

CURRICULUM VITA

NAME

Charles R. Larson

UNIVERSITY ADDRESS

Department of Communication Sciences and Disorders
2240 Campus Drive
Northwestern University
Evanston, IL 60208

CURRENT TITLE

Professor

EDUCATION

B.A. The Colorado College, 1967, Psychology
M.A. Arizona State University, 1971, Psychology
Ph.D. University of Washington, 1975, Speech and Hearing Sciences

PROFESSIONAL EXPERIENCE

1969-1970	Teaching Assistant, Arizona State University, Tempe, AZ
1970-1971	Graduate Research Fellowship, Arizona State University, Tempe, AZ
1971-1975	Research Assistant, Institute of Laryngeal Research, Virginia Mason Research Center, Seattle, WA
1975-1978	Research Associate, Department of Speech and Hearing Sciences, University of Washington, Seattle, WA
1978-1981	Research Assistant Professor, Department of Speech and Hearing Sciences, University of Washington, Seattle, WA
1981-1984	Assistant Professor, Program in Speech and Language Pathology, Northwestern University
1984-1987	Associate Professor, Program in Speech and Language Pathology, Northwestern University
1987-1991	Associate Professor and Program Head, Program in Speech and Language Pathology, Northwestern University
1990-1991	Consultant, North Chicago VA Hospital
1991 -	Professor, Program in Speech and Language Pathology
2003 -	Professor of Otolaryngology, Feinberg School of Medicine
2006 - 2011	Chairman, The Roxelyn & Richard Pepper Department of Communication Sciences and Disorders
2009 -	Director, NIH Training Grant in Translational Research

AWARDS

1965-1966	NSF Undergraduate Research Participation Grant, The Colorado College, Colorado Springs, CO
1994	Northwestern University Alumni Association Excellence in Teaching Award
1996	ASG Faculty Honor Roll

1997	Greek Excellence in Teaching Award
2002	Faculty Honor Roll
2005	ASG Honor Roll
2008	ASHA Zemlin Award

RESEARCH GRANTS

1978-1981	NIH Teacher Investigator Award. Neural Control of Jaw Force: Implications for Speech. Direct Costs, \$73,248.
1980-1981	Co-Investigator with Erich Luschei, NIH, Neural Control Mechanisms of the Jaw
1982-1984	NIH Teacher Investigator Development Award. Brainstem Mechanisms of Laryngeal Control. Direct Costs, \$49,437.
1983-1986	NIH Neural Mechanisms of Laryngeal Control. Direct Costs, \$99,727.
1986-1989	NIH Neural Mechanisms of Laryngeal Control. Direct Costs, \$245,376.
1989-1994	NIH Neural Mechanisms of Laryngeal Control. Direct Costs, \$825,201.
1995-2000	NIH. Research Training Center Grant. Project Director, Project #3, Sensory Feedback Control of Voice F0. \$716,742.
2004-2009	NIH. Sensory Mechanisms of Voice Control, Direct Costs, \$1,443,874.
2009-2014	NIH. Sensory Mechanisms of Voice Control, Direct Costs, 2,453,910
2009-2011	NIH, ARRA award, Sensory Mechanisms of Voice Control, \$97,500
2009-2011	NIH, ARRA award, Sensory Mechanisms of Voice Control, \$93,450

TRAINING GRANTS

2009-2014	NIH, Training Grant in Translational Research
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EDITORIAL RESPONSIBILITIES

1983	Section Editor of Proceedings of the 3rd International Vocal Fold Physiology Conference
1988	Neurophysiology Section Editor, Vth International Conference on Vocal Fold Physiology
1994	Section Editor of Proceedings of the 8th Vocal Fold Physiology Conference

PUBLICATIONS: ARTICLES

- Roberts, C. and Larson, C.R. Shock history and adaptation as parameters of elicited aggression in rats. *The Psych. Rec.* 1967, 17, 425-428.
- Larson, C.R., Sutton, D., Taylor, E.M. and Burns, J.D. Visual evoked potential changes in hyperbaric atmospheres. Technical Report No. 71-02. ONR Contract No. N-0014-68-A-0150. Project No. NR 196-077, 1971
- Sutton, D., Larson, C.R., and Farrell, D.M. Cricothyroid motor units. *Acta Otol*, 1972, 74, 145-151.
- Sutton, D., Larson, C.R., Taylor, E.M., and Lindeman, R.C. Vocalization in rhesus monkeys: conditionability. *Brain Res.*, 1973, 52, 225-231.
- Larson, C.R., Sutton, D., Taylor, E.M., and Lindeman, R.C. Sound spectral properties of conditioned vocalization in monkeys. *Phonetica*, 1973, 27, 100-110.
- Sutton, D., Larson, C.R., and Lindeman, R.C. Neocortical and limbic lesion effects on primate phonation. *Brain Res.*, 1974, 71, 61-75.

- Larson, C.R., Sutton, D., and Abbs, J.H. Invited review of Philip Lieberman's *The speech of Primates*. *Phonetica*, 1974, 176-180.
- Larson, C.R., Sutton, D. and Lindeman, R.C. Muscle spindles in nonhuman primate laryngeal muscles. *Folia Primatol.*, 1974,22,315-323.
- Larson, C.R. *Effects of Cerebellar Lesions on Conditioned Monkey Phonation*. PhD. Dissertation, University of Washington, 1975.
- Taylor, E.M., Sutton, D., Larson, C.R., Smith, O.A., and Lindeman, R.C. Sudden death in infant primates from induced laryngeal occlusion. *Arch Oto.* 1976, 102, 291-296.
- Sutton, D., Larson, C.R., Lovell, M.E. and Lindeman, R.C. Facial muscle innervation in cebid (New World) monkeys via a ramus communicating with the trigeminal nerve. *Arch. Oral Biol.*, 1977, 22, 59-64.
- Sutton, D., Larson, C.R., Taylor, E.M. and Lindeman, R.C. Isometric force control by human tongue and forefinger. *Arch. Oral Biol.*, 1977, 22, 33-36.
- Larson, C.R. and Sutton, D. Effects of cerebellar lesions on monkey jaw force control: implications for understanding ataxic dysarthria. *J. Speech Hear. Res.*, 1978, 21, 309-323.
- Folkins, J.W. and Larson, C.R. In search of a tonic vibration reflex in the human lip. *Brain Res.*, 1978, 151, 409-412.
- Larson, C.R. and Sutton, D. Peri-oral reflexes in the conscious monkey (*Macaca mulatta*). *Arch. Oral Biol.*, 1978, 23, 865-869.
- Larson, C.R., Folkins, J.W., McClean, M.D. and Muller, E.M. Sensitivity of the human perioral reflex to parameters of mechanical stretch. *Brain Res.* 1978, 146, 159-164.
- Larson, C.R., Sutton, D., and Lindeman, R.C., Cerebellar regulation of phonation in rhesus monkey (*Macaca mulatta*). *Exp. Brain Res.*, 1978,33,1-18.
- McClean, M.D., Folkins, J.W. and Larson, C.R. The role of the perioral reflex in lip motor control for speech. *Brain and Lang.*, 1979, 7, 42-61.
- Cooker, H.S., Larson, C.R. and Luschei, E.S. Evidence that the human jaw stretch reflex increases the resistance of the mandible to small displacements. *J. Physiol. (Lond.)*, 1980, 308, 61-78.
- Larson, C.R., Byrd, K.E., Garthwaite, C.G. and Luschei, E.Z. Alterations in the pattern of mastication after ablations of the lateral precentral cortex in rhesus moacaques. *Exp. Neurol*, 1980, 70, 638-651.
- Sapir, S., Campbell, C. and Larson, C. Effect of geniohyoid, cricothyroid and sternothyroid muscle stimulation on voice fundamental frequency of electrically elicited phonation in rhesus macaque. *Laryngoscope*, 1981, 91, 457-468.
- Larson, C.R., Smith, A. and Luschei, E.S. Discharge characteristics and stretch-sensitivity of jaw muscle afferents in the monkey during controlled isometric bites. *J. Neurophysiol.*, 1981, 46, 130-142.
- Sapir, S., McClean, M.D. and Larson, C.R. Human laryngeal responses to auditory stimulation. *JASA*, 1981, 73, 315-321.
- Larson, C.R., Finocchio, D.V., Smith, A. and Luschei, E.S. Jaw muscle afferent firing during an isotonic jaw-positioning task in the monkey. *J. Neurophysiol.*, 1983, 50, 61-73.

- Larson, C.R. and Kistler, M.K. Periaqueductal gray neuronal activity associated with laryngeal EMG and vocalization in the awake monkey. *Neurosci. Lett.* 1984, 46, 261-266.
- Larson, C.R. The midbrain periaqueductal gray: a brainstem structure involved in vocalization. *J. Speech and Hear. Res.* 1985, 23, 241-249.
- Larson, C.R. and Kistler, M.K. The relationship of periaqueductal gray neurons to vocalization and laryngeal EMG in the behaving monkey. *Exp. Brain Res.*, 1986, 63, 596-606.
- Larson, C.R., Kempster, G.B. and Kistler, M.K. Changes in voice fundamental frequency following discharge of single motor units in cricothyroid and thyroarytenoid muscles. *J. Speech Hear. Res.*, 1987, 30, 552-558.
- Kempster, G.B, Larson, C.R. and Kistler, M.K. Effects of electrical stimulation of cricothyroid and thyroarytenoid muscles on voice fundamental frequency. *J. of Voice*, 1988, 2, 221-229.
- Larson, C.R. Brain mechanisms involved in the control of vocalization. *J. of Voice*, 1988,2,301-311.
- McLean-Muse, A., Larson, C.R. and Gregory, H.H. Stutterers' and nonstutterers' voice fundamental frequency changes in response to auditory stimuli. *J. Speech Hear. Res.*, 1988, 31, 549-555.
- Wohlert, A.B. & Larson, C.R. Cerebral averaged potentials preceding oral movement. *J. Speech Hear. Res.*, 1991, 34, 1387-1396.
- Larson, C.R. On the relation of PAG neurons to laryngeal and respiratory muscles during vocalization in the monkey. *Brain Research*, 1991, 552, 77-86.
- West, R. and Larson, C.R. Laryngeal and respiratory activity during vocalization in Macaque monkeys. *J. Voice*, 1993, 7, 54-68
- Yajima, Y. & Larson, C.R. Multifunctional Properties of Ambiguous Motoneurons identified electrophysiologically During Vocalization in the Awake monkey. *Journal of Neurophysiology*, 1993, 70, 529-540.
- Larson, C.R., Yajima, Y., Ko, P. Activity of respiratory-related neurons in nucleus ambiguus in the awake, vocalizing monkey. *Journal of Neurophysiology*, 1994, 71, 2294-2304.
- Fujiu, M., Toleikis, J.R., Logemann, J.A. and Larson, C.R. Glossopharyngeal evoked potentials in normal subjects following mechanical stimulation of the anterior faucial pillar. *Electroencephalography and clinical Neurophysiology*, 1994, 92, 183-195.
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- Chiao, E.Z., Larson, C.R., Yajima, Y. & Ko, P. Swallowing-related neuronal discharge from nucleus ambiguus in awake monkeys. *Exp. Brain Res.*, 1994,100,29-38.
- Kobara-Mates, M., Logemann, J.A., Larson, C. and Kahrilas, P.J. Physiology of oropharyngeal swallow in the cat: a videofluoroscopic and electromyographic study. *The American Journal of Physiology*, 1995, 268, G232-G241.
- West, R.A. and Larson, C.R. Neurons of the Anterior Mesial Cortex Related to Faciovoical Behavior in the Awake Monkey. *Journal of Neurophysiology*, 74 (5), 1156-1169, 1995.
- Burnett, T. A. , Senner, J.E. & Larson, C.R. Voice F0 responses to pitch-shifted auditory feedback: A preliminary study. *J. Voice* 11 (2), 202-211, 1997.

Theresa A Burnett, Marcia B. Freedland, Charles R. Larson, Timothy C. Hain. Voice F0 Responses to Manipulations in Pitch Feedback. *J. Acoust. Soc. Am.*, 103, 3153-3161, 1998.

Murray, K.A., Larson, C.R. and Logemann, J.A. Electromyographic response of the labial muscles during normal liquid swallows using a spoon, a straw, and a cup. *Dysphagia*, 13, 160-166, 1998.

Larson, C.R. Cross-modality influences in speech motor control: The use of pitch shifting for the study of F0 control. *Journal of Communication Disorders*. 31, 489-503, 1998.

Hain, T C, Burnett, T A., Kiran, S. , Larson, C. R., Singh, S. and Kenney, M.K. Instructing Subjects to Make a Voluntary Response Reveals the Presence of Two Components to the Audio – Vocal Reflex, (*Experimental Brain Research*, 130, 133-141, 2000).

Larson, C.R., Burnett, T.A., Kiran, S., Kenney, M.K., Hain, T.C. Effects of pitch-shift velocity on voice F0 responses. *J. Acoust. Soc. Am.*, 101 (1), 559-564, 2000.

Lazarus, C.L., Logemann, J.A., Pauloski, B.R., Rademaker, A.W., Larson, C.R., Mittal, B.B. & Pierce, M. Swallowing and tongue function following treatment for oral and oropharyngeal cancer. *J. Speech Lang. Hear. Res.*, 43, 1011-1023, 2000.

Kiran, S. & Larson, C.R. Effect of duration of pitch-shifted feedback on vocal responses in Parkinson's Disease patients and normal controls. (*Journal of Speech/Language hearing Research*, 44, 2001).

Ding, R., Larson, C., and Logemann, J. A. (2002). Surface electromyographic and electroglottographic studies in normal subjects under two swallow conditions: Normal and during the Mendelsohn maneuver. *Dysphagia*, 17, 1-12.

Hain, T.C., Burnett, T.A., Larson, C.R., and Kiran, S. T.C. Effects of delayed auditory feedback (DAF) on the pitch-shift reflex *J. Acoust. Soc. Am.*, 109 (5), 2146-2152, 2001.

Sapir, S., Baker, K. K., Larson, C. R., and Ramig, L. O. (2000). "Short-latency changes in voice f0 and neck surface emg induced by mechanical perturbations of the larynx during sustained vowel phonation," **43**, 268-276.

Larson, C.R., Burnett, T.A., Bauer, J.J., Kiran, S. & Hain T.C. Comparison of voice F0 responses to pitch-shift onset and offset conditions. *J. Acoust. Soc. Am.*, 110 (6), 2845-2848, 2001.

Burnett, T.A. & Larson, C.R. Early pitch-shift response is active in both steady and dynamic voice pitch control. *J. Acoust. Soc. Am.* 112 (3), 1058-1063, 2002.

Bauer, Jay J. and Larson, C.R. Audio-vocal responses to repetitive pitch-shift stimulation during a sustained vocalization: Improvements in methodology for the pitch-shifting technique. *J. Acoust. Soc. Am.* 114 (2), 1048-1054, 2003.

Leydon, Ciara, Bauer, Jay J. & Larson, Charles R. The role of auditory feedback in sustaining vocal vibrato. *J. Acoust. Soc. Am.* 114 (3), 1575-1581, 2003.

Xu, Yi, Larson, Charles , Bauer, Jay, Hain, Timothy. Compensation for pitch-shifted auditory feedback during the production of Mandarin tone sequences. *J. Acoust. Soc. Am.* 116 (2), 1168-1178, 2004.

Sivasankar, M., Bauer, J.J., Babu, T, Larson, C.R. Voice responses to changes in pitch of voice or tone auditory feedback. *J. Acoust. Soc. Am.*, 117 (2), 850-857, 2005.

Bauer, J.J., Mittal, J., Larson, C.R. Hain, T.C. Vocal responses to unanticipated perturbations in voice loudness feedback: An automatic mechanism for stabilizing voice amplitude. *J. Acoust. Soc. Am.* 119 (4), 2363-2371, 2006.

Chen, S.H., Liu, H., Xu, Y., Larson, C.R. Voice F_0 Responses to Pitch-Shifted Voice Feedback During English Speech. *J. Acoust. Soc. Am.* 121 (2), 1157-1163, 2007.

Larson, C. R., Sun, J. and Hain, T. C. Effects of simultaneous perturbation of voice pitch and loudness feedback on voice F_0 and amplitude control. *J. Acoust. Soc. Am.* 121 (5), 2862-2872, 2007.

Liu, H., Zhang, Q., Xu, Y. and Larson, C.R. Compensatory responses to loudness-shifted voice feedback during production of Mandarin speech. *J. Acoust. Soc. Am.* 122 (4), 2405-2412, 2007.

Liu, H. and Larson, C.R. Effects of perturbation magnitude and voice F_0 level on the pitch-shift reflex. *J. Acoust. Soc. Am.* 122 (6), 3671 – 3677, 2007.

Russo, N. M., Larson, C., Kraus, N. Audio-Vocal System Regulation in Children with Autism Spectrum Disorders, *Exp. Brain Res*, 188, 111-2124, 2008.

Larson, C.R., Altman, K.W., Liu, H., Hain. T.C. Interactions between auditory and somatosensory feedback for voice F_0 control, *Exp. Brain Res*, 187, 613-621, 2008.

Liu, H., Xu, Y., Larson, C.R. Suppression of vocal responses to pitch perturbations during Mandarin speech, *J. Acoust. Soc. Am.*, 125, 2299-2306, 2009.

Behroozmand, R., Karvelis, L., Liu, H. and Larson, C. R. Vocalization-induced enhancement of the auditory cortex responsiveness during voice F_0 feedback perturbation. *Clinical Neurophysiology*, Volume 120, Issue 7, July 2009, Pages 1303-1312.

Liu, H., Auger, J. and Larson, C.R. Voice fundamental frequency modulates vocal response to pitch perturbations during English speech. , *J. Acoust. Soc. Am.* EL, 127 (1), 2010

Liu, H., Russo, N.M. and Larson, C.R. Age-related differences in vocal responses to pitch feedback perturbations: A preliminary study. *J. Acoust. Soc. Am.*, 127 (2), 1042-1046, 2010

Liu, H., Behroozmand, R., Larson, C.R. Enhanced neural responses to self-triggered voice pitch feedback perturbations. *NeuroReport*, 21 (7), 527 - 531, 2010.

Behroozmand, R., Liu, H., Larson, C.R. Time-dependent neural processing of auditory feedback during voice pitch error detection. *J. Cog. Neurosci.* 23 - 5, 1205-1217, 2011.

Peng Liu, Zhaocong Chen, Charles Larson, Dongfeng Huang, and Hanjun Liu. Auditory Feedback Control of Voice Fundamental Frequency in School Children. *J. Acoust. Soc. Am.* 128 (3), 1306-1312, 2010.

Liu, H., Wang, E.Q., Chen, Z., Liu, P., Larson, C.R., Huang, D. Effect of tonal native language on voice fundamental frequency responses to pitch feedback perturbations during sustained vocalizations. *J. Acoust. Soc. Am.* 128 (6), 3739-3746, 2010, PMID: PMC3037774.

Liu, H., Meshman, M., Behroozmand, R. and Larson, C.R. Differential effects of perturbation direction and magnitude on the neural processing of voice pitch feedback. *Clinical Neurophysiology*, 122, 951-957, 2011.

Liu, H., Behroozmand, R., Bove, M. and Larson, C.R. Laryngeal electromyographic responses to perturbations in voice pitch auditory feedback. *J. Acoust. Soc. Am.* 129 (6), 3946-3954, 2011, PMID: PMC3135150

Greenlee, J.W., Jackson, A.W., Chen, F., Larson, C.R., Oya, H., Hiroto, K., Chen, H., Howard, M.A. III. Human auditory cortical activation during self-vocalization. *PLOS One*, 6, (3), 1-15, 2011, PMID: 21390228

Behroozmand, R. and Larson, C.R. Error-dependent modulation of speech-induced auditory suppression for pitch-shifted voice feedback. *BMC Neuroscience*, 12:54, 2011. PMID 3120724

Behroozmand, R., Korzyukov, O. and Larson, C.R. Effects of harmonic complexity on ERP responses to pitch-shifted auditory feedback. *Clinical Neurophysiology*, (In Press).

Korzyukov, O., Karvelis, L., Behroozmand, R. and Larson, C.R. ERP correlates of auditory processing during automatic correction of unexpected perturbations in voice auditory feedback. *Int. J. of Psychophysiology* (In Press).

PUBLICATIONS: BOOK CHAPTERS

Sutton, D., Samson, H.H. and Larson, C.R. Brain mechanisms in learned phonation of *Macaca mulatta*. Proceedings of the VIth Congress of International Primatological Association, 1976.

Larson, C.R., Smith, A. and Luschei, E.S. Response characteristics of jaw muscle spindle and tooth mechanoreceptor afferents in monkeys during a controlled isometric biting task. Chapter 18 in *Oral-Facial Sensory and Motor Functions*. (Eds. Kawamura, Y. and Dubner, R.) Quintessence, Tokyo, 1981.

Larson, C.R. and Pfingst, B.E. Neuroanatomic Bases of Speech and Hearing, Ch.3 in *Speech, Language and Hearing*, (Ed. Lass, N.J., McReynolds, L.V., Northern, J.L. and Yoder, D.E.), Saunders, Philadelphia, 1981.

Larson, C.R., Wilson, K.E. and Luschei, E.S. Preliminary observations on cortical and brainstem mechanisms of laryngeal control. Chapter in *Vocal Fold Physiology: Contemporary Research and Clinical Issues*. (Eds. Bless, D.M. and Abbs, J.H.) College-Hill, San Diego, 1983.

Larson, C.R., Kempster, G. Voice fundamental frequency changes following discharge of laryngeal motor units. Chapter in *Vocal Fold Physiology: Biomechanics, Acoustics and Phonatory Control*. (Eds. Titze, I.R. and Scherer, R.C., The Denver Center for the Performing Arts, Denver, 1983.

Larson, C.R. Neurophysiology of speech and swallowing. Chapter in *Seminars in Speech and Language*, (Ed. Jeri Logemann), Thieme-Stratton, New York, 1985.

Larson, C.R. and Kistler, M.D. Brainstem neuronal activity associated with vocalization in the monkey. Chapter in *Vocal Fold Physiology: Laryngeal function in phonation and respiration*. (Eds. Baer, T., Harris, K.S. and Sasaki, C.) Little, Brown and Co., Boston, 1987.

- Kempster, G., Preston, J., Mack, R. and Larson, C. A preliminary investigation relating laryngeal muscle activity to changes in EGG waveforms. Chapter in *Vocal Fold Physiology: Laryngeal function in phonation and respiration*. (Eds. Baer, T., Harris, K.S. and Sasaki, C.) Little, Brown and Co., Boston, 1987.
- Larson, C.R., Ortega, J.D. and DeRosier, E. Studies on the relation of the midbrain periaqueductal gray, the larynx and vocalization in awake monkeys. Chapter in *The physiological control of mammalian vocalizations*, (Ed. J.D. Newman), Plenum, New York, 1988.
- Zealear, D.L. & Larson, C.R. A microelectrode study of laryngeal motoneurons in the nucleus ambiguus of the awake vocalizing monkey. Chapter in *Vocal Physiology: Voice Production, Mechanisms and Functions*, (Eds. Fujimura, O. and Saito, S.), Raven, New York, 1988.
- Ortega, J.D., DeRosier, E., Park, S. and Larson, C.R. Brainstem mechanisms of laryngeal control as revealed by microstimulation studies. Chapter in *Vocal Physiology: Voice Production, Mechanisms and Functions*, (Eds. Fujimura, O. and Saito, S.), Raven, New York, 1988.
- Pfingst, B.E., Altschuler, R.A., Watkin, K.L. & Larson, C.R. Neuroanatomic Bases of Hearing and Speech. Chapter in *Handbook of Speech-Language and Audiology*, (Eds. Lass, N.J, McReynolds, L.V., Northern, J.L. & Yoder, D.E., B.C. Decker, Philadelphia, 1988.
- Larson, C.R. Basic Neurophysiology. Chapter in *neurology of Speech and Language*, (Eds. Kuehn, D.P., Lemme, M.L. and Baumgartner, J. M.) Little, Brown & Co., Boston, 1989.
- Larson, C.R., DeRosier, E., West, R. Comparison of Physiological Properties of PAG and Medullary Neurons Involved in Vocalization. Chapter proceedings of the Sixth Conference on Vocal Fold Physiology, (Eds. J. Gauffin & B. Hammarberg), Singular, San Diego, 1991.
- Larson, C.R. Activity of PAG neurons during conditioned vocalization in the macaque monkey. Proceedings of NATO Conference on "The midbrain periaqueductal grey matter: Functional ,anatomical and neurochemical organization," (Eds. R. Bandler and A. Depaulis), Plenum, 1991.
- Garrett, D and Larson, C.R. Neurophysiology of Voice Production. Chapter in "Phonosurgery", eds. Bless, D. and Ford, C. Raven Press, 1991.
- Larson, C.R., Yoshida, Y. & Sessle, B.J. Higher level motor and sensory organization. Chapter proceedings of Vocal Fold Physiology: Frontiers in Basic Science (Ed. I.R. Titze), Singular, San Diego, 1993.
- Larson, C.R., Carrell, T.D., Senner, J.E., Burnett, T.A., and Nichols, L.L. A proposal for the study of voice Fo control using the pitch shifting technique. Proceedings of Vocal Fold Physiology : Voice Quality Control (Eds.O. Fujimura and M. Hirano), Singular, San Diego, 1995.
- Larson, C.R., White, J.P., Freedland, M.B. & Burnett, T.A. Interactions between voluntary pitch modulations and pitch-shifted feedback signals: Implications for neural control of voice pitch. Proceedings of Vocal Fold Physiology: Controlling Chaos and Complexity. (Eds. N. Fletcher & P.J. Davis), Singular, San Diego, 1996.
- Larson, C.R., Neural Mechanisms of Vocalization. The MIT Encyclopedia of Communication Disorders. (Ed. R.D. Kent), MIT Press, 2004.
- Liu, H., Behroozmand, R. and Larson, C.R. Audio-vocal interactions in the mammalian brain. Handbook of Mammalian Vocalization (Ed. Brudzynski, S.M.) Oxford: Academic Press, 2009, pp393-402.

PRESENTATIONS: INVITED

- Larson, C.R., Smith, A. and Luschei. Response characteristics of jaw muscle spindle and tooth mechanoreceptor afferents in monkeys during a controlled isometric biting task. Symposium on Oral-Facial Sensory and Motor Functions, Tokyo, 1980.
- Larson, C.R. Current research findings on neural mechanisms of phonatory control in the monkey, American Speech and Hearing Association, 1980.
- Larson, C.R., Wilson, K.E., and Luschei, E.S. Preliminary observation on cortical and brainstem mechanisms of laryngeal control. 2nd International Conference on Vocal Fold Physiology, Madison, WI, 1981.
- Larson, C.R. and Kempster, G.B. Voice fundamental frequency changes following discharge of laryngeal motor units. Presented at the conference on physiology and biophysics of Voice, Iowa City, May, 1983.
- Kempster, G.B., Preston, J.P., Mack, R., and Larson, C.R. A preliminary investigation relating laryngeal muscle activity to changes in EGG waveforms. IVth International Conference on Vocal Fold Physiology, New Haven, CT, 1985.
- Larson, C.R. Brainstem neuronal activity associated with vocalization in the monkey. IVth International Conference on Vocal Fold Physiology, New Haven, CT, 1985.
- Larson, C.R. Midbrain neuronal activity related to vocalization in the monkey. First International Congress of Neuroethology, Tokyo, 1986.
- Larson, C.R. Correlation between microstimulation effects and brainstem neuronal activity patterns in the awake monkey: Relations to laryngeal EMG and vocalization. Vth International Conference on Vocal Fold Physiology, Tokyo, 1987.
- Zeale, D.L. & Larson, C.R. A microelectrode study of laryngeal motoneurons in the nucleus ambiguus of the awake vocalizing monkey. Vth International Conference on Vocal Fold Physiology, Tokyo, 1987.
- Ortega, J.D., DeRosier, E., Park, S. and Larson, C.R. Brainstem mechanisms of laryngeal control as revealed by single unit recording and microstimulation studies. Vth International Conference on Vocal Fold Physiology, Tokyo, 1987.
- Larson, C.R. Brain mechanisms involved in the control of Vocalization. 17th Symposium on Care of The Professional Voice. Manhattan School of Music, New York, June 8, 1988.
- Larson, C.R., DeRosier, E., West, R. Physiological analysis of the involvement of brainstem neurons in vocal mechanisms in monkeys, 6th Vocal Fold Physiology Conference, Stockholm, 1989.
- Larson, C.R. Neural Mechanisms of Vocal Control. The University of Chicago. Oct. 20, 1989.
- Larson, C.R. Neurology of Phonation. American Speech-Language Hearing Association, 1989.
- Larson, C.R. Mechanisms and Pathways of the Central Nervous System Underlying Vocalization. "Bruton Conference on Vocal Motor Control Disorders." Dallas, Texas, May, 1990.
- Larson, C.R. Activity of PAG neurons during conditioned vocalization in the macaque monkey. NATO Symposium on "The midbrain periaqueductal grey matter: Functional, anatomical and neurochemical organization." Gers, France, July, 1990.
- Larson, C.R. Brainstem mechanisms involved in the control of the larynx. 7th Vocal Fold Physiology Conference, Denver, CO, July 1991.

- Larson, C.R. Neuromuscular Mechanisms of Sound Production. Paper presented at the Acoustical Society Meetings, Salt Lake City, Utah, 1992.
- Larson, C.R., Carrell, T.D., Senner, J.E., Burnett, T.A., Nichols, L.L. and Sapir, S. A proposal for the study of voice Fo control using the pitch shifting technique. VIIIth Vocal Fold Physiology Conference, Kurume, Japan, May, 1994.
- Larson, C.R., White, J.P., Freedland, M.B. and Burnett, T. A. Interactions between voluntary pitch modulations and pitch-shifted feedback signals: Implications for neural control of voice pitch. IXth Vocal Fold Physiology Conference, Sydney, Australia, May, 1995.
- Larson, C.R. Neural Mechanisms of Vocal Control in Primates. IBRO Satellite Symposium, Processing in Auditory and Language Cortex: Katsuki Memorial. Sapporo, Japan, July 6 - 7, 1995.
- Larson, C.R. Neural Mechanisms of Vocalization. Invited presentation for a mini-seminar at the ASHA Convention in Orlando, FL, 1995.
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- Larson, C.R. Studies on the role of auditory feedback on voice control. Dept. of Neurosurgery, University of Iowa Medical School, July, 2007
- Larson, C.R. Neural mechanisms of vocalization, Royal Inst of Technology, Stockholm, Sweden, Nov. 1, 2007
- Larson, C.R. Studies of auditory perturbation on voice control, Karolinska Institute, Stockholm, Sweden, Nov. 2, 2007
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PRESENTATIONS: CONTRIBUTED

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Processing of self-vocalization in human auditory cortex on superior temporal gyrus. Society
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humans. Society for Neuroscience, Chicago, 2009.
- Behroozmand, R. and Larson, C.R. Effect of stimulus onset delay on auditory cortex neural responses
to voice pitch feedback perturbations. Acoustical Society of America, 2009
- Larson, C.R., Robin, D.R. and Fox, P. Understanding neural mechanisms of voice control: the role of
auditory feedback. Winter Conference on Brain Research. Breckenridge, CO, January, 2010.
- Chen, Z., Liu, P., Wang, E.Q., Larson, C.R. and Liu, H. Online monitoring of auditory feedback is
sensitive to language experience. Acoustical Society of America, Baltimore, 2010.
- Behroozmand, R. and Larson, C.R. Vocal pitch regulation depends on the baseline voice F0 feedback:
An ERP study for investigating the role of auditory feedback for voice pitch error correction.
Acoustical Society of America, Baltimore, 2010.
- Larson, C.R. How does the brain control vocalization? Bellevue High School, May, 2011.

COMMITTEES: INTERNATIONAL/NATIONAL

- | | |
|--------|--|
| 1983 | Ad Hoc Member of Sensory Disorders and Language Study Section, NIH |
| 1995 | Ad Hoc Member of Sensory Disorders and Language Study Section, NIH |
| 1996 - | Chair, International Conference on Voice Physiology and Biomechanics |
| 2009 - | The Voice Foundation, Scientific Advisory Board |

COMMITTEES: UNIVERSITY

- | | |
|------------|--|
| 1982-1985 | Institutional Review Board |
| 1984-1987 | Animal Care Committee |
| 1987-1990 | School of Speech Administration |
| 1987-1990 | Communication Sciences and Disorders Administration |
| 1988-1993 | University Research Grants Committee |
| 1989-1990 | Committee on Graduate Student Recruitment |
| 1989-1993 | Northwestern University Institute for Neuroscience Curriculum |
| 1990-1992 | University Fellowships and Scholarships Committee |
| 1991-1994 | Appointments, Reappointments, Promotion and Tenure, Speech |
| 1990-1994 | Departmental Recruitment Committee |
| 1992-1994 | General Faculty Committee |
| 1992-1994 | Educational Affairs Sub-committee of the GFC, Chair |
| 1992-1994 | Research Committee Sub-committee of the GFC |
| 1995-2006 | Coordinator of Human Communication Sciences Program |
| 1995-2006 | Undergraduate Advisory Committee |
| 1996-1998 | School of Speech Computer Committee |
| 1996-2002 | Chair, University CTEC Advisory Committee |
| 1998-1999 | Chair, Task Force on Advising, School of Speech |
| 2001- 2004 | School of Speech, Appointments, Reappointments, Promotion and Tenure |
| 2001-2002 | Program Review Committee' Physics and Astronomy |
| 2001-2004 | University Hearing and Appeals Board |
| 2001-2004 | Administrative Board, Graduate School |

2002-2004 School of Communication representative to UFRPTDAP
2010- School of Communication representative to UFRPTDAP

PROFESSIONAL MEMBERSHIP AND OFFICES HELD

Association For Research in Otolaryngology
Acoustical Society of America
Society for Neuroscience
The Voice Foundation
International Conference on Voice Physiology and Biomechanics

EXTERNAL REVIEWS

Invited review of the Dept. of Communication Sciences and Disorders, New York University, April 12-13, 2011.
Invited review of the Strategic Plan for the Dept. of Communication Sciences and Disorders, University of Cincinnati, Sept. 15, 2011

COURSES TAUGHT

1981 - Fall Qtr. Anatomy and Physiology of the Vocal Mechanism
1982 - Winter Qtr. Biological Foundations of Human Communication
1982 - 85 Problems in Speech Physiology
1990 - Spring Qtr. Physiologic Instrumentation
2005 - The Scientific Exploration of Communication

POSTDOCTORAL AND RESEARCH ASSOCIATE TRAINEES

1986 - 1989 Yukio Yajima
1990 - 1992 Eugene Chiao
2005 - 2007 Hideki Takaso
2007 - 2009 Hajnun Liu
2009 - Oleg Korzyukov

UNDERGRADUATE HONORS THESES DIRECTED

Kiran Sedev
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Stephanie Chen
Kaavya Paruchuri
Dilpreet Minhas

Lindsey Sattler
Nadine Ibrahim
Sandra Maerzacker
Natalie Tapaskar

SROP Research

Kimberly Brooks, 2003
Jordan Fox, 2005

MASTERS THESES DIRECTED

John Ortega

THESES AND DISSERTATIONS DIRECTED

1985	Co-Chairman of Dissertation Supervisory Committee for Toby Meyer
1985	Co-Chairman of Dissertation Supervisory Committee for Ann McLean-Muse
1988	Co-Chairman of Dissertation Supervisory Committee for Judy Preston-Grayhack
1988-1989	Chairman of Dissertation Supervisory Committee for Amy Wohlert
1988-1989	Co-Chairman of Dissertation Supervisory Committee for Mindy Mates
1988-1992	Co-Chairman of DISSERTATION Supervisory Committee for Masako Fujiu
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1995-2000	Chairman of Dissertation Supervisory Committee for Theresa A. Burnett
1997-1999	Chairman of Dissertation Supervisory Committee for Renetta Garrison Tull
1999-2003	Chairman of Dissertation Supervisory Committee for Karen Tessler
1999-2004	Chairman of Dissertation Supervisory Committee for Jay Bauer
2006-2011 Behroozmand	Chairman of Dissertation Supervisory Committee for Roozbeh

DISSERTATION COMMITTEES, EXTERNAL

1988 Robert Frystak, Loyola University