PEDRAM MOUSELI
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EDUCATION:

2021-2026 **Doctor of Philosophy, Collaborative Program in Neuroscience**
Faculty of Dentistry
University of Toronto, Canada
Thesis title: Identifying a multimodal biomarker signature of orofacial pain.

2017-2020 **Master of Science, Mechatronics Engineering**
Faculty of Electrical Engineering
K.N. Toosi University of Technology, Iran
Thesis title: Detection of abnormalities in functional connectivity network of the ADHD brain using resting-state magnetoencephalography.

ADDITIONAL EDUCATION:

2023 **Level 2 MRI operator**
Certified to conduct the MRI machine without a technologist.
Toronto Neuroimaging Facility (TONI)
University of Toronto, Canada

2022 **Data Science Certificate**
SciNet High Performance Computing Consortium
University of Toronto, Canada

2022 **Computational Psychiatry Course**
Neuroscience School of Advanced Studies
Venice, Italy

2020 **Brains, Minds & Machines Summer Course**
Center for Brain, Minds, & Machines
Massachusetts Institute of Technology (MIT), Cambridge, USA

2020 **Computational Neuroscience Course**
Neuromatch Academy

EXPERIENCE:

2026- **Postdoctoral Fellow**
University of Toronto

2022- **Research Analyst**
Division of Clinical & Computational Neuroscience
Krembil Research Institute, University Health Network, Toronto, Canada

2023- **Head Teaching Assistant**
Applied Fundamentals of Deep Learning course
Faculty of Applied Science & Engineering
University of Toronto, Canada

2022 **Teaching Assistant**
Applied Fundamentals of Deep Learning course
Faculty of Applied Science & Engineering
University of Toronto, Canada

2021 **Project Teaching Assistant**
Deep Learning course
Neuromatch Academy

2021 **Project Teaching Assistant**
Computational Neuroscience course
Neuromatch Academy

2018- 2020 **Executive Committee Member**
Center for Research and Technology (CReaTech)
K.N. Toosi University of Technology, Iran

2019- 2020 **Teaching Assistant**
Functional Brain Imaging Systems course
Faculty of Electrical Engineering
K.N. Toosi University of Technology, Iran

2017- 2020 **Graduate Researcher**
Center for Research and Technology (CReaTech)
K.N. Toosi University of Technology, Iran

Papers:

1. **Mouseli, P**., Moayedi, M. (2026). Computation, Not Memory: Chain-of-Thought and State Tracking in LLM Agents. *arXiv preprint arXiv: 2610.25760*.

2. **Mouseli, P**., De Vera, N., Sagheer, S., Jurisica, I., Reid, W.D., Angst, M.S., Aghaeepour, N., Moayedi, M., Cioffi, I. (2026). LENS: a transferable neuromuscular signature of musculoskeletal pain intensity. bioRxiv, 2026-09.

3. Cormie, M.*, **Mouseli, P**.*, Martini, C., De Silva, K., Lauric, I., Khalil, O., Seminowicz, D., Moayedi, M. Nociceptive Sensitization and Pain Perception Are Dissociable in Humans. (2026). Nociceptive sensitization and pain perception are dissociable in humans. Proceedings of the National Academy of Sciences, 123(35), e2603667123.

4. **Mouseli, P**., Dunkley, B.T., Moayedi, M. (2025). Functional connectivity differences in adults ADHD—a MEG study. bioRxiv, 2025-07.

5. Kulkarni, M., Rassam, P., **Mouseli, P**., Date, M., Mori, T., Van Hollebeke, M., Campos, J. L., Rozenberg, D., Reid, W. D. (2026). Prefrontal cortex connectivity during right and left hand dexterity tests in younger and older adults. PLoS One, 21(2), e0342547.

6. Lee, S., Koshkebaghi, D., **Mouseli, P.**, Cioffi, I. (2025). Social Media Use and Jaw Motor Activity: Insights from Electromyography and Self-Report Data. Journal of Oral Rehabilitation, 52(11), 1945-1954.

7. Hadjis, G. E., Atlas, L. Y., **Mouseli, P**., Sexton, C. A., McAndrews, M. P., & Moayedi, M. (2024). Subjective salience ratings are a reliable proxy for physiological measures of arousal. Pain, 10-1097.

8. Audrain, S., Barnett, A., **Mouseli, P**., & McAndrews, M. P. (2023). Leveraging the resting brain to predict memory decline after temporal lobectomy. Epilepsia, 64(11), 3061-3072.

9. Cormie, M. A., Kaya, B., Hadjis, G. E., **Mouseli, P**., & Moayedi, M. (2023). Insula-cingulate structural and functional connectivity: an ultra-high field MRI study. Cerebral Cortex, 33(17), 9787-9801.

10. G.H. Govaart, A. Schettino, S. Helbling, D.M.A. Mehler, W.X.Q. Ngiam, D. Moreau, F. Chiossi, A.P. Zanesco, Y.-F. Yang, R. Gau, J.E. Bartlett, J.C. García Alanis, J.N. Gutsell, M. Çetinçelik, Y.G. Pavlov, A. Šoškić, B.V. Ehinger, **P. Mouseli**, J. Algermissen, M. Topor, J. Pérez-Navarro, G. Häberle, M.S. Schreiner, K. Rothmaler, G. Niso, M. Paul, "EEG ERP Preregistration Template", MetaArXiv, 2022.

Conferences:

1. **Mouseli, P**., De Vera, N., Sagheer, S., Jurisica, I., Reid, W.D., Moayedi, M., Cioffi, I., "Learning a Generalizable Muscle Pain Signature: A Deep Learning Approach Using EMG and NIRS", MAIN, Montreal, QC, Canada, December 2025.

2. **P Mouseli**, S Sagheer, WD Reid, I Jurisica, M Moayedi, I Cioffi, "A predictive model of musculoskeletal facial pain based on functional muscle recordings", IASP World Congress on Pain Amsterdam, Netherlands, August 2024.

3. **P Mouseli**, D Ladowski, M Goubran, D Gold, M Moayedi, MP McAndrews, "Prediction of laterality and neuropsychological scores in TLE using hippocampal sub-region volumes", Organization for Human Brain Mapping (OHBM), Montreal, QC, Canada, July 2023.

4. **P Mouseli**, S Sagheer, WD Reid, M Moayedi, I Cioffi, "A predictive Model of Facial Pain Evoked by Repeated Tooth Clenching", IADR, Bogota, Colombia, June 2023.

5. **P Mouseli**, S Sagheer, WD Reid, M Moayedi, I Cioffi, "Development of a predictive machine learning model for pain evoked by experimental orofacial muscle pain", Canadian Pain Society Annual Scientific Meeting, Banff, AB, Canada, May 2023.

6. S Sagheer, **P Mouseli**, M Moayedi, I Cioffi, "Self-Report Oral Behaviours are Associated with Tooth Clenching-Evoked Pain". IASP World Congress on Pain, Toronto, ON, Canada, September 2022.

7. MA Cormie, B Kaya, G Hadjis, **P Mouseli**, M Moayedi, "Structural and Functional Connectivity Between the Insular and Cingulate Cortices: An Ultra-High Field MRI Study". IASP World Congress on Pain, Toronto, ON, Canada, September 2022.

8. L Ayoub, **P Mouseli**, P Bandari, MP McAndrews, M Moayedi, Hippocampal damage is related to lower pain sensitivity in patients with temporal lobe epilepsy. IASP World Congress on Pain, Toronto, ON, Canada, September 2022.

PRESENTATIONS

2025.06.25	Predictive models of pain using biological and psychological markers, 2025 IADR/PER General Session & Exhibition, Barcelona, Spain, June 2025.
2024.04.11	Prediction of laterality and neuropsychological scores in TLE using hippocampal subfield volumes, Krembil research day, Toronto, ON, Canada
2024.02.20	Functional Connectivity Differences in adult ADHD - a MEG study, Krembil neuroimaging rounds, Krembil Research Institute, UHN, Toronto, ON, Canada
2023.01.23	Developing a predictive model of pain evoked by a repeated clenching task from masseter tissue oxygen saturation and EMG signals, Seminar series, Faculty of Dentistry, University of Toronto, Toronto, ON, Canada
2023.01.20	Prediction of laterality and neuropsychological scores in TLE using hippocampal sub-region volumes, Toronto Neuroimaging Facility (ToNi), Department of Psychology, University of Toronto, Toronto, ON, Canada
2022.06.21	Causal mapping of human brain function, Krembil neuroimaging rounds, Krembil Research Institute, UHN, Toronto, ON, Canada
2022.02.11	Self-supervised learning for neuroimaging applications, Toronto Neuroimaging Facility (ToNi), Department of Psychology, University of Toronto, Toronto, ON, Canada
2022.10.29	Deep Learning applications in neuroimaging: evidence and possible routes, McAndrews Lab, Krembil Research Institute, Toronto Western Hospital, Toronto, ON, Canada
2020.12.03	Detecting abnormalities in the functional connectivity network of the ADHD brain using resting-state MEG, Department of Electrical and Computer Engineering, Kharazmi University, Tehran, Iran
2019.02.25	Resting-state functional connectivity in ADHD using MEG, 4th Student Seminar on Electrical and Computer Engineering Innovations, K.N. Toosi University of Technology, Tehran, Iran

HONORS & AWARDS

2025	Wilson G. Harron Travel Award (2000 CAD)
2024	2nd place best oral presentation award, Krembil Research Institute research day
2024	Best poster award, UTCSP annual scientific meeting
2023	TC3-UTCSP Joint Professional Development and Training Award (2250 CAD)
2023	Harron Scholarship, University of Toronto (26,713.96 CAD)

2023 IADR INfORM Early Career Researcher Travel Award (500 USD)
2023 TC3-UTCSP Joint Award (1530 CAD)
2023 Constantine Maniatopoulos Graduate Poster Award, University of Toronto (250 CAD)
2022 Semi-finalist, 3-minute thesis competition, University of Toronto
2020 5th place, 3-minute thesis competition, K.N.Toosi University of Technology
2017 Ranked top 2% in national MSc. entrance exam in Mechanical Engineering among 25000 students.

PEER REVIEW

Journals
Nature Communications
Journal of Neuroscience
PAIN

PROGRAMMING LANGUAGES & COMPUTER SKILLS

- Python (packages: Pytorch, Scikit-learn, TensorFlow, Keras, SciPy, Pandas)
- MATLAB
- R
- Brain data analysis packages (FieldTrip, Brainstorm, Freesurfer)