HUNTER R. SCHONE

University of Pittsburgh
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Education & Academic Positions

University of Pittsburgh, Department of Physical Medicine and Rehabilitation — Pittsburgh, PA
Postdoctoral Associate, *Advisor: Jennifer Collinger, PhD* — 2023–Present

University College London – National Institutes of Health, Joint Doctoral Training Program — London, UK
PhD Neuroscience, *Advisors: Chris I Baker, PhD & Tamar Makin, PhD* — 2018–2023

University of Oxford, Wellcome Centre for Integrative Neuroimaging — Oxford, UK
Research Assistant, *Advisor: Tamar Makin, PhD* — 2017-2018

University College London, Institute of Neurology (graduated with *distinction*) — London, UK
MSc Clinical Neuroscience, *Advisor: Tamar Makin, PhD* — 2016-2017

Westminster College — Salt Lake City, UT
B.Sc. Neuroscience, *Advisor: Lesa Ellis, PhD* — 2014-2016

Brigham Young University — Provo, UT
2011-2014

Publications

Peer-Reviewed Papers

Schone, H.R., Udeozor, M, Moninghoff, M., Rispoli, B., Vandersea, J., Lock, B., Hargrove, L., Makin, T.R. and Baker, C.I (2024). Biomimetic versus arbitrary motor control strategies for bionic hand skill learning. *Nature Human Behaviour* (available on *bioRxiv*: doi: doi.org/10.1101/2023.02.07.525548).

Love, K., Cao, D., Chang, J., Dal'Bello, L.R., Ma, X., O'Shea, D.J., **Schone, H.R.,** Shahbazi, M., and Smoulder, A. (2024). Highlights from the 32nd Annual Meeting of the Society for the Neural Control of Movement. *Journal of Neurophysiology.* doi: https://doi.org/10.1152/jn.00428.2023

Schone, H.R., Baker, C.I, Katz, J., Nikolajsen, L., Limakatso, K., Flor, H. and Makin, T.R. (2022). Making sense of phantom limb pain. *Journal of Neurology, Neurosurgery & Psychiatry,* 93:833-843.

Schone, H.R., Maimon-Mor, R.O., Baker, C.I., and Makin, T.R. (2021). Expert tool users show increased differentiation between visual representations of hands and tools. *Journal of Neuroscience*, 41 (13) 2980-2989.

Maimon-Mor, R.O., **Schone, H.R.,** Henderson-Slater, D., Faisal, A. and Makin, T.R. (2021). Early life experience sets hard limits on motor learning as evidenced from artificial arm use, *eLife*, 10: e66320.

Schone, H. R., Maimon-Mor, R. O, Moran, R., Brugger, P. and Makin, T. R. (2020). Motor control drives visual bodily judgements. *Cognition*, 196, 104120.

Schone, H.R., Maimon Mor, R.O., Kollamkulam, M., Gerrand, C., Woolard, A., Kang, N., Baker, C.I., and Makin, T.R. (2023). Stable cortical body maps before and after arm amputation. *bioRxiv,* doi: https://doi.org/10.1101/2023.12.13.571314 (Under Review).

In preparation

Schone, H.R., Makin, T.R. and Baker, C.I (in-prep). Decoding actions and observations of hand gestures in the human brain.

Schone, H.R., Herbers, C., Weber, D., Yoo, P., Collinger, J. (in-prep). Relationship between peri-implant brain morphology and signal quality of a neuroendovascular brain-computer interface.

Schone, H.R., Edwards, G., Japee, S., Makin, T.R. and Baker, C.I (in-prep). Neural adaptations associated with bionic hand skill learning.

Downey, J.E., ***Schone, H.R.,*** Foldes, S., Greenspon, C., Liu, F., Verbarschott, C., Biro, D., Satzer, D., Moon, C., Coffman, B., Hobbs, T., Fields, D., Tyler-Kabara, E., Warnke, P.C., Gonzalez-Martinex, J., Hatsopoulos, N.G., Boninger, M., Gaunt, R.A., Bensmaia, S.J., and Collinger, J.L. (in-prep) A roadmap for implanting microelectrode arrays to evoke somatosensation through intracortical microstimulation.

Awards

Brain-Computer Interface Society Travel Award	2023
Society for the Neural Control of Movement Conference Award	2023
University College London Sully Scholarship	2020
Most outstanding department doctoral candidate	
National Institutes of Health Graduate Student Research Award Winner - Neuroscience	2020
UCL-NIMH Research Symposium Top Oral Presentation	2019

Invited Talks

University of Toronto, Human Pain Seminar Series	2024
University of Pittsburgh, Visual Prosthesis Group	2023
University of Cambridge, MRC Cognition and Brain Sciences Unit	2023
University of Pittsburgh, Rehabilitation and Neural Engineering Lab	2023
National Institutes of Health, Laboratory of Brain and Cognition	2022
Wellcome Center for Human Neuroimaging, Brain Seminar Series	2022

Conference Presentations

Chaired Symposia

Schone, H.R. (2022). "Experience-Dependent Plasticity: Gaining Insights Into the Neural Capacity to Adapt." Nanosymposium presented at the Society for Neuroscience (SfN), San Diego, CA.

*__*Schone, H.R__* (2023). Does the cortical hand representation change following amputation? A pre- and post amputation fMRI study. *UCL-NIMH Joint Symposium*, London, UK, USA.

+__*Schone, H.R.,*__ Udeozor, M., Moninghoff, M., Rispoli, B., Vandersea, J., Lock, B., Hargrove, L., Makin, T.R. and Baker, C.I. (2023) Should bionic limb control mimic the human body? Impact of control strategy on bionic hand skill learning. *Brain Computer Interface Meeting*, Brussels, Belgium.

*__*Schone, H.R.,*__ Makin, T.R., and Baker, C.I. (2023). Human See, Human Do: comparing motor and visual representations of hand gestures. *Vision Sciences Society*, Florida, USA.

*__*Schone, H.R.,*__ Kollamkulam, M., Gerrand, C., Sedki, I., Maimon-Mor, R. O., Baker, C.I. and Makin, T.R. (2023). How does the cortical hand representation change following amputation? A pre- and post-amputation fMRI study. *Neural Control of Movement*, Victoria, Canada.

*__*Schone, H.R.,*__ Kollamkulam, M., Gerrand, C., Sedki, I., Maimon-Mor, R. O., Baker, C.I. and Makin, T.R. (2022). How does the cortical hand representation change following amputation? A pre- and post-amputation fMRI study. *Society for Neuroscience*, San Diego, Califorrnia, USA.

+__*Schone, H.R.,*__ Udeozor, M., Moninghoff, M., Rispoli, B., Vandersea, J., Lock, B., Hargrove, L., Makin, T.R. and Baker, C.I. (2022) Is the human body the best model for controlling artificial limbs? Comparing biomimetic and arbitrary control strategies. *Society for Neuroscience*, San Diego, California, USA.

+__*Schone, H.R.,*__ Edwards, G., Japee, S., Makin, T.R., and Baker, C.I. (2022) Decoding action and observation of biological and robotic hand gestures. *Society for Neuroscience*, San Diego, California, USA.

+__*Schone, H.R.,*__ Udeozor, M., Moninghoff, M., Rispoli, B., Vandersea, J., Lock, B., Hargrove, L., Edwards, G.E., Japee, S.J., Makin, T.R. and Baker, C.I. (2022) Is the human body the best model for controlling artificial limbs? Comparing biomimetic and arbitrary control strategies. *Neural Control of Movement,* Dublin, Ireland.

*__*Schone, H.R.*__ (2021). Is the human body the ultimate design template for artificial limbs? *EMBC Conference workshop: From machine-brain interfaces (MBI) to neurorobotics: challenges and opportunities*. https://neuroeng.org/workshop-embc2021.

+__*Schone, H.R.,*__ Maimon-Mor, R.O., Baker, C.I., and Makin, T.R. (2020). Expert tool users do not visually embody their hand-held tool. *Vision Sciences Society,* St. Pete Beach, Florida, USA.

+__*Schone, H.R.,*__ Gerrand, C., Sedki, I., Maimon-Mor, R. O., Baker, C.I. and Makin, T.R. (2020). Preserved somatotopic organisation following hand amputation. *British Sarcoma Conference,* Glasgow, Scotland, UK.

*__*Schone, H.R.,*__ Maimon-Mor, R.O., Baker, C.I., and Makin, T.R.. (2020). Expert tool users do not visually embody their hand-held tool. C*apital Area Cognition, Attention and Perception Conference,* Washington, D.C.

+__*Schone, H.R.,*__ Maimon-Mor, R.O., Baker, C.I. and Makin, T.R. (2019). Investigating the neural embodiment of prosthetic limbs and tools. *Society for Neuroscience*, Chicago, Illinois, USA.

*[+]*Schone, H.R,* Maimon-Mor, R.O., Baker, C.I. and Makin, T.R. (2019). Assessing prosthesis embodiment in elite prosthesis users. *UCL-NIMH Joint Symposium*, Bethesda, MD, USA.

[+]*Schone, H.R.,* Maimon-Mor, R.O., Baker, C.I. and Makin, T.R. (2019). Assessing the neurocognitive characteristics of elite prosthesis users. *Trent International Prosthetics Symposium,* Manchester, UK.

[+]*Schone, H.R.,* Maimon-Mor, R.O., Moran, R., Brugger, P. and Makin, T.R. (2018). Bimanual sensorimotor system is more effective than a unimanual system. *Hand, Brain and Technology conference,* Ascona, Switzerland.

[+]*Schone, H.R.,* Maimon-Mor, R.O. and Makin, T.R. (2017). Assessing embodiment with visual priming tasks. *Queen Square Symposium,* London, UK.

Schone, H.R. (2016). *TEDx WestminsterCollegeSLC,* Salt Lake City, UT.

Service, Mentoring & Outreach

Academic Service

Committee Member, Brain-Computer Interface Society Postdoctoral Student Committee	2021-2023
Graduate Student Representative, Faculty of Brain Sciences, University College London	2016-2017
Committee Member, University College London Executive Student Union	2016-2017
Committee Member, Brigham Young University Neuroscience Student Association	2012-2014
Student Editor, Chiasm, BYU Neuroscience Journal	2013-2014

Mentoring

Mathew Kollamkulam: Masters Research Student, University College London (2020-2022)

Malcolm Udeozor: Postbaccalaureate Trainee, National Institutes of Health (2020-2023)

R'ay Fodor: Postbaccalaureate Trainee, National Institutes of Health (2019-2021)

Mae Moninghoff: Postbaccalaureate Trainee, National Institutes of Health (2021-2023)

Community Outreach

Organizer, Adult Coding Course at University of Pittsburgh's Community Engagement Center	2023-Present
Organizer, BCI Society Industry-Academia Seminar Series	2021-2023
Volunteer judge, National Institute of Health Postbac Poster Day	2021-2022
Volunteer, REACH charity Annual Family Weekend	2019
Volunteer, Alzheimer's Association, Salt Lake City, UT Chapter	2013-2016
Volunteer, Green City and Shree Binayak Hospitals in Kathmandu, Nepal	2014
Organizer, University 5k Fun Run – raised $15,000 for the IFOPA organization	2014
Volunteer student emergency medical technician, BYU	2013
Tutor, Orem Jr. High School After-School Tutoring Program	2013
Volunteer, Intermountain Healthcare, Department of Radiology	2012-2014

Commitments to Equality, Inclusion and Diversity

Member, Visibility: LGBTQ society of the Vision Sciences Society	*2021-2023*

Mentor, Out in Science Technology, Engineering and Math (oSTEM)   2021-Present

Reviewing

I have reviewed 10 journal submissions (not including resubmissions): BMC Surgery, Brain Communications, Cerebral Cortex, Consciousness and Cognition, Experimental Brain Research, Journal of Pain, Journal of Physiology, Lancet Neurology, Perception, Neuropsychologia.

Media Coverage

Interviewed, Scientific American: "To The Brain, a Tool Is Just a Tool, Not a Hand Extension"   2021
Interviewed, BBC World News: "Phantom Limb Pain"   2019
Interviewed, Book, Beautiful Trauma by Rebecca Fogg   2018