

Neil G. MacLaren

neil.g.maclaren@gmail.com
www.neilgmaclaren.com
<https://github.com/ngmaclaren>

Objective	To leverage insights from the behavioral and complex systems sciences to improve human performance in military teams and organizations.
Education	<p>PhD in Management 05/2021 <i>Specialization:</i> Leadership and Organizational Science <i>Supervisor:</i> Francis J. Yammarino Binghamton University Binghamton, NY 13902, USA</p> <p>Advanced Graduate Certificate in Complex Systems Science and Engineering 05/2021 Binghamton University Binghamton, NY 13902, USA</p> <p>Master of Business Administration 05/2018 Binghamton University Binghamton, NY 13902, USA</p> <p>Bachelor of Arts in Anthropology, <i>magna cum laude</i> 03/2006 University of Washington Seattle, WA 98195, USA</p>
Experience	<p>Postdoctoral Associate 01/2022–Present Department of Mathematics University at Buffalo, Buffalo, NY <i>Supervisor:</i> Naoki Masuda</p> <p>Research Assistant Professor 08/2021–12/2021 School of Management Binghamton University, Binghamton, NY</p> <p>Research Assistant 08/2017–05/2021 School of Management Binghamton University, Binghamton, NY</p> <p>Infantry Officer 03/2006–02/2016 United States Marine Corps</p>
Publications	<p>2023</p> <p>13. Maupin, C. K., MacLaren, N. G., Goodwin, G. F., and Carter, D. R. Improving wayfinding through transactive memory systems. In: Curtin, K. M. and Montello, D. R. (eds.). <i>Collective spatial cognition</i>. Routledge. 164–188. https://doi.org/10.4324/9781003202738.</p> <p>12. Pandey, S., Cao, Y., Dong, Y., Kim, M., MacLaren, N. G., Dionne, S. D., Yammarino, F. J., and Sayama, H. Generation and influence of eccentric ideas on social networks. <i>Scientific Reports</i> 13: 20433. https://doi.org/10.1038/s41598-023-47823-0.</p> <p>11. MacLaren, N. G., Kundu, P., and Masuda, N. Early warnings for multi-stage transitions in dynamics on networks. <i>Journal of the Royal Society Interface</i> 20: 20220743. https://doi.org/10.1098/rsif.2022.0743.</p> <p>10. Mattison, S. M., MacLaren, N. G., Sum, C.-Y., Mattison, P. M., Liu, R., Shenk,</p>

M. K., Blumenfield, T., Su, M., and Wander, K. Market integration, income inequality, and kinship system among the Mosuo of China. *Evolutionary Human Sciences* 5: e4. <https://doi.org/10.1017/ehs.2022.52>.

2022

9. Kundu, P., **MacLaren, N. G.**, Kori, H., and Masuda, N. Mean-field theory for double-well systems on degree-heterogeneous networks. *Proceedings of the Royal Society A: Mathematical, Physical, and Engineering Sciences* 478: 20220350. <https://doi.org/10.1098/rspa.2022.0350>.
8. Mattison, S. M., **MacLaren, N. G.**, Sum, C.-Y., Shenk, M. K., Blumenfield, T., and Wander, K. Does gender structure social networks across domains of cooperation? An exploration of gendered networks among matrilineal and patrilineal Mosuo. *Philosophical Transactions of the Royal Society B: Biological Sciences* 378: 20210436. <https://doi.org/10.1098/rstb.2021.0436>.
7. Cao, S., **MacLaren, N. G.**, Cao, Y., Marshall, J., Dong, Y., Yammarino, F. J., Dionne, S. D., Mumford, M. D., Connelly, S., Martin, R. W., Standish, C. J., Newbold, T. R., England, S., Sayama, H., and Ruark, G. A. Group size and group performance in small collaborative team settings: An agent-based simulation model of collaborative decision-making dynamics. *Complexity*: 8265296. <https://doi.org/10.1155/2022/8265296>.
6. Cao, Y., Dong, Y., Kim, M., **MacLaren, N. G.**, Pandey, S., Dionne, S. D., Yammarino, F. J., and Sayama, H. Visualizing collective idea generation and innovation processes in social networks. *IEEE Transactions on Computational Social Systems* 10(5): 2234-2243. <https://doi.org/10.1109/TCSS.2022.3184628>.
5. Mattison, S. M., Hare, D., **MacLaren, N. G.**, Reynolds, A. Z., Sum, C.-Y., Liu, R., Shenk, M. K., Blumenfield, T., Su, M., Li, H., and Wander, K. Context-specificity of “market integration” among the matrilineal Mosuo of Southwest China. *Current Anthropology* 63(1): 118–124. <https://doi.org/10.1086/719266>.
4. Dong, Y., **MacLaren, N. G.**, Cao, Y., Yammarino, F. J., Dionne, S. D., Mumford, M. D., Connelly, S., Sayama, H., and Ruark, G. A. Utterance clustering using stereo audio channels. *Computational Intelligence and Neuroscience*: 6151651. <https://doi.org/10.1155/2021/6151651>.

2021

3. Mattison, S. M., **MacLaren, N. G.**, Liu, R., Reynolds, A. Z., Baca, G. D., Mattison, P. M., Zhang, M., Sum, C.-Y., Shenk, M. K., Blumenfield, T., von Rueden, C. R., and Wander, K. Gender differences in social networks based on prevailing kinship norms in the Mosuo of China. *Social Sciences* 10: 253. <https://doi.org/10.3390/socsci10070253>.

2020

2. Cao, S., **MacLaren, N. G.**, Cao, Y., Dong, Y., Sayama, H., Yammarino, F. J., Dionne, S. D., Mumford, M. D., Connelly, S., Martin, R. W., Standish, C. J., Newbold, T. R., England, S., and Ruark, G. A. An agent-based model of leader emergence and leadership perception in a collective. *Complexity*: 6857891. <https://doi.org/10.1155/2020/6857891>.
1. **MacLaren, N. G.**, Yammarino, F. J., Dionne, S. D., Sayama, H., Mumford, M. D., Connelly, S., Martin, R. W., Mulhearn, T. J., Todd, E. M., Kulkarni, A., Cao,

Y., and Ruark, G. A. Testing the babble hypothesis: Speaking time predicts leader emergence in small groups. *The Leadership Quarterly* 31: 101409. <https://doi.org/10.1016/j.leaqua.2020.101409>.

Preprint

3. **MacLaren, N. G.**, Meng, L., Collier, M., and Masuda, N. Cooperation and the social brain hypothesis in primate social networks. <https://arxiv.org/abs/2302.00075>.
2. Cao, Y., Dong, Y., Kim, M., **MacLaren, N. G.**, Pandey, S., Dionne, S. D., Yammarino, F. J., and Sayama, H. Effects of network connectivity and diversity distribution on human collective ideation. <https://arxiv.org/abs/2307.04284>.
1. **MacLaren, N. G.**, Yammarino, F. J., Dionne, S. D., Sayama, H., Mumford, M. D., Connelly, S., Martin, R. W., Standish, C. J., England, S., Newbold, T. R., Cao, Y., Marshall, J. D, Cao, S., Dong, Y., Maupin, C. K., Eckardt, R., and Ruark, G. A. Networks of interruptions: simultaneous speech and leader emergence in informal groups. <https://psyarxiv.com/m8y5n>.

Selected Conference Presentations

2023

- Masuda, N., **MacLaren, N. G.**, and Kundu, P. *Early warning signals for multistage transitions in tipping dynamics on networks*. Tenth International Congress on Industrial and Applied Mathematics, Tokyo, Japan.
- **MacLaren, N. G.**, Barzel, B., and Masuda, N. *Low-dimensional approximations to non-linear N-dimensional systems*. Sixth Northeast Regional Conference on Complex Systems, Potsdam, NY.

2022

- **MacLaren, N. G.**, Kundu, P., and Masuda, N. *Early warnings for multistage transitions in dynamics on networks*. Complex Networks 2022, Palermo, Sicily.
- **MacLaren, N. G.**, Mattison, S. M., and Masuda, N. *A maximum entropy approach to the multivariate "space" of social networks*. Fifth Northeast Regional Conference on Complex Systems, Buffalo, NY. Honorable mention for best oral presentation.

2021

- Marshall, J. D., **MacLaren, N. G.**, Yammarino, F. J., Sayama, H., Dong, Y., Cao, S., Cao, Y., Dionne, S. D., Mumford, M. D., Connelly, S., Martin, R. W., Standish, C. J., Newbold, T. R., England, S., and Ruark, G. *Assessing group dynamics via audio analysis*. Southern Management Association Conference, New Orleans, LA.
- **MacLaren, N. G.**, Yammarino, F. J., Dionne, S. D., Sayama, H., Mumford, M. D., Connelly, S., Martin, R. W., Standish, C. J., England, S., Newbold, T. R., Cao, Y., Marshall, J., Cao, S., Dong, Y., Maupin, C. K., Eckardt, R., and Ruark, G. A. *Leaders as interrupters: An examination of simultaneous speech in informal groups*. Academy of Management Annual Meeting, Online.
- **MacLaren, N. G.**, Yammarino, F. J., Dionne, S. D., Sayama, H., Mumford, M. D., Connelly, S., Martin, R. W., Standish, C. J., England, S., Newbold, T. R., Cao, Y., Marshall, J., Cao, S., Dong, Y., Maupin, C. K., Eckardt, R., and

Ruark, G. A. *Networks of Interruptions: Simultaneous Speech and Leader Emergence in Informal Groups*. Networks 2021, Online.

2020

- **MacLaren, N. G.**, Yammarino, F. J., Mumford, M. D., Sayama, H., Dionne, S. D., Connelly, S., Martin, R. W., Cao, Y., Standish, C. J., England, S., Newbold, T. R., Dong, Y., Cao, S., Marshall, J., Maupin, C. K., Eckardt, R., and Ruark, G. A. *Leader identification through networks of conversational interruptions*. Conference on Complex Systems 2020, Online.
- **MacLaren, N. G.**, Yammarino, F. J., Dionne, S. D., Sayama, H., Mumford, M. D., Connelly, S., Martin, R. W., Standish, C. J., Newbold, T. R., England, S., Marshall, J., Cao, Y., Dong, Y., Cao, S., and Ruark, G. A. *Interruption networks as a model of small group sociometric structure*. Northeast Regional Conference on Complex Systems, Buffalo, New York.

2019

- **MacLaren, N. G.**, Kulkarni, A., Cao, Y., Yammarino, F. J., Dionne, S. D., Sayama, H., Martin, R. W., Todd, E. M., Standish, C. J., Mulhearn, T. J., Mumford, M. D., and Connelly, S. *Speaking time and leader emergence in initially leaderless groups*. Annual Meeting of the Society for Industrial and Organizational Psychology, Washington, District of Columbia.

2018

- **MacLaren, N. G.**, Cao, Y., Kulkarni, A., Yammarino, F. J., Mumford, M. D., Dionne, S. D., Sayama, H., Connelly, S., Mulhearn, T. J., Martin, R. W., Todd, E. M., and Bosco, F. A. *Agent-based model parameter estimation and variable reduction using metaBUS: An application to a collective leadership model*. Northeast Regional Conference on Complex Systems, Binghamton, New York.

Invited Presentations

2020

- “The Interruption Network as a Model of Small Group Structure”. CoCo Seminar Series, Center for Collective Dynamics of Complex Systems at Binghamton University.

Peer Review

Journal

- Proceedings of the Royal Society Society A: Mathematical, Physical and Engineering Sciences
- Scientific Reports
- The Leadership Quarterly
- European Journal of Management Studies

Grant Proposal

- National Science Foundation

Conference

- Academy of Management, Research Methods and Organizational Behavior divisions

Community Service	Member, Board of Directors Campus Pre-School and ECC, Inc. Binghamton, New York	10/2016–12/2019
Affiliations	Complex Systems Society Bernard M. and Ruth R. Bass Center for Leadership Studies Veterans of Foreign Wars	2020–Present 2017–Present 2016–Present
Skills	<p>Analysis</p> <ul style="list-style-type: none"> • Complex systems: complex networks, dynamical systems • Statistical models: generalized linear, multilevel/mixed effects, exponential random graph, survival • Simulation: Monte Carlo, ordinary and stochastic differential equations, agent-based • Optimization: population methods, simulated annealing, linear and quadratic programming • High-performance computing • Data visualization <p>Computer Languages and Tools</p> <ul style="list-style-type: none"> • <i>Languages</i>: R, Python, LaTeX, Julia, Bash • <i>Tools</i>: slurm (cluster computing scheduler), git (version control system), ELAN (annotation of audiovisual files) 	