

BIOGRAPHICAL SKETCH

NAME Christopher L. Passaglia, Ph.D.		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i>)			
INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Iowa, Iowa City, IA	B.S.E.	1986-1990	Biomedical Engineering
Syracuse University, Syracuse, NY	Ph.D.	1991-1997	Bioengineering & Neuroscience
Northwestern University, Evanston, IL	Postdoc	1998-2003	Biomedical Engineering

POSITIONS AND HONORS

Employment

- 1989-1990, Undergraduate Research Assistant, Cardiovascular Image Processing Labs, University of Iowa.
Supervisor: David J. Skorton, M.D.
- 1991-1992, Research Assistant, Graduate Student, Bioengineering & Neuroscience, Syracuse University.
Supervisor: Robert L. Smith, Ph.D.
- 1993-1997, Research Assistant, Graduate Student, Bioengineering & Neuroscience, Syracuse University.
Supervisor: Robert B. Barlow, Ph.D.
- 1997, Project Support Specialist, Ophthalmology, State University of New York (SUNY) at Syracuse.
Supervisor: Robert B. Barlow, Ph.D.
- 1998-2003, Postdoctoral Research Fellow, Biomedical Engineering, Northwestern University.
Supervisor: John B. Troy, Ph.D.
- 2004+, Assistant Professor, Biomedical Engineering, Boston University.

Awards and Professional Activities

- 1990-1993, University Fellowship, Syracuse University.
- 1997, The Capranica Award in Neuroethology, The Capranica Foundation.
- 1998, Donald B. Lindsley Prize in Behavioral Neuroscience, Society for Neuroscience/Grass Foundation.
- 1999-2002, Individual National Research Service Award, EY06908-01, National Institutes of Health.
- 2004, Vision Research Award, The Karl Kirchgessner Foundation.
- 2005-2007, Smith Family New Investigator Award, The Medical Foundation.
- 2006-2011, CAREER Award, National Science Foundation
- Ad hoc reviewer (past 2 years) for Annals of Biomedical Engineering, BMC Neuroscience, IEEE Transactions on Neural Systems & Rehabilitation Engineering, Image and Vision Computing, Visual Neuroscience.

PUBLICATIONS

Manuscripts

- Freeman DK, Heine WF, **Passaglia CL** (under review) The maintained discharge of rat retinal ganglion cells.
Submitted to Visual Neuroscience
- Troy JB, Bohnsack DL, Chen J, Guo X, **Passaglia CL** (2005) Spatiotemporal integration of light by the cat X-cell center under photopic and scotopic conditions. *Visual Neuroscience* 22:493-500.
- Passaglia CL**, Troy JB (2004) Impact of noise on retinal coding of visual signals. *Journal of Neurophysiology* 92:1023-1033.

- Passaglia CL**, Troy JB (2004) Information transmission rates of cat retinal ganglion cells. *Journal of Neurophysiology* 91:1217-1229.
- Passaglia CL**, Guo X, Chen J, Troy JB (2004) Tono-Pen XL calibration curves for cat, cow, and sheep. *Veterinary Ophthalmology* 7:261-264.
- Passaglia CL**, Troy JB, Rüttiger L, Lee BB (2002) Orientation sensitivity of ganglion cells in primate retina. *Vision Research* 42:683-694.
- Passaglia CL**, Enroth-Cugell C, Troy JB (2001) Effects of remote stimulation on the mean firing rate of cat retinal ganglion cells. *Journal of Neuroscience* 21:5794-5803.
- Passaglia CL**, Dodge FA, Barlow RB (1998) Cell-based model of the Limulus lateral eye. *Journal of Neurophysiology* 80:1800-1815.
- Passaglia CL**, Dodge FA, Herzog ED, Jackson BS, Barlow RB (1997) Deciphering a neural code for vision. *Proceedings of the National Academy of Sciences* 94:12649-12654.
- Passaglia CL**, McSweeney M, Stewart K, Kim E, Mole E, Powers M, Barlow R (1997) Visual performance of horseshoe crabs: role of underwater lighting. *Biological Bulletin* 193:205-207.
- Stewart K, Porcello D, McSweeney M, Saito T, **Passaglia CL**, Dodge FA, Barlow RB (1997) Histamine: putative transmitter for lateral inhibition in the Limulus eye. *Biological Bulletin* 193: 203-205.
- Kim E, **Passaglia CL**, Dodge FA, Barlow RB (1996) The temporal transfer function of the Limulus lateral eye in situ. *Biological Bulletin* 191:259-260.
- Passaglia CL**, Dodge FA, Barlow RB (1995) Limulus is tuned into its visual environment. *Biological Bulletin* 189:213-215.
- Passaglia CL**, Dodge FA, Barlow RB (1994) Visual responses from the brain of Limulus. *Biological Bulletin* 187:260-261.
- Herzog ED, **Passaglia CL**, Dodge SA, Levine ND, Barlow RB (1993) Limulus vision in the ocean: comparing neural and behavioral thresholds. *Biological Bulletin* 185:307-308.

Abstracts (past 2 years, 33 total)

- Park BH, Passaglia CL, deBoer JF (2008) Optical detection of action potential propagation using spectral-domain optical coherence tomography. *SPIE Research Conference*.
- Park BH, Passaglia CL, deBoer JF (2008) Non-invasive optical detection of functionally-stimulated neural activity in the Limulus compound eye. *SPIE Research Conference*.
- Werner B, Cook PB, Passaglia CL (2007) A continuum of ON-OFF ganglion cells in the salamander retina. *SFN Research Conference*.
- Freeman DK, Passaglia CL (2007) Noise characteristics of the early visual system of rat. *SFN Research Conference*.
- Freeman DK, Passaglia CL (2007) Luminance adaptation to contrast steps in retinal ganglion cells. *BMES Research Conference*.
- Werner B, Cook PB, Passaglia CL (2007) Covariance analysis of light-induced input currents to ON-OFF ganglion cells in the salamander retina. *International Conference on Cognitive and Neural Systems*.
- Freeman DK, Passaglia CL (2006) Modeling luminance and contrast gain controls in the retina. *BMES Research Conference*.
- Oveson B, Passaglia CL (2006) The spatiotemporal acuity of rats and rats with glaucoma. *BMES Research Conference*.
- Freeman DK, Troy JB, Passaglia CL (2006) Effect of peripheral gratings on human grating sensitivity. *ARVO Research Conference*.
- Werner B, Cook PB, Passaglia CL (2006) Spatio-temporal response characteristics of salamander retinal ganglion cells during contrast adaptation. *ARVO Research Conference*.

RESEARCH SUPPORT

Present

Title: Retinal Coding of Visual Information in Glaucomatous Eyes

Principal Investigator: Christopher L. Passaglia, Ph.D.

Agency: The Medical Foundation

Type: Smith Family New Investigator Award Period: 12/01/05-11/30/07 Amount: \$200,000 (25%)

Description: The goal of this project is to characterize the effects of elevated intraocular pressure on the receptive field properties of retinal ganglion cells in rats with experimentally-induced glaucoma.

Title: Deciphering the Neural Basis of a Visual Behavior

Principal Investigator: Christopher L. Passaglia, Ph.D.

Agency: National Science Foundation

Type: CAREER Award Period: 02/01/06-01/31/11 Amount: \$400,000 (0%)

Description: The goal of this project is to identify neural mechanisms used by the horseshoe crab brain to process visual information and incorporate the mechanisms into a computer model of its visual system.

Title: Retinal Physiology in Experimental Glaucoma

Principal Investigator: Christopher L. Passaglia, Ph.D.

Agency: National Institutes of Health

Type: NEI R01 Research Grant Period: 10/01/06-09/30/10 Amount: \$975,000 (25%)

Description: The goal of this project is to characterize the anatomical and physiological properties of retinal ganglion cells in normal and glaucomatous rat eyes.

Past

Title: Effect of Elevated Intraocular Pressure on Visual Function

Principal Investigator: Christopher L. Passaglia, Ph.D.

Agency: Karl Kirchgessner Foundation

Type: Vision Research Award Period: 01/01/04-12/31/06 Amount: \$50,000

Description: The goal of this project was to characterize the effects of elevated intraocular pressure on the visual performance of rats.

Title: Role of Correlated Neuronal Discharges in the Cat Retina

Principal Investigator: Christopher L. Passaglia, Ph.D.

Agency: National Institutes of Health

Type: Postdoctoral NRSA Period: 01/01/99-04/30/01

Description: The goal of this project was to determine the functional significance of synchronous firing events in cat retinal ganglion cells for visual information transmission.