Hitchings, R.A. (1995). Spatially enhanced modelling of sensitivity decay in low tension glaucoma. In *Perimetry Update 1994/1995*. (Eds R.P. Mills and M.Wall), Kugler, Amsterdam, pp73-81.

Crabb, D.P., Edgar, D.F., Fitzke, F.W., McNaught, A.I. and Wynn, H.P. (1995). New approach to estimating the variability in visual field data using an image processing technique. *Br J Ophthalmol.* **79**: 213-217.

Fitzke, F.W., **Crabb, D.P.**, McNaught, A.I., Edgar D.F. and Hitchings, R.A. (1995). Image processing of computerised visual field data. *Br J Ophthalmol* **79**: 207-212.

Rudnicka, A.R., **Crabb, D.P.**, Edgar D.F. and Fitzke F.W. (1993). Pointwise analysis of serial visual fields in normals. In *Perimetry Update 1992/1993*. (Ed R.P. Mills), Kugler, Amsterdam, pp41-48.

Rudnicka, A.R., Steele, C.F., **Crabb, D.P.** and Edgar, D.F. (1992). Repeatability, reproducibility and inter-session variability of the Allergan Humphrey ultrasonic biometer. *Acta Ophthalmol* **70**: 327-334.

Book Chapter

Crabb, D.P. (2009) Visual Fields. In *Glaucoma*. (Eds T. Shaarawy, M.B. Sherwood, R.A. Hitchings and J.G. Crowston) Elsevier, Edinburgh. Ch.10.

Full time PhD students (First supervisor)

- Dr. Stuart Gardiner 2000- 2003
Title: *Statistical methods for the analysis of visual field data in glaucoma*.
Currently:
Assistant Scientist, Devers Eye Institute, Portland USA.
- Dr. Andrew Patterson 2002- 2006
Thesis: *Analysis of retinal images in glaucoma*
Currently:
Research Scientist, Department of Radiology, University of Cambridge.
- Ms. Victoria Owen 2004- Suspended studies
Currently: Medical Statistician, University of Nottingham
- Dr. Haogang Zhu 2005- 2011
Thesis: *Knowledge mining in the clinical assessment of glaucoma*
Currently:
Post Doc Research Assistant , City University London
- Dr. Neil O'Leary 2005- 2011
Thesis: Optic nerve head image analysis for glaucoma progression detection
Currently:
Post Doc Research Assistant, Dalhousie University, Halifax, Canada.
- Ms. Ciara Bergin 2005- Submitting June 2010
- Mr. Nicholas Smith 2005-
- Ms. Robyn Burton 2009-
- Ms. Fiona Glen 2009-