

Robert B. MacCurdy
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Education

Cornell University

M.S. Mechanical Engineering, August 2013

PhD Mechanical Engineering, May 2015

Cornell University/Ithaca College

B.S. / B.A. cum laude, May 1999

Electrical Engineering / Physics

Research Interests

Automated Design & Fabrication of Robots

My research vision, summarized as **Robots Creating Robots**, is to transform the way that robots are designed and fabricated. Building robots via conventional practice requires painstaking design and assembly steps that rely heavily on human intuition and individual expertise. I develop algorithms and fabrication techniques that automate the design

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Publications

Journal Articles

- MacCurdy, R. & Nkrup, J. *J. R. Soc. Interface* (in-submission)
- MacCurdy, R., O'Keefe, C. & Nkrup, J. *C. R. Acad. Sci. Paris, Ser. B* (in-submission)
- Cellucci, D., MacCurdy, R., Lipson, H., Risi, S. *3D Printing of Recyclable Robots*, (in-submission)
- Maggini, I., Kennedy, L., Macmillan, A., Elliott, K., MacCurdy, R., Pritsos, C., Dean, K., Winkler, E. *Vibrations on takeoff: light feather oiling impairs escape response of pigeons* (in-review, *Ecotoxicology and Environmental Safety*)
- MacCurdy, R., Bijleveld, A., Gabrielson, R., Cluderay, J., Spaulding, E., Oudman, T., van Gils, J., Dekinga, A., Riebel, V., Winemgt, F. *Current Biology* (in-submission)
- Bijleveld, A., MacCurdy, R., Chan, Y., Penning, E., Gabrielson, R., Cluderay, J., Spaulding, E., Dekinga, A., Holthuisen, S., ten Horn, J., Brugge, M., van Gils, J., Winemgt, F., Riebel, V. *Understanding spatial distributions: Negative density-dependence in prey causes predators to trade-off prey quantity with quality* *Proc. R. Soc. B*, 2016, 283, 20151557
- Shafer, M., MacCurdy, R., Shipley, J., Winkler, D., Guglielmo, E., Iftikhar, G. *The case for energy harvesting on wildlife in flight*, *Smart Materials and Structures*, IOP Publishing, 2015, 24, 025031
- MacCurdy, R.

- MacCurdy, R., Gabrielson, R., Spaulding, E., Purgue, A., Cortopassi, K., Frstrup, K., "Real-Time, Automatic animal tracking using direct sequence spread spectrum" *Proceedings of European Wireless Technology Conference*, EuWiT, Amsterdam, 2008
- MacCurdy, R., Reissman, V., Ictek, G., "Component Power Harvesting", *Proceedings of SPIE Conference on Smart Materials and Structures*, #6928, 2008
- Reissman, T., MacCurdy, R., Garcia, E., "Flapping Insect", *Proceedings of ASME SMASIS Conference*, SMASIS, #661, 2008
- MacCurdy, R., Reissman, T., Winkler, D., and Garcia, E., "Flapping Insect", *Proceedings of ASME SMASIS Conference*, SMASIS, #661, 2008

NSF Young Professional Workshop on Exploring New Frontiers in Cyber-Physical Systems (**travel award: \$500**). March 2014.

First Prize in AAAI Video Competition for video: "Unshackling Evolution: Evolving Soft Robots with Multiple Materials and a Powerful Generative Encoding", 2013

Advised student team that won 1st place award at the AIAA Region I-NE Student Conference, 2009

Runner-up for Best Paper prize at the European Wireless Technology Conference in Amsterdam, 2008.

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Recreation: Expert Downhill Skier and Instructor, Snowboarding, Mountain Biking, Backpacking, Rock Climbing & Mountaineering, Windsurfing, Kite-boarding, Canoeing, Kayaking, Hockey

References:

Prof. Daniela Rus (Postdoctoral supervisor)
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Prof. Hod Lipson (PhD adviser)
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Prof. David Winkler (collaborator and PhD committee member)
Department of Ecology and Evolutionary Biology
Faculty Curator of Birds - Cornell Laboratory of Ornithology
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Dr. Kurt Fristrup (previous supervisor at Cornell Lab of Ornithology)
Senior Research Scientist/Scholar
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