

# Elaine Kearney

POSTDOCTORAL RESEARCH ASSOCIATE

Dept. of Speech, Language & Hearing Sciences, Boston University

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*Speech scientist focused on the sensorimotor control of speech production in individuals with and without motor speech disorders. I conduct both basic science and clinical research that leverages my expertise in behavioral, computational modeling, and neuroimaging methods. The long-term aim of my research program is to expand the evidence-based treatment options available to those with communication disorders.*

## Education

### PhD in Speech-Language Pathology

Toronto, Canada

SPEECH PRODUCTION LABORATORY, REHABILITATION SCIENCES INSTITUTE, UNIVERSITY OF TORONTO

January 2013–June 2018

- Thesis: The Speech Movement Disorder and its Rehabilitation in Parkinson's Disease Using Augmented Visual Feedback
- Committee: Drs. Yana Yunusova (Advisor), Luc de Nil, and Luc Tremblay

### BSc in Speech and Language Therapy

Cork, Ireland

DEPT. OF SPEECH AND HEARING SCIENCES, UNIVERSITY COLLEGE CORK

September 2007–June 2011

- Thesis: Tongue-Plate Contact During Selected Vowels in Typical and Disordered Articulation
- Advisor: Dr. Alice Lee

## Research Employment

### Postdoctoral Research Associate

Boston, MA, USA

SPEECH NEUROSCIENCE LABORATORY, DEPT. OF SPEECH, LANGUAGE AND HEARING SCIENCES, BOSTON UNIVERSITY

January 2018–Present

- Projects: Neural Modeling and Imaging of Speech; Voice and Speech Sensorimotor Control in Parkinson's Disease
- Advisors: Drs. Frank H. Guenther and Jason A. Tourville

### Research Assistant

Toronto, Canada

VOCAL TRACT VISUALIZATION LABORATORY, TORONTO REHABILITATION INSTITUTE

January 2013–December 2017

- Project: Visual Feedback Systems in Speech Rehabilitation
- Advisor: Dr. Yana Yunusova

### Research Assistant

Toronto, Canada

SPEECH AND STUTTERING INSTITUTE

June 2012–December 2012

- Project: Motor Speech Treatment Protocol for Developmental Motor Speech Disorders
- Advisor: Dr. Aravind Namasivayam

## Research Awards and Honors

### Professional Development and Postdoctoral Affairs Travel Award

Boston, MA, USA

BOSTON UNIVERSITY

August 2019

- 500 USD

### ASHA's Research Mentoring Network: Pathways Program

USA

AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION

June 2019

- Travel, accommodation and food costs for duration of workshop

### Polatajko-Howell Student Conference Presentation Fund

Toronto, Canada

UNIVERSITY OF TORONTO

June 2017

- 300 CAD

### Rehabilitation Sciences Institute Peer Mentorship Award

Toronto, Canada

UNIVERSITY OF TORONTO

May 2017

- 100 CAD

### Rehabilitation Sciences Institute Presentation Award

Toronto, Canada

UNIVERSITY OF TORONTO

May 2017

- 300 CAD

### Office of Research Trainees Conference Travel Award

UNIVERSITY HEALTH NETWORK

- 500 CAD

Toronto, Canada

March 2016

### Graduate Scholarship Prize

TORONTO REHABILITATION INSTITUTE - UNIVERSITY HEALTH NETWORK

- 1000 CAD

Toronto, Canada

November 2015

### School of Graduate Studies Conference Grant

UNIVERSITY OF TORONTO

- 850 CAD

Toronto, Canada

November 2014

### Speech-Language Pathology Travel Award

UNIVERSITY OF TORONTO

- 425 CAD

Toronto, Canada

March 2014

### Undergraduate College Scholarship

UNIVERSITY COLLEGE CORK

- 1000 EUR

Cork, Ireland

May 2010

## Professional Affiliations

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### American Speech-Language-Hearing Association

NON-CLINICAL MEMBER

October 2018–Present

### Society for the Neurobiology of Language

POSTDOCTORAL MEMBER

April 2018–Present

### National Student Speech Language Hearing Association

MEMBER

November 2014–November 2015

### Irish Association of Speech and Language Therapists

NEW GRADUATE MEMBER

June 2011–December 2013

## Service

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### Open Science Initiative

FOUNDER, CONTRIBUTOR

<https://CSDisseminate.com>

July 2020–Present

- CSDisseminate: A grassroots initiative aimed at promoting the culture of self-archiving legal versions of research manuscripts in the field of communication sciences and disorders

### Manuscript Reviews

REVIEWER

2018–Present

- Journal of Speech, Language, and Hearing Research (7)
- American Journal of Speech-Language Pathology (7)
- Neurorehabilitation and Neural Repair (2)
- Journal of the Acoustical Society of America (1)
- Journal of Communication Disorders (1)
- Journal of Voice (1)
- Clinical Linguistics & Phonetics (1)

### Conference Reviews

REVIEWER

2019–2020

- International Clinical Phonetics and Linguistics Association Symposium 2020
- Boston Speech Motor Control Symposium 2019

### Grant Reviews

REVIEWER

2019–2020

- LVST Small Student Grant

### Conference Organization

ORGANIZING COMMITTEE MEMBER

April 2018–June 2019

- Boston Speech Motor Control Symposium 2019

# Publications

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Available for download at <https://elaine-kearney.com/publication/>

## PEER-REVIEWED

### Contributions of auditory and somatosensory feedback to vocal motor control

JSLHR

SMITH, D. J., STEPP, C. E., GUENTHER, F. H., & KEARNEY, E.

2020

- DOI: 10.1044/2020\_JSLHR-19-00296

### A simple 3-parameter model for examining adaptation in speech and voice production

Front. Psychol.

KEARNEY, E., NIETO-CASTANON, A., WEERATHUNGE, H. R., FALSINI, R., DALIRI, A., ABUR, D., BALLARD, K. J., CHANG, S-E.,

2020

CHAO, S-C., HELLER MURRAY, E. S., SCOTT, T. L., & GUENTHER, F. H.

- DOI: 10.3389/fpsyg.2019.02995

### Articulating: The neural mechanisms of speech production

Lang. Cogn. Neurosci.

KEARNEY, E., & GUENTHER, F. H.

2019

- DOI:10.1080/23273798.2019.1589541

### Towards movement-based outcome measures for apraxia of speech: A systematic review

Aphasiology

BAILEY, K., KEARNEY, E., ROBERTS, E., & YUNUSOVA, Y.

2019

- DOI: 10.1080/02687038.2018.1510111

### Electromagnetic articulography (EMA) for real-time feedback application: Computational techniques

CMBBE

HAWORTH, B., KEARNEY, E., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

2019

- DOI:10.1080/21681163.2018.1434423

### Augmented visual feedback-aided interventions in motor rehabilitation in Parkinson's disease: A systematic review

Disabil. Rehabil.

KEARNEY, E., SHELLIKERI, S., MARTINO, R., & YUNUSOVA, Y.

2019

- DOI:10.1080/09638288.2017.1419292

### Treating speech-movement hypokinesia in Parkinson's disease: Does movement size matter and to what extent?

JSLHR

KEARNEY, E., HAWORTH, M. B., SCHOLL, J., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

2018

- DOI:10.1044/2018\_JSLHR-S-17-0439

### Sentence-level movements in Parkinson's disease: Loud, clear, and slow speech

JSLHR

KEARNEY, E., GILES, R., HAWORTH, M. B., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

2017

- DOI: 10.1044/2017\_JSLHR-S-17-0075

### Game-based augmented visual feedback for enlarging speech movements in Parkinson's disease

JSLHR

YUNUSOVA, Y., KEARNEY, E., KULKARNI, M., HAWORTH, M. B., BALJKO, M., & FALOUTSOS, P.

2017

- DOI:10.1044/2017\_JSLHR-S-16-0233

### Outcome measures in developmental speech sound disorders with a motor basis

Curr. Dev. Disord. Rep.

KEARNEY, E., GRANATA, F., YUNUSOVA, Y., VAN LIESHOUT, P., HAYDEN, D., & NAMASIVAYAM, A.

2015

- DOI: 10.1007/s40474-015-0058-2

### Motor Speech Treatment Protocol for developmental motor speech disorders

Dev. Neurorehabil.

NAMASIVAYAM, A., PUKONEN, M., HARD, J., JAHNKE, R., KEARNEY, E., KROLL, R., & VAN LIESHOUT, P.

2015

- DOI: 10.3109/17518423.2013.832431

### Tongue-palate contact during selected vowels in children with speech sound disorders

IJSLP

LEE, A., GIBBON, F. E., KEARNEY, E., & MURPHY, D.

2014

- DOI: 10.3109/17549507.2013.862857

## PROCEEDINGS

### Electromagnetic articulography in the development of "serious games" for speech rehabilitation

Proceedings from PMHA 2014

HAWORTH, M. B., KEARNEY, E., BALJKO, M., FALOUTSOS, P., & YUNUSOVA, Y.

2014

# Presentations

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## INTERNATIONAL

### Invited

#### **The speech movement disorder in Parkinson's disease and its rehabilitation using augmented visual feedback (oral presentation)**

Boston, MA, USA

KEARNEY, E., HAWORTH, M. B., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

September 2017

- Boston Speech Motor Control Working Group, Boston University

#### **Development of augmented feedback targets for speech rehabilitation in Parkinson's disease (oral presentation)**

Cork, Ireland

KEARNEY, E., HAWORTH, M. B., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

March 2015

- Dept. of Speech and Hearing Sciences, University College Cork

### Conference

#### **Contributions of auditory and somatosensory feedback to vocal motor control (poster)**

Santa Barbara, CA, USA

KEARNEY, E., SMITH, D. J., STEPP, C. E., & GUENTHER, F. H.

February 2020

- 20th Biennial Conference on Motor Speech

#### **SimpleDIVA: A 3-parameter model for examining adaptation in speech and voice production (poster)**

Helsinki, Finland

KEARNEY, E., NIETO-CASTANON, A., DALIRI, A., & GUENTHER, F. H.

August 2019

- 11th Annual Meeting of the Society for Neurobiology of Language

#### **Game-based speech therapy using visual feedback in Parkinson's disease (poster)**

Groningen, Netherlands

KEARNEY, E., HAWORTH, B., SCHOLL, J., GILES, R., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

July 2017

- 7th International Conference on Speech Motor Control

#### **Speech movements and intelligibility in Parkinson's disease (oral presentation)**

Newport Beach, CA, USA

KEARNEY, E., SHELLIKERI, S., GILES, R., HAWORTH, M. B., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

March 2016

- 18th Biennial Conference on Motor Speech

#### **Movement-based speech therapy for dysarthria in Parkinson's disease and apraxia of speech (oral presentation)**

Newport Beach, CA, USA

YUNUSOVA, Y., KEARNEY, E., HAWORTH, M. B., FALOUTSOS, P., & BALJKO, M.

March 2016

- 18th Biennial Conference on Motor Speech

#### **Measuring participation in developmental speech sound disorders with a motor basis (poster)**

Denver, CO, USA

KEARNEY, E., GRANATA, F., YUNUSOVA, Y., VAN LIESHOUT, P., HAYDEN, D., & NAMASIVAYAM, A.

November 2015

- American Speech-Language-Hearing Association Convention

#### **Instrumental outcome measures in developmental speech sound disorders with a motor basis (poster)**

Orlando, FL, USA

GRANATA, F., KEARNEY, E., YUNUSOVA, Y., VAN LIESHOUT, P., HAYDEN, D., & NAMASIVAYAM, A.

October 2015

- International Association of Orofacial Myology Convention 2015

#### **Artifact removal techniques for 3D electromagnetic articulography (oral presentation)**

Montreal, Canada

MOGHADDAM, A., HAWORTH, B., KEARNEY, E., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

August 2015

- 3rd International Workshop on Biomechanical and Parametric Modeling of Human Anatomy

#### **Articulatory working space in older adults across speaking conditions (oral presentation)**

Orlando, FL, USA

KEARNEY, E., HAWORTH, M. B., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

November 2014

- American Speech-Language-Hearing Association Convention

#### **Electromagnetic articulography in the development of serious games for speech rehabilitation (oral presentation)**

Vancouver, Canada

HAWORTH, M. B., KEARNEY, E., BALJKO, M., FALOUTSOS, P., YUNUSOVA, Y.

August 2014

- 2nd International Workshop on Biomechanical and Parametric Modeling of Human Anatomy

#### **Articulatory working space as a kinematic target in augmented feedback applications (poster)**

Sarasota, FL, USA

KEARNEY, E., HAWORTH, M. B., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

February 2014

- 17th Biennial Conference on Motor Speech

## Rehabilitative speech computer game calibration using empirical characterizations of articulatory working space (poster)

YUNUSOVA, Y., FALOUTSOS, P., & BALJKO, M.

- 17th Biennial Conference on Motor Speech

Sarasota, FL, USA

February 2014

## Tongue-palate contact during selected vowels in children with speech sound disorder of unknown origin (poster)

LEE, A., KEARNEY, E., & GIBBON, F. E.

- International Clinical Phonetics and Linguistics Association Conference 2012

Cork, Ireland

June 2012

## NATIONAL

### Invited

## The speech movement disorder and its rehabilitation in Parkinson's disease using augmented visual feedback (oral presentation)

KEARNEY, E., HAWORTH, M. B., FALOUTSOS, P., BALJKO, M., & YUNUSOVA, Y.

- Ecole d'Orthophonie et d'Audiologie, Universite de Montreal

Montreal, Canada

May 2017

## Conference

## Investigating the Neural Mechanisms of Speech Rate, Clarity, and Emphasis (poster)

KEARNEY, E., TOURVILLE, J.A., NIETO-CASTANON, A., & GUENTHER, F.

- Boston Speech Motor Control Symposium

Boston, MA, USA

June 2019

## A 3-parameter model for fitting and interpreting speech sensorimotor adaptation data (oral presentation)

GUENTHER, F., KEARNEY, E., DALIRI, A., & NIETO-CASTANON, A.

- Neural Bases of Speech Production Symposium

San Francisco, CA, USA

March 2019

## Speech movements in apraxia of speech (poster)

ROBERTS, E., KEARNEY, E., BAILEY, K., GRAHAM, N., ROCHON, E., & YUNUSOVA, Y.

- Canadian Stroke Congress

Calgary, Canada

September 2017

## Game-based augmented visual feedback treatment for apraxia of speech after stroke (poster)

YUNUSOVA, Y., KEARNEY, E., SCHOLL, J., JANIK-JONES, C., HAWORTH, B., ROBERTS, E., FALOUTSOS, P., & BALJKO, M.

- Canadian Stroke Congress

Calgary, Canada

September 2017

## Tongue-palate contact during selected vowels in children with speech sound disorder of unknown origin (poster)

LEE, A., KEARNEY, E., & GIBBON, F. E.

- Irish Association of Speech and Language Therapists Biennial Conference

Dublin, Ireland

November 2011

## Software

### SimpleDIVA

GUENTHER, F.H., NIETO-CASTANON, A., FALSINI, R., KEARNEY, E., & WEERATHUNGE, H.R.

- An application that allows users to apply a simplified version of the DIVA model to data collected from auditory sensorimotor adaptation experiments

<https://bit.ly/2XY1n7f>

2019

# Teaching

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## CERTIFICATE

### Teaching in Higher Education

WOODSWORTH COLLEGE, UNIVERSITY OF TORONTO

Toronto, Canada

April 2016

## EXPERIENCE

### Course Instructor

DEPT. OF SPEECH, LANGUAGE AND HEARING SCIENCES, BOSTON UNIVERSITY

- Research Methods in Speech-Language Pathology and Audiology, Clinical MSc

Boston, MA, USA

September 2019-December 2019

### Guest Lecturer

DEPT. OF SPEECH, LANGUAGE AND HEARING SCIENCES, BOSTON UNIVERSITY

- SimpleDIVA Software Tutorial, Neural Control of Speech, MSc/PhD

Boston, MA, USA

November 2019

### Guest Lecturer

MASSACHUSETTS GENERAL HOSPITAL - INSTITUTE OF HEALTH PROFESSIONS

- Advancements in Treatment for Dysarthria, Neuromotor Speech Disorders, Clinical MSc

Boston, MA, USA

July 2019

### Course Instructor

DEPT. OF SPEECH-LANGUAGE PATHOLOGY, UNIVERSITY OF TORONTO

- Principles of Clinical Practice, Clinical MSc

Toronto, Canada

September 2017-December 2017

### Teaching Assistant/Guest Lecturer

DEPT. OF SPEECH-LANGUAGE PATHOLOGY, UNIVERSITY OF TORONTO

- Motor Speech Disorders, Clinical MSc
- Articulation and Related Disorders, Clinical MSc
- Research in Speech-Language Pathology, MSc
- Linguistics in the Workforce: Clinical Practice and Research, BSc
- Augmentative and Alternative Communication, Clinical MSc
- Applied Audiology, Clinical MSc
- Neurocognitive Communication, Clinical MSc
- Advanced Principles of Clinical Practice, Clinical MSc
- Adult Language Disorders, BSc

Toronto, Canada

September 2013-June 2017

# Technical Skills

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### Speech Acoustics

PRAAT, AUDACITY, TF32

### Speech Kinematics

SPEECH MOVEMENT ANALYSIS FOR SPEECH AND HEARING RESEARCH (SMASH)

### Auditory Feedback Perturbation

AUDAPTER

### Signal Processing and Analysis

MATLAB

### Neuroimaging Analysis

STATISTICAL PARAMETRIC MAPPING (SPM), FREESURFER, FUNCTIONAL CONNECTIVITY TOOLBOX (CONN)

### Statistical Analysis

R, MATLAB

### Version Control

GITHUB

### Design and Video Software

AFFINITY DESIGNER, ADOBE SUITE (INDESIGN, ILLUSTRATOR, PHOTOSHOP, PREMIER PRO), DRAW.IO

### Bibliographic Management

ENDNOTE, ZOTERO

### Website Builders

BLOGDOWN, WIX