

**CURRICULUM VITAE FOR PROMOTION AND TENURE****JESSICA L. NIELSON, PH.D.****PROFESSIONAL ADDRESS**

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**IDENTIFYING INFORMATION****Education**

| <b>Degree</b> | <b>Institution</b>                                      | <b>Date Degree Granted</b> |
|---------------|---|----------------------------|
| B.S.          | Cal Poly Pomona, Pomona, CA<br>Biology                  | 2003                       |
| Ph.D.         | University of California, Irvine<br>Biological Sciences | 2010                       |
| NRSA Postdoc  | University of California, San Francisco<br>Neurosurgery | 2015                       |
| Postdoc       | University of California, San Francisco<br>Neurosurgery | 2016                       |

**Academic Appointments**

|  |              |
|--|--------------|
| University of Minnesota, Twin Cities<br>Assistant Professor                  | 2017-present |
| University of California, San Francisco<br>Assistant Professional Researcher | 2016-2017    |

**Current Membership and Offices in Professional Organizations**

Society for Neuroscience (since 2007)  
 National Neurotrauma Society (since 2011)  
 American Medical Informatics Association (since 2017)

**Other professional employment, including military service**

|   |           |
|---|-----------|
| Advanced Sterilization Products, Irvine, CA<br>Senior Research Technician | 2003-2004 |
|---|-----------|

## HONORS AND AWARDS FOR RESEARCH WORK, TEACHING, PUBLIC ENGAGEMENT, AND SERVICE

### External Sources

- NIMH Early Stage Investigator 2018
- Michael, Goldberger Award, National Neurotrauma Society 2015
- National Neurotrauma Society Travel Award 2015
- Society for Neuroscience/Chapter Postdoc Travel Award 2014
- NIH NRSA Individual Postdoctoral Fellowship (F32) 2013-2015
- Lloyd Guth Award for Excellence in Graduate Research 2011
- Presentation Award, 2<sup>nd</sup> Place, UCI Grad Student Retreat 2009
- President's List, Cal Poly Pomona 2002-2003
- Dean's List, Cal Poly Pomona 2002-2003

## RESEARCH AND SCHOLARSHIP

### Grants and Contracts

#### External Sources

##### *Current*

Principal Investigator

NIH/NIMH - 1R01MH116156 - 01A1

Bioinformatics for posttraumatic stress

07/01/2018 – 06/30/2023

\$1,854,017 direct costs (total)

Project Scientist

Department of Veterans Affairs

Harnessing big-data for plasticity and rehabilitation in translational SCI

11/1/2016 – 10/31/2020

\$1,100,000 direct costs (total)

NIH/NCATS - UL1 TR002494

University of Minnesota Clinical and Translational Science Institute (UMN CTSI)

03/01/2018-02/28/2023

\$5,414,524 direct costs (total)

##### *Past*

Project Scientist

Wings for Life Foundation (WfL)

Reproducibility and translation of hemodynamic predictors in SCI: Testing the limits using big data

07/01/2016 – 06/30/2019

\$334,767 direct costs (total)

Project Scientist

Craig H. Neilsen Foundation

(CHNF)  
 Open Data Commons for Spinal Cord Injury  
 01/15/2016 – 01/15/2019  
 \$450,000 direct costs (total)

Postdoctoral Scholar  
 NIH/NINDS – R01 NS067092  
 Bioinformatics for Translational Spinal Cord Injury  
 05/01/2010 – 04/30/2017  
 \$1,090,000 direct costs (total)

Research Scientist  
 University of California/Resource Allocation Program  
 Big-data analytics for biomarkers and cognitive plasticity in schizophrenia  
 01/01/2016 – 12/31/2016  
 \$75,000 direct costs (total)

Principal Investigator  
 NIH National Research Service Award – F32 NS079030  
 Translational outcome measures of cervical spinal cord injury  
 01/03/2013 – 01/02/2015  
 \$106,132 direct costs (total)

Postdoctoral Scholar  
 Craig H. Nielsen Foundation – CHN 224308  
 Visualizing Translational Spinal Cord Injury Research  
 07/01/2012 – 07/01/2014  
 \$272,274 direct costs (total)

Postdoctoral Scholar  
 Wings for Life Foundation  
 Datasharing and Bioinformatics for Previously Funding Projects  
 07/01/2012 – 07/01/2014  
 \$175-058 direct costs (total)

Graduate Student Fellow  
 NIH/NINDS Institutional NRSA – T32 NS007486  
 Postdoctoral Training Program in Neural Regeneration  
 2001-2006  
 \$1,072,339 direct costs (total)

## Publications

### Impact Analytics

| <i>h</i> -index | <i>h(fl)</i> -index | Total Publications | First/Last Author Publications | Total Citations | First/Last Author Citations |
|-----------------|---------------------|--------------------|--------------------------------|-----------------|-----------------------------|
| 16              | 7                   | 45                 | 17                             | 845             | 334                         |

### Peer-Reviewed Publications

1. Hawryluk GWJ, **Nielson JL**, Huie JR, Zimmermann L, Saigal R, Ding Q, Hirschi R, Zeiler FA, Ferguson AR, Manley GT. Analysis of High Frequency Intracranial Pressure Data in Neurocritical Care Patients: Insights into Normal Values and the Treatment Threshold. *JAMA Neurology* (in press).
2. **Nielson JL**, Cooper SR, Seabury S, Finazzi S, Luciani D, Fabio A, Temkin N, Ferguson AR, the TRACK-TBI Investigators. Statistical guidelines for handling missing values in traumatic brain injury clinical research. *J Neurotrauma*. 2020; Published Online:1 Feb 2020  
<https://doi.org/10.1089/neu.2019.6702>
3. Fouad K, Bixby JL, Callahan A, Grethe JS, Jakeman LB, Lemmon VP, Magnuson DS, Martone ME, **Nielson JL**, Schwab J, Taylor-Burds C, Tetzlaff W, Torres-Espín A, Ferguson AR. FAIR SCI Ahead: the evolution of the Open Data Commons for preclinical spinal cord injury research (ODC-SCI.org). *Journal of Neurotrauma*. 2019; Published online: 14 Oct 2019; doi: 10.1089/neu.2019.6674.
4. Huie JR, Torres-Espín A, Almeida C, Schwerz De Lucena D, Reinkensmeyer D, Bixby J, Lemmon V, Jakeman L, Taylor-Burds C, Magnuson D, **Nielson J**, Schwab J, Tetzlaff W, Rosenzweig E, Tuszyński M, Fouad K, Beattie M, Bresnahan J, Martone M, Grethe J, Ferguson A. Data sharing infrastructures for spinal cord injury: ODC-SCI.ORG and beyond. *Journal of Neurotrauma*. 2019; 36 (13), A125-A125.
5. **Nielson J**, Kirsh T, Cohen B, Ferguson A, Neylan T, Kummerfeld E, Ma S. A tale of two databases: aligning common data elements for posttraumatic stress and traumatic brain injury. *Journal of Neurotrauma*. 2019; 36 (13), A141-A142
6. **Nielson JL** and Cullen KR. Biotypes Defined by Topological Data Analysis Distinguish Adolescent Suicidality More Precisely Than Depression Diagnosis. *NEUROPSYCHOPHARMACOLOGY*. 2018; 43, S104-S105.
7. Hirschi R, Hawryluk GWJ, **Nielson JL**, Huie JR, Zimmermann LL, Saigal R, Ding Q, Ferguson AR, Manley GT. Analysis of high-frequency PbtO<sub>2</sub> measures in traumatic brain injury: insights into the treatment threshold. *Journal of Neurosurgery*. 2018;  
<https://doi.org/10.3171/2018.4.JNS172604>
8. Huie JR, **Nielson JL**, Wolf J, Andersen C, Spratt H, Dewitt D, Ferguson AR, Hawkins BE. Data-driven approach to integrating genomic and behavioral preclinical traumatic brain injury (TBI) research. *Journal of Neurotrauma*. 2018; 35(16): PS1.04.269.
9. Yue JK, Robinson C, Winkler E, Ferguson AR, McAllister T, Rosand J, Lingsma H, Sharma S, Sorani M, Cooper S, **Nielson JL**, Satriis G, Vassar M, Korley F, Wang K, Yuh EL, Mukherjee P, Valadka A, Okonkwo D, Diaz-Arrastia R, Manley GT. Apolipoprotein E epsilon 4 (APOE-ε4) genotype is associated with decreased six-month verbal memory performance after mild traumatic brain injury: A TRACK-TBI Pilot study. *Brain and Behavior*. 2017; 7:e00791. doi: 10.1002/brb3.791.
10. Callahan, Alison; Anderson, Kim D; Beattie, Michael S; Bixby, John L; Ferguson, Adam R; Fouad, Karim; Jakeman, Lyn B; **Nielson, Jessica L**; Popovich, Phillip G; Schwab, Jan M;

Developing a data sharing community for spinal cord injury research. *Experimental neurology* 2017 295 135-143. <https://doi.org/10.1016/j.expneurol.2017.05.012>

11. **Nielson, Jessica**; Huie, J Russell; Wolf, Jordan; Andersen, Clark R; Spratt, Heidi M; DeWitt, Douglas S; Ferguson, Adam R; Hawkins, Bridget E; DEVELOPING BIG-DATA APPROACHES FOR DIVERSE PRECLINICAL TRAUMATIC BRAIN INJURY RESEARCH *JOURNAL OF NEUROTRAUMA* 2017 34 A130-A131
12. Hirschil, Ryan; Hawryluk, Gregory; **Nielson, Jessica**; Huie, J Russell; Zimmermann, Lara; Saigal, Rajiv; Ding, Quan; Ferguson, Adam; Manley, Geoffrey; ARE WE GETTING ANY BETTER AT DETECTING CORTICAL SPREADING DEPRESSION/SPREADING DEPOLARIZATION? *JOURNAL OF NEUROTRAUMA* 2017 34 A160-A160
13. Gardner, Raquel; Ferguson, Adam; **Nielson, Jessica**; Cheng, Jing; Boscardin, John; Zafonte, Ross; Manley, Geoffrey; FUNCTIONAL OUTCOME TRAJECTORIES AFTER TRAUMATIC BRAIN INJURY: NOVEL INSIGHTS FROM THE COBRIT STUDY *JOURNAL OF NEUROTRAUMA* 2017 34 A102-A102
14. Hirschi, Ryan; Hawryluk, Gregory; **Nielson, Jessica**; Huie, J Russell; Zimmermann, Lara; Saigal, Rajiv; Ding, Quan; Ferguson, Adam; Manley, Geoffrey; INSIGHTS INTO THE PBT02 TREATMENT THRESHOLD: EXPLORING A TREATMENT WINDOW SUGGESTED BY 'BIG DATA' *JOURNAL OF NEUROTRAUMA* 2017 34 A3-A4
15. **Nielson JL**, Cooper SR, Yue JK, Sorani MD, Inoue T, Yuh EL, Mukherjee P, Petrossian TC, Paquette J, Lum PY, Carlsson GE, Vassar MJ, Lingsma HF, Gordon WA, Valadka AB, Okonkwo DO, Manley GT, Ferguson AR, Investigators T-T. Uncovering precision phenotype-biomarker associations in traumatic brain injury using topological data analysis. *PLoS One*. 2017;12(3):e0169490. Epub 2017/03/04. doi: 10.1371/journal.pone.0169490. PubMed PMID: 28257413; PMCID: PMC5336356.
16. Zakrasek EC, **Nielson JL**, Kosarchuk JJ, Crew JD, Ferguson AR, McKenna SL. Pulmonary outcomes following specialized respiratory management for acute cervical spinal cord injury: a retrospective analysis. *Spinal Cord*. 2017;55(6):559-65. Epub 2017/02/22. doi: 10.1038/sc.2017.10. PubMed PMID: 28220822; PMCID: PMC5457341.
17. Beattie M, Pan JZ, Torres D, Lin A, Sacramento J, Haefeli J, **Nielson JL**, Suen CG, Talbott JF, W. W, Manley GT, Dhall S, Ferguson AR, Bresnahan JC. TRACK-SCI: COmparison of blood pressure (BP) predictors of outcome in rodents and humans after SCI. *J Neurotrauma*. 2016;33(12):A-119.
18. **Nielson JL**, Cooper S, Yue J, Sorani M, Inoue T, Yuh E, Mukherjee P, Vassar M, Lingsma H, Gordon W, Valadka A, Okonkwo D, Manley G, Ferguson A. Identifying genetic risk factors for PTSD phenotypes in TBI patients using topological data analysis. *J Neurotrauma*. 2016;33(13):A-37.
19. Salegio EA, Bresnahan JC, Sparrey CJ, Camisa W, Fischer J, Leasure J, Buckley J, Nout-Lomas YS, Rosenzweig ES, Moseanko R, Strand S, Hawbecker S, Lemoy MJ, Haefeli J, Ma X, **Nielson JL**, Edgerton VR, Ferguson AR, Tuszynski MH, Beattie MS. A Unilateral Cervical Spinal Cord Contusion Injury Model in Non-Human Primates (*Macaca mulatta*). *J Neurotrauma*. 2016;33(5):439-59. Epub 2016/01/21. doi: 10.1089/neu.2015.3956. PubMed PMID: 26788611; PMCID: PMC4799702.

20. Yue J, Satris G, Winkler E, Robinson C, Upadhyayula P, Lingsma H, Korley F, **Nielson J**, Ngwenya L, Ferguson A, Vassar M, Yuh E, Mukherjee P, Gordon W, Valadka A, Okonkwo D, Manley G. Effects of acute blood alcohol level on consciousness and 6-month recovery after mild traumatic brain injury: A TRACK-TBI study. *J Neurotrauma*. 2016;33(13):A-37.
21. Friedli L, Rosenzweig ES, Barraud Q, Schubert M, Dominici N, Awai L, **Nielson JL**, Musienko P, Nout-Lomas Y, Zhong H, Zdunowski S, Roy RR, Strand SC, van den Brand R, Havton LA, Beattie MS, Bresnahan JC, Bezdard E, Bloch J, Edgerton VR, Ferguson AR, Curt A, Tuszynski MH, Courtine G. Pronounced species divergence in corticospinal tract reorganization and functional recovery after lateralized spinal cord injury favors primates. *Sci Transl Med*. 2015;7(302):302ra134. Epub 2015/08/28. doi: 10.1126/scitranslmed.aac5811. PubMed PMID: 26311729; PMCID: PMC5669362.
22. Haefeli J, Salegio EA, **Nielson JL**, Moseanko R, Strand S, Hawbecker S, Rosenzweig ES, Tuszynski MH, Beattie MS, Ferguson AR, Bresnahan JC. Monitoring sensory function after servical spinal cord injury in non-human primates. *J Neurotrauma*. 2015;32(12):A-57.
23. **Nielson JL**, Guandique CF, Liu AW, Tovar CA, Young W, Beattie MS, Bresnahan JC, Ferguson AR. Perioperative hypertension predicts worse functional recovery following thoracic spinal cord injury in rats. *J Neurotrauma*. 2015;32(12):A-5.
24. **Nielson JL**, Haefeli J, Salegio EA, Liu AW, Guandique CF, Stuck ED, Hawbecker S, Moseanko R, Strand SC, Zdunowski S, Brock JH, Roy RR, Rosenzweig ES, Nout-Lomas YS, Courtine G, Havton LA, Steward O, Reggie Edgerton V, Tuszynski MH, Beattie MS, Bresnahan JC, Ferguson AR. Leveraging biomedical informatics for assessing plasticity and repair in primate spinal cord injury. *Brain Res*. 2015;1619:124-38. Epub 2014/12/03. doi: 10.1016/j.brainres.2014.10.048. PubMed PMID: 25451131; PMCID: PMC4418964.
25. **Nielson JL**, Paquette J, Liu AW, Guandique CF, Tovar CA, Inoue T, Irvine KA, Gensel JC, Kloke J, Petrossian TC, Lum PY, Carlsson GE, Manley GT, Young W, Beattie MS, Bresnahan JC, Ferguson AR. Topological data analysis for discovery in preclinical spinal cord injury and traumatic brain injury. *Nat Commun*. 2015;6:8581. Epub 2015/10/16. doi: 10.1038/ncomms9581. PubMed PMID: 26466022; PMCID: PMC4634208.
26. Yue J, Robinson C, Winkler E, Ferguson A, McAllister T, Rosand J, Lingsma H, Sharma S, Sorani M, Cooper S, **Nielson J**, Satris G, Vassar M, Korley F, Wang K, Yuh E, Mukherjee P, Valadka A, Okonkwo D, Diaz-Arrasta R, Manley G. APOE-ε4 is associated with decreased six-month verbal memory performance after mild traumatic brain injury. *J Neurotrauma*. 2015;32(12):A-75.
27. Bresnahan JC, Salegio EA, Rosenzweig ES, **Nielson JL**, Sparrey CJ, Strand S, Nout YS, Courtine G, Edgerton VR, Ferguson AR, Tuszynski MH, Beattie MS. Modeling spinal cord injury in the primate. *J Neurotrauma*. 2014;31(5):188.
28. Ferguson AR, **Nielson JL**, Cragin MH, Bandrowski AE, Martone ME. Big data from small data: data-sharing in the 'long tail' of neuroscience. *Nat Neurosci*. 2014;17(11):1442-7. Epub 2014/10/29. doi: 10.1038/nn.3838. PubMed PMID: 25349910; PMCID: PMC4728080.
29. Haefeli J, **Nielson JL**, Irvine KA, Guandique CF, Liu AW, Anderson KD, Steward O, Beattie MS, Bresnahan JC, Ferguson AR. Towards preclinical sensory common data elements in spinal cord injury. *J Neurotrauma*. 2014;31(12):A-36.

30. Irvine KA, Ferguson AR, Mitchell KD, Beattie SB, Lin A, Stuck ED, Huie JR, **Nielson JL**, Talbott JF, Inoue T, Beattie MS, Bresnahan JC. The Irvine, Beatties, and Bresnahan (IBB) Forelimb Recovery Scale: An Assessment of Reliability and Validity. *Front Neurol.* 2014;5:116. Epub 2014/07/30. doi: 10.3389/fneur.2014.00116. PubMed PMID: 25071704; PMCID: PMC4083223.
31. **Nielson JL**, Guandique CF, Liu AW, Burke DA, Lash AT, Moseanko R, Hawbecker S, Strand SC, Zdunowski S, Irvine KA, Brock JH, Nout-Lomas YS, Gensel JC, Anderson KD, Segal MR, Rosenzweig ES, Magnuson DS, Whittmore SR, McTigue DM, Popovich PG, Rabchevsky AG, Scheff SW, Steward O, Courtine G, Edgerton VR, Tuszynski MH, Beattie MS, Bresnahan JC, Ferguson AR. Development of a database for translational spinal cord injury research. *J Neurotrauma.* 2014;31(21):1789-99. Epub 2014/08/01. doi: 10.1089/neu.2014.3399. PubMed PMID: 25077610; PMCID: PMC4186058.
32. **Nielson JL**, Irvine KA, Gensel JC, Huie JR, Guandique CF, Liu AW, Lin A, Ratan RR, Beattie MS, Bresnahan JC, Ferguson AR. Data-driven discovery of syndromic efficacy for preclinical drug trials in cervical spinal cord injury. *J Neurotrauma.* 2014;31(31):A-35.
33. Saleigo EA, Sparrey CJ, Camisa W, Rosenzweig ES, Strand SC, Moseanko R, Hawbecker S, Nout YS, Ma X, Zdunowski S, Talbott JF, Buonocore M, Sonico J, **Nielson JL**, Tam H. Development of a cervical spinal cord contusion model in non-human primates. *J Neurotrauma.* 2014;31(12):A-13.
34. Ferguson AR, Irvine KA, Gensel JC, **Nielson JL**, Lin A, Ly J, Segal MR, Ratan RR, Bresnahan JC, Beattie MS. Derivation of multivariate syndromic outcome metrics for consistent testing across multiple models of cervical spinal cord injury in rats. *PLoS One.* 2013;8(3):e59712. Epub 2013/04/02. doi: 10.1371/journal.pone.0059712. PubMed PMID: 23544088; PMCID: PMC3609747.
35. **Nielson JL**, Inoue T, Paquette J, Lin A, Sacramento J, Liu A, Guandique CF, Irvine KA, Gensel JC, Beattie MS, Bresnahan JC, Manley GT, Carlsson GE, Lum PY, Ferguson AR. Big-Data Visualization for Translational Neurotrauma. *J Neurotrauma.* 2013.
36. **Nielson JL**, Paquette J, Kloke J, Liu A, Guandique C, Gensel JC, Irvine KA, Beattie MS, Bresnahan JC, Lum PY, Ferguson AR. Visualizing translational spinal cord injury research. *J Neurotrauma.* 2012.
37. Nout YS, Ferguson AR, Strand SC, Moseanko R, Hawbecker S, Zdunowski S, **Nielson JL**, Roy RR, Zhong H, Rosenzweig ES, Brock JH, Courtine G, Edgerton VR, Tuszynski MH, Beattie MS, Bresnahan JC. Methods for functional assessment after C7 spinal cord hemisection in the rhesus monkey. *Neurorehabil Neural Repair.* 2012;26(6):556-69. Epub 2012/02/15. doi: 10.1177/1545968311421934. PubMed PMID: 22331214; PMCID: PMC3468651.
38. Nout YS, Rosenzweig ES, Brock JH, Strand SC, Moseanko R, Hawbecker S, Zdunowski S, **Nielson JL**, Roy RR, Courtine G, Ferguson AR, Edgerton VR, Beattie MS, Bresnahan JC, Tuszynski MH. Animal models of neurologic disorders: a nonhuman primate model of spinal cord injury. *Neurotherapeutics.* 2012;9(2):380-92. Epub 2012/03/20. doi: 10.1007/s13311-012-0114-0. PubMed PMID: 22427157; PMCID: PMC3337011.
39. Bresnahan JC, Nout YS, Ferguson A, Strand S, **Neilson JL**, Rosenzweig ES, Brock JH, Edgerton VR. Functional assessment after cervical spinal cord hemisection in the rhesus monkey. *J Neurotrauma.* 2011.

40. Ferguson AR, Guandique CF, Liu AW, **Nielson JL**, Bresnahan JC, Beattie MS. Patterns from noise: A data-intensive retrospective study of thoracic SCI laboratory records from 1992-2003 (n=1400). *Neurorehabil Neural Repair*. 2011.
41. Ferguson AR, Stuck ED, **Nielson JL**. Syndromics: a bioinformatics approach for neurotrauma research. *Transl Stroke Res*. 2011;2(4):438-54. Epub 2011/12/31. doi: 10.1007/s12975-011-0121-1. PubMed PMID: 22207883; PMCID: PMC3236294.
42. **Nielson JL**, Burke DA, Lash AT, Irvine KA, Gensel JC, Magnuson DS, Whittemore SR, McTigue DM, Popovich PG, Bresnahan JC, Beattie M, Ferguson A. Common data elements for translational spinal cord injury research. *J Neurotrauma*. 2011.
43. **Nielson JL**, Strong MK, Steward O. A reassessment of whether cortical motor neurons die following spinal cord injury. *J Comp Neurol*. 2011;519(14):2852-69. Epub 2011/05/28. doi: 10.1002/cne.22661. PubMed PMID: 21618218; PMCID: PMC3916191.
44. Chotiner JK, **Nielson J**, Farris S, Lewandowski G, Huang F, Banos K, de Leon R, Steward O. Assessment of the role of MAP kinase in mediating activity-dependent transcriptional activation of the immediate early gene. *Learn Mem*. 2010;17(2):117-29. doi: 10.1101/lm.158910.
45. **Nielson JL**, Sears-Kraxberger I, Strong MK, Wong JK, Willenberg R, Steward O. Unexpected survival of neurons of origin of the pyramidal tract after spinal cord injury. *J Neurosci*. 2010;30(34):11516-28. Epub 2010/08/27. doi: 10.1523/JNEUROSCI.1433-10.2010. PubMed PMID: 20739574; PMCID: PMC2941508.

#### **Non-Peer-Reviewed Publications**

1. **Nielson JL**, Ferguson AR. Leveraging EMSCI Data to Improve Precision Medicine for Spinal Cord Injury. *European Multicenter Spinal Cord Injury Study (EMSCI) Newsletter*. 2013(Fall).
2. **Nielson JL**, Megler JD. Consideration of Ayahuasca for the treatment of posttraumatic stress disorder. *Multidisciplinary Association for Psychedelic Studies (MAPS) . 2012; Winter Bulletin Annual Report*.

#### **Articles Submitted for Publication**

1. **Nielson JL**, Pierce B, Feduccia AA, Megler JD, Doblin R. Therapeutic potential of ayahuasca for posttraumatic stress disorder (PTSD): results from an anonymous online survey. *Scientific Reports*. In revision

#### **Educational Videos-Physician Education Material**

#### **Books**

#### **Chapters in Books**

1. **Nielson JL**, Megler JD, Cavnar C. A qualitative assessment of risks and benefits of ayahuasca for trauma survivors; in *Ayahuasca Healing and Science*. 2020. Chapter 5 (*in press*).



2. **Nielson JL**, Megler JD. Ayahuasca as a candidate therapy for PTSD. In: Labate BC, Cavnar C, editors. *The Therapeutic Use of Ayahuasca*. Berlin Heidelberg: Springer; 2014.
3. **Nielson JL**, Megler JD. Consideration of Ayahuasca for the treatment of posttraumatic stress disorder. In: Doblin R, Burge B, editors. *Manifesting Minds: A Review of Psychedelics in Science, Medicine, Sex, and Spirituality*. Berkeley, CA: North Atlantic Books and Evolver Editions; 2014.

## Websites

<http://nielsonlab.umn.edu/>

## Presentations

### **Invited Oral Presentations at International Professional Meetings, Conferences, etc.**

1. **Nielson JL**. Data sharing and the 3Rs: Reuse – Challenges and opportunities in harmonizing legacy data. The 3<sup>rd</sup> Joint Symposium of the International and National Neurotrauma Societies and AANS/CNS Section on Neurotrauma and Critical Care, August 11-16, 2018, Toronto, Canada, Lecture.
2. **Nielson JL**, Megler JD, Cavnar C. A Qualitative Assessment of Risks and Benefits of Ayahuasca for Trauma Survivors. *Beyond Psychedelics*, June 21, 2018, Prague, Czech Republic, Lecture.
3. **Nielson JL**. Ayahuasca for Posttraumatic Stress Disorder: Assessing Risks and Benefits through Anonymous Community Feedback. *Psychedelic Science*, April 23, 2017, Oakland, CA, USA, Lecture.
4. **Nielson JL** and Megler JD. Ayahuasca for PTSD: Integrating Psychedelic Therapeutic Strategies for Neurotrauma into a Bioinformatics Framework. *Psychedelic Science*. April 21, 2013, Oakland, CA, USA, Lecture.

### **Invited Oral Presentations at National Professional Meetings, Conferences, etc.**

1. **Nielson JL**. Multi-dimensional analysis of genomic, imaging, and clinical data from the TRACK-TBI pilot study. Neurocritical Care Society, September 28, 2018. Boca Raton, FL, Lecture
2. **Nielson JL**. Development of a data-driven psychedelic therapy network. *Sleeping Octopus Assembly on Psychedelics*, July 13, 2018. Pittsburgh, PA, Lecture.
3. **Nielson JL**. FAIR-SCI Ahead. Society for Neuroscience, November 10, 2017. Washington, DC, Symposium.
4. **Nielson JL**. Ayahuasca for PTSD: Assessing Benefits and Risks Through Multiple Perspectives. *Horizons: Perspectives on Psychedelics*. October 5, 2016, New York, NY. Lecture

**Poster Abstract Presentations at Professional Meetings, Conferences, etc. (former name Kneubuhl)**

1. **Nielson JL**, Kirsh T, Cohen BE, Ferguson AR, Neylan TC, Kummerfeld E, Ma S. *Comparison between novel and established machine learning approaches to identify biotypes of posttraumatic stress*. Annual Meeting of the Society for Neuroscience; 2019. Chicago, IL
2. Huie J, Torres-Espin A, Almeida CA, Schwerz de Lucena D, Reinkensmeyer D, Bixby JL, Lemmon V, Magnuson DS, **Nielson JL**, Schwab J, Taylor-Burds C, Tetzlaff W, Rosenzweig ES, Tuszynski MH, Fouad K, Beattie MS, Bresnahan JC, Martone ME, Grethe JS, Ferguson AR. *A data commons infrastructure for private SCI data sharing*. Annual Meeting of the Society for Neuroscience; 2019. Chicago, IL
3. Torres-Espin A, Haefeli J, Ehsanian R, Torres D, Almeida A, Huie JR, Dirlikov B, Morozov D, Sanderson N, Suen CG, **Nielson JL**, Talbott J, Manley GT, Dhall SS, Bresnahan JC, Beattie MS, Whetstone WD, McKenna SL, Pan JZ, Ferguson AR, and the TRACK-SCI Investigators. *Topological network analysis of multicenter high-frequency intra-operative measurements in patients with spinal cord injury suggests the optimal MAP range associated with positive motor outcomes*. Annual Meeting of the Society for Neuroscience; 2019. Chicago, IL
4. **Nielson JL**, Cullen KR. *Biotypes defined by topological data analysis distinguish adolescent suicidality more precisely than depression diagnosis*. American College of Neuropharmacology; 2018. Ft. Lauderdale, FL
5. Almeida CA, Beattie MS, Bixby JL, Bresnahan JC, Callahan A, Grethe JS, Haefeli J, Huie JR, Lemmon V, Martone ME, Magnuson DS, McTigue DM, **Nielson JL**, Popovich PG, Schwab J, Tetzlaff W, Torres Espin A, Fouad K, Ferguson AR. *Open data commons for spinal cord injury (ODC-SCIbeta): Community-driven datasharing infrastructure for research*. Annual Meeting of the Society for Neuroscience; 2018; San Diego, CA.
6. Hawkins BE, **Nielson JL**, Wolf J, Andersen CR, Spratt HM, Huie JR, DeWitt DS, Prough DS, Ferguson AR. *Big data approaches for diverse preclinical TBI research*. Annual Meeting of the Society for Neuroscience; 2017; Washington, D.C.
7. Haefeli J, Dorres D, Ehsanian R, McKenna SL, Suen CG, **Nielson JL**, Talbott JF, Manley GT, Whetstone WD, Dhall SS, Bresnahan JC, Beattie MS, Pan JZ, Ferguson AR. *Operating room autonomic measures as predictors of neurological changes after spinal cord injury*. International Spinal Cord Society (ISCOS); 2016; Vienna, Austria.
8. Haefeli J, **Nielson JL**, Namnath J, Bollinger M, Curt A, Ferguson AR. *Detecting multidimensional spontaneous recovery after cervical spinal cord injury*. ISCOS and ASIA Joint Scientific Meeting; 2015; Montreal, QC, Canada.
9. McCormac S, Haefeli J, Salegio EA, **Nielson JL**, Liu AW, Guandique CF, Stück ED, Hawbecker S, Moseanko R, Strand SC, Zdunowski S, Brock JH, Brock JH, Roy RR, Rosenzweig ES, Nout-Lomas YS, Courtine G, Havton LA, Steward O, Edgerton VR, Tuazynski MH, Beattie MS, Bresnahan JC, Ferguson AR. *Towards preclinical sensory common data elements in spinal cord injury*. Annual Physical Therapy Spring Symposium; 2015; San Francisco, CA.

10. **Nielson JL**, Beattie MS, Bresnahan JC, Ferguson AR. *A big-data approach for identifying reproducible relationships in preclinical SCI research*. 16th International Symposium on Neural Regeneration; 2015; Asilomar Conference Grounds, Pacific Grove, CA.
11. **Nielson JL**, Guandique CF, Liu AW, Tovar, Beattie MS, Bresnahan JC, Ferguson AR. *Leveraging big-data analytics for reproducibility testing in preclinical spinal cord injury research*. Annual Meeting of the Society for Neuroscience; 2015; Chicago, IL.
12. **Nielson JL**, Rosenzweig ES, Salegio EA, Anderseon KD, Roy RR, Courtine G, Edgerton VR, Steward O, Tuszynski MH, Beattie MS, Bresnahan JC, Ferguson AR. *Leveraging the VISION-SCI database to identify conserved features of forelimb function across species*. Annual Meeting of the Society for Neuroscience; 2014; Washington, D. C.
13. Ferguson AR, Huie JR, Irvine K-A, **Nielson JL**, Lin A, Sacramento J, Bresnahan JC, Beattie MS. *Delayed TNF inhibitor therapy improves syndromic spinal cord injury: Results of a blinded-randomized dose-response and timing study of multivariate outcome in a preclinical model*. Annual Meeting of the Society for Neuroscience; 2013; San Diego, CA.
14. Guandique CF, Liu AW, Kosarchuk JJ, Shahoumian T, **Nielson JL**, Inoue T, Wright J, Manley GT, McKenna SL, Creasy GH, Bresnahan JC, Beattie MS, Ferguson AR. *Development of a tgranslational database for combined brain and spinal cord injury*. Palo Alto VA TBI Forum 2013; 2013; Palo Alto, CA.
15. **Nielson JL**, Huie JR, Irvine K-A, Gensel JC, Paquette J, Lum PY, Carlsson GE, Ratan RR, Beattie MS, Bresnahan JC, Ferguson AR. *Visualizing syndromic outcomes of preclinical drug trials for cervical spinal cord injury*. Annual Meeting of the Society for Neuroscience; 2013; San Diego, CA.
16. **Nielson JL**, Inoue T, Paquette J, Lin A, Sacramento J, Liu AW, Guandique CF, Irvine K-A, Gensel JC, Beattie MS, Bresnahan JC, Manley GT, Carlsson GE, Lum PY, Ferguson AR. *Big-Data Visualization for Translational Neurotrauma*. Arrowhead TBI Conference; 2013; Washington, D. C.
17. **Nielson JL**, Inoue T, Paquette J, Lin A, Sacramento J, Liu AW, Guandique CF, Irvine K-A, Gensel JC, Beattie MS, Bresnahan JC, Manley GT, Carlsson GE, Lum PY, Ferguson AR. *TDA-Based Big Data Analytics for Translational Neurotrauma*. Institute for Mathematics and Applications, ; 2013;
18. Friedli LF, Rosenzweig ES, Barraud Q, Dominici N, Awai L, Schubert M, **Nielson JL**, Strand SC, Musienko P, Zhong H, Zudnowski S, Roy RR, Ferguson AR, Curt A, Edgerton VR, Tuszynski MH, Courtine G. *Non-human primates and humans for greater functional recovery than rats after similar spinal cord injury*. Annual Meeting of the Society for Neuroscience; 2012; New Orleans, LA.
19. **Nielson JL**, Guandique CF, Liu AW, Muraru V, Burke DA, Lash AT, Kline RH, Moseanko R, Hawbecker S, Strand SC, Zdunowski S, Irvine K-A, Brock JH, Rosenzweig ES, Nout YS, Gensel JC, Anderseon KD, Magnuson DSK, Whittemore SR, McTigue DM, Popovich PG, Rabchevsky AG, Steward O, Courtine G, Edgerton VR, Tuazynski MH, Beattie MS, Bresnahan JC, Ferguson AR. *Development of a database of preclinical spinal cord injury models*. Annual Conference of the Society for Neuroscience; 2012; New Orleans, LA.
20. **Nielson JL**, Nout YS, Irvine K-A, Rosenzweig ES, Brock JH, Strand SC, Moseanko R, Hawbecker S, Zdunowski S, Rowy RR, Zhong H, Courtine G, Edgerton VR, Tuszynski MH,

- Beattie MS, Bresnahan JC, Ferguson AR. *Determining common data elements (CDE) for translation of cervical SCI using existing data from rat and monkey models*. Annual Meeting of the Society for Neuroscience; 2011; Washington, D. C.
21. Rosenzweig ES, Courtine G, Brock JH, Nout YS, Ferguson AR, **Nielson JL**, Strand SC, Moseanko R, Hawbecker S, Roy RR, Zhong H, Weber JL, Beattie MS, Havton LA, Edgerton VR, Bresnahan JC, Steward O, Tuszynski MH. *Unexpected neuronal loss after spinal cord injections in primates*. Annual Meeting of the Society for Neuroscience; 2011; Washington, D. C.
  22. **Nielson JL**, Lewandowski G, Gall CM, Steward O. *Electroconvulsive therapy that persistently induces BDNF in the cortex inhibits recovery of forelimb function following spinal cord injury*. Annual Meeting of the Society for Neuroscience; 2010; San Diego, CA.
  23. **Nielson JL**, Sears-Kraxenberger I, Wong JK, Strong MK, Willenberg R, Steward O. *Assessing CST retrograde cell death as a therapeutic target following SCI*. Reeve-Irvine Research Center; 2010; Irvine, CA.
  24. **Nielson JL**, Sears-Kraxenberger I, Wong JK, Strong MK, Willenberg R, Steward O. *Neurons of origin of the pyramidal tract do not die after spinal cord injury*. 8th Annual Roman Reed Research Meeting; 2010; Irvine, CA.
  25. **Kneubuhl J**, Steward O. *Spinal cord injury does not lead to extensive degeneration of corticospinal tract axons in the medullary pyramid*. Annual Conference of the Society for Neuroscience; 2009; Washington, D. C.
  26. **Nielson JL**, Steward O. *Spinal cord injury does not lead to extensive degeneration of the cells of origin of the corticospinal tract*. 7th Annual Roman Reed Research Meeting; 2009; Irvine, CA.
  27. **Nielson JL**, Steward O. *Spinal cord injury does not lead to extensive degeneration of the cells of origin of the corticospinal tract*. Annual Meeting of the Society for Neuroscience; 2009; Chicago, IL.
  28. **Nielson JL**, Steward O. *Spinal cord injury does not lead to extensive degeneration of the cells of origin of the corticospinal tract*. Anatomy and Neurobiology Department Grad Day Retreat; 2009; Newport Beach, CA.
  29. **Kneubuhl J**, Steward O. *Do cells of origin of corticospinal tract axons undergo retrograde degeneration following spinal cord injury?* 6th Annual Roman Reed Research Meeting; 2008; Irvine, CA.
  30. **Kneubuhl J**, Steward O. *Minimal evidence for axonal degeneration of the corticospinal tract following spinal cord injury*. Anatomy and Neurobiology Grad Day Retreat; 2008; Newport Beach, CA.
  31. **Kneubuhl J**, Steward O. *Do cells of origin of corticospinal tract axons degenerate after spinal cord injury*. Progress of Neuroscience Seminar; 2007; Irvine, CA.
  32. **Kneubuhl J**, Steward O. *Effects of chronic electroconvulsive therapy on spinal cord injury*. Anatomy of Neurobiology Department Grad Day Retreat; 2007; Newport Beach, CA.

33. **Kneubuhl J, Steward O.** *Widespread Induction of BDNF Expression in the Cerebral Cortex Following Focal High Frequency Stimulation of the Entorhinal Cortex.* Anatomy and Neurobiology Department Grad Day Retreat; 2006; Irvine, CA.

### Other Key Activities and Accomplishments

#### TEACHING AND CURRICULUM DEVELOPMENT

##### University of Minnesota (repeat for other university or academic positions)

*Use reverse chronological order – present to past – in each section.*

**Directed Research (HINF 5394)** 2019- present

**Internship in Health Informatics (HINF 5496)** 2018

##### Course/Lecture List

**City College of San Francisco**  
NIH Bridges to the Baccalaureate Program 2013

**University of California Irvine**  
Molecular Biology Laboratory 2006  
Biochemistry Lecture 2006  
Molecular Biology Lecture 2006

#### ADVISING AND MENTORING

##### Undergraduate Student Activities

Undergraduate research projects (UROPS, directed research, lab participation, etc.)

**Grace Owens, Fall 2018 - Spring 2020, Directed Research**

**Lin Zou, Fall 2018 - Spring 2020, Directed Research**

**Nick Fabry, Fall 2019 - Spring 2020, Directed Research**

**Akira Mally, Fall 2019 - Spring 2020, Directed Research**

**Molly Baugh, Spring 2020, Directed Research**

**Graduate Student Activities**

Doctoral Dissertations Directed

**Link Swanson, Visual surround suppression and perceptual expectation under psilocybin,  
Fall 2018- Spring 2020**

**Post-doctoral fellows supervised**

Benjamin Pierce, PhD, Fall 2019 - present

**Other Mentoring Activities**

**Served on a peer faculty mentoring committee in the Psychiatry Department with several other junior faculty members.**

**PROFESSIONAL SERVICE AND PUBLIC OUTREACH****Service to the Discipline/Profession/Interdisciplinary Area(s)****Editorships/Journal Reviewer Experience**

|  |      |
|--|------|
| Editorial Board Member, Neurocommons                               | 2019 |
| Ad hoc reviewer, Journal of Neurotrauma                            | 2019 |
| Ad hoc reviewer, PLoS One  | 2016 |
| Ad hoc reviewer, Journal of Traumatic Stress Disorders & Treatment | 2015 |
| Ad hoc reviewer, Journal of Psychiatric Research                   | 2014 |

**Membership in Professional Organizations**

|  |              |
|--|--------------|
| National Neurotrauma Society                       | 2011-present |
| Society for Neuroscience                           | 2007-present |
| American Medical Informatics Association           | 2017-2018    |
| International Society for Traumatic Stress Studies | 2020-present |

**Committee memberships [indicate if the candidate served as chair]**

|  |              |
|--|--------------|
| Open Data Commons for Spinal Cord Injury (ODC-SCI) | 2017-present |
|--|--------------|

**Public Advocacy**

|  |      |
|--|------|
| Associate Director, Psychedelic Society of Minnesota | 2020 |
| Founder, Psychedelic Society of Minneapolis          | 2018 |
| Oregon Eclipse Festival presentation on drug policy  | 2017 |
| Symbiosis Festival presentation on drug policy       | 2016 |
| Nerd Nite San Francisco presentation on drug policy  | 2016 |

**Service to the University/Medical School/Department**

**Community Outreach Activities**

Host a monthly seminar series at the University of Minnesota that is free and open to the public about psychedelic neuroscience – started August 2019