Ceren Tozlu, Ph.D.

Postdoctoral Associate · CoCo Lab

Department of Radiology, Weill Cornell Medicine

cet2005@med.cornell.edu | cerent | @crntozlu

Education

Weill Cornell Medicine & **Cornell University** — *New York, USA*

Postdoctoral Associate at Department of Radiology-Computational Connectomics Lab — *2018 - present*

- Advisor: Dr. Amy Kuceyeski

University of Claude Bernard Lyon 1 — *Lyon, France*

Ph.D. Biostatistics, Bioinformatics, Biomathematics, and Health — *2014 - 2018*

- Advisor: Dr. Delphine Maucort-Boulch

University of Claude Bernard Lyon 1 — *Lyon, France*

Master of Science, Biostatistics, Bioinformatics, Biomathematics, and Health — *2013 - 2014*

- Advisor: Dr. Delphine Maucort-Boulch

Galatasaray University — *Istanbul, Turkey*

BS Undergraduate Degree — *2007 - 2013*

- Mathematics, Applied Mathematics
- Education in French

Publications

Published

Tozlu, C; Jamison, K; Gauthier, S; Kuceyeski, A.. "Dynamic functional connectivity better predicts disability than structural and static functional connectivity in people with multiple sclerosis". (2021) *Frontiers in Neuroscience*

Tozlu, C; Jamison, K; Gu, Z; Gauthier, S; Kuceyeski, A. "Estimated connectivity networks outperform observed connectivity networks when classifying people with multiple sclerosis into disability groups". (2021) *NeuroImage:Clinical*

Tozlu, C; Jamison, K; Nguyen, T; Zinger, N; Kaunzner, U; Pandya, Sneha; Wang, Y; Gauthier, S; Kuceyeski, A. "Structural disconnectivity from quantitative susceptibility mapping rim+ lesions is related to disability in people with multiple sclerosis". *Brain and Behavior*

Buyukturkoglu, K; Zeng, D; Bharadwaj, Srinidhi; **Tozlu, C**; Mormina, Enricomaria; Igwe, K; Lee, S; Habeck, C; Brickman, A; Riley, C; De Jager, P; Sumowski, J; Leavitt, Victoria. "Classifying multiple sclerosis patients on the basis of SDMT performance using machine learning". (2021) *Multiple Sclerosis Journal*, 27(1): 107-116.

Buyukturkoglu, K; Vergara, C; Fuentealba, V; **Tozlu, C**; Dahan, J; Kuceyeski, A; Sumowski, J; Guevara Oliva, Carlos; Sitaram, Ranganatha; Riley, Claire; De Jager, P; Guevara, P; Leavitt, Victoria. "Machine learning to investigate superficial white matter integrity in early multiple sclerosis". (2022) *Journal of Neuroimaging*

Hurtado Rua, S; Kaunzner, U; Pandya, S; Sweeney, E; **Tozlu, C**; Kuceyeski, A; Nguyen, T; Gauthier, S. "Lesion features on MRI discriminate multiple sclerosis patients". (2022) *European Journal of Neuroscience*

Tozlu, C, Ozenne, B; Cho, T-H; Nighoghossian, N; Mikkelsen, I K; Derex, L; Hermier, M; Pedraza, S; Fiehler, J; Ostergaard, Leif; Berthezène, Y; Baron, J-C; Maucort-Boulch, D. "Comparison of classification methods for tissue outcome after ischaemic stroke". (2019) *European Journal of Neuroscience*, 50(10): 3590-3598.

Tozlu, C, Edwards, D; Boes, A; Labar, D; Tsagaris, K Z; Silverstein, J; Pepper Lane, H; Sabuncu, M; Liu, Charles; Kuceyeski, Amy. "Machine Learning Methods Predict Individual Upper-Limb Motor Impairment Following Therapy in Chronic Stroke". (2020) *Neurorehabilitation and neural repair*, 34(5): 428-439.

Under Review

Tozlu, C; Card, S; Jamison, K; Gauthier, S; Kuceyeski, A. "Larger lesion volume in people with multiple sclerosis is associated with increased transition energies between brain states and decreased entropy of brain activity"

van der Groen, O, Ghosh, M; Norman, R; Kuceyeski, A; **Tozlu, C**; Kimberley, T; Lin, D; Buxbaum, L; Kwakkel, G; Edwards, D. "Refining outcome prediction for post-stroke motor recovery"

Teaching Experience

2014-2018	**Teaching Assistant**, Biostatistics - Army Health School of France
2014-2018	**Teaching Assistant**, Biostatistics lectures in the department of Neuroscience, Cancer, and Biostatistics- University of Claude Bernard, Lyon 1

Awards, Fellowships, & Grants

July 2021- July 2024	**Postdoctoral Fellowship**, "Mapping multi-modal brain features to impairment severity in people with MS using machine learning"-*National MS Society*	*$ 204K*
March 2021- March 2022	**Pilot Grant**, "Understanding the relationship between the brain's structural and functional connectivity networks and cognition in pre- and post-menopausal MS patients"-*Cornell MRI Facility*	*$ 27K*
2022	**Educational grant**, *ACTRIMS conference*	*$ 600*
2021	**Trainee (Educational) Stipend**, *ISMRM Conference*	*$ 250*
2020	**Educational grant**, *ACTRIMS conference*	*$ 600*
2019	**Educational grant**, *ECTRIMS conference*	*$ 600*
2017	**Research Grant**, *l'Institut Open Health*	*€6K*

Presentations

** presenting author; + co-first author*

Invited Talks

March 2021. **Tozlu, C**; Jamison, K; Gu, Z; Gauthier, S; Kuceyeski, A. "Comparison of empirical vs predicted structural and functional connectivity in predicting disability in MS". *MRIRI-Weill Cornell Medicine*, New York, NY.

February 2020. **Tozlu, C**; Jamison, K; Gauthier, S; Kuceyeski, A. "Classification Of Ms Patients' Impairment Status Using Machine Learning Applied To Baseline Quantitative Susceptibility Mapping Imaging". *NAIMS Symposium at ACTRIMS 2020*

Contributed Oral Presentations

Tozlu, C; Jamison, K; Gu, Z; Gauthier, S; Kuceyeski, A. "Functional connectivity networks estimated via deep learning outperform observed functional connectivity networks in classifying people with multiple sclerosis by disability level". *ECTRIMS 2021*

Tozlu, C; Jamison, K; Gauthier, S; Kuceyeski, A. "Predicting disability from structural and functional coupling in multiple sclerosis". *ISMRM 2021*

Tozlu, C; Ozenne, B, ..., Maucort-Boulch, D. 2013. "Comparison of classification methods for tissue outcome after ischaemic stroke". Applied Statistics 2017, Ribno (Lake Bled), Slovenia.

Poster Presentations

Tozlu, C; Card, S; Jamison, K; Gauthier, S; Kuceyeski, A. "Higher functional activity in the somatomotor network is associated with functional reorganization in the early stage of multiple sclerosis". *ISMRM 2022*

Tozlu, C; Card, S; Jamison, K; Gauthier, S; Kuceyeski, A. "Higher Functional Activity In The Somatomotor Network is a Biomarker Of The Functional Reorganization in the Early Stage of MS". *ACTRIMS 2022*

Nevarez, B; **Tozlu, C**, ; Jamison, K; Gauthier, S; Kuceyeski, A. "Graph Theory Metrics of Structural Connectivity Networks Created with Lower Dimensional Atlases Better Identify the Disability Level in Multiple Sclerosis". *ACTRIMS 2022*

Buyukturkoglu, K[+]; **Tozlu, C**[+]; Vergara, C Valentina Fuentealba, Dahan, J; Kuceyeski, A; Sumowski, J; Guevara Oliva, Carlos; Sitaram, Ranganatha; Riley, Claire; De Jager, P; Guevara, P; Leavitt, Victoria. "Relationship of Superficial White Matter Integrity and Cognition in Early MS: A Machine Learning Study". *American Academy of Neurology, 2022*

Buyukturkoglu, K[+]; **Tozlu, C**[+] et al. "Relationship of Superficial White Matter Integrity and Cognition in Early MS: A Machine Learning Study". *ECTRIMS 2021*

Olafson, E; **Tozlu, C**; Jamison, K; Gauthier, S; Kuceyeski, A. "Implementation of a 3D convolutional network to predict impairment of multiple sclerosis subjects based on structural disconnection". *ECTRIMS 2021*

Tozlu, C; Jamison, K; Gu, Z; Gauthier, S; Kuceyeski, A. "Disability classification using empirical vs predicted structural and functional connectivity in MS". *OHBM 2021*

Mentoring

2021-2022 **Sophie Card**, Horace Greeley High School, Chappaqua NY, USA
2021-2022 **Bella Nevrez**, Undergrad, Cornell University
2020-2021 **Nicholas Vartanian**, Undergrad, Vermont University
2020-2021 **Yiran Li**, Undergrad, Cornell University
2019-2020 **Alex Lin**, Undergrad, Cornell University

Outreach & Professional Development

Service and Outreach

2021-Present **Postdoctoral Association**, Chair of the Advocacy Committee, Weill Cornell Medicine

Peer Review

Brain Structure and Function
Frontiers in Neuroscience
Journal of Cerebral Blood Flow and Metabolism
Network Neuroscience
NeuroImage: Clinical
Neurorehabilitation and Neuro Repair
Multiple Sclerosis Journal
Journal of Neuroscience Research
ISMRM 2022 (conference abstract review)
OHBM 2020 and 2021 (conference abstract review)

Moderator

International Society for Magnetic Resonance in Medicine (ISMRM) 2022

Professional Memberships

Organisation of Human Brain Mapping (OHBM)

International Society for Magnetic Resonance in Medicine (ISMRM)

References

1 **Amy Kuceyeski, Ph.D.**, Postdoc Advisor - Weill Cornell Medicine -email: amk2012@med.cornell.edu
2 **Susan Gauthier, M.D., Ph.D.**, Weill Cornell Medicine -email: sag2015@med.cornell.edu
3 **Mert Rory Sabuncu, Ph.D.**, Weill Cornell Medicine -email: msabuncu@cornell.edu