# Wesley Tansey

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## Research Statement

I'm a PhD student in the Neural Networks Research Group at UT Austin. My main research interests are machine learning and medical applications, particularly how we can use big data to discover and recommend better treatments for patients with chronic illness. I spend most of my days working on algorithms to create personalized, adaptive treatments from patient health logs. If successful, these techniques may be able to improve the lives of millions of people living with chronic disease, as well as making substantial advances in the field of reinforcement learning.

I am passionate about taking my research into the real world and using machine learning to make people healthier and happier. Towards this goal, I am currently collaborating with companies enabling chronic illness patients to track various aspects of their health. I am currently working to integrate a treatment recommendation model into one patient powered research network (PPRN), while simultaneously researching novel hierarchical Bayesian methods for patient time series data.

## Education

2011–Present **Pursuing PhD in Computer Science, University of Texas at Austin**

**Graduate Coursework:**
*Graphical Models, Neural Networks, Bayesian Statistical Methods,,*
*Natural Language Processing, Reinforcement Learning*
*Mathematical Logic, Computer Security, Programming Languages*

2006-2008 **MS in Computer Science, Virginia Tech**
GPA 3.81

2003-2006 **BS in Computer Science, Virginia Tech**
GPA 3.55

## Select Publications

2012 W. Tansey, E. Feasley, and R. Miikkulainen. Accelerating evolution via egalitarian social learning. In *Proceedings of the Fourteenth International Conference on Genetic and Evolutionary Computation Conference (GECCO 2012)*, pages 919–926. ACM, 2012

2012 R. Miikkulainen, E. Feasley, L. Johnson, I. Karpov, P. Rajagopalan, A. Rawal, and W. Tansey. Multiagent learning through neuroevolution. *Advances in Computational Intelligence*, pages 24–46, 2012

2008 W. Tansey and E. Tilevich. Annotation refactoring: inferring upgrade transformations for legacy applications. In *Proceedings of the 23rd ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications (OOPSLA 2008)*, volume 43, pages 295–312. ACM, 2008

2008 W. Tansey and E. Tilevich. Efficient automated marshaling of C++ data structures for MPI applications. In *Proceedings of the 2008 IEEE International Symposium on Parallel and Distributed Processing (IPDPS 2008)*, pages 1–12. IEEE, 2008

## Work Experience

Currently — **Research Assistant, UT Austin**
In the Neural Networks group led by Risto Miikkulainen
Researching hierarchical Bayesian reinforcement learning for adaptive treatment discovery for patients with chronic illness. Co-wrote grant that earned funding from the NSF's BEACON Center for the Study of Evolution in Action.

2011-2012 — **Co-founder, Curvio Inc.**
Built, launched, and iterated a consumer web startup.
Organically grew site to 2k uniques/day. Managed a team of 12 remote contractors and hundreds of turkers.

2011 — **Teaching Assistant, Computer Science Department, UT Austin**
Participated in developing course materials for hundreds of students.
Helped setup up competition for AI MOOC class taught by Peter Norvig. Directly managed team of four undergrad researchers.

2010 — **Co-founder, EffectCheck (Effect Technologies Inc.)**
Created novel machine learning algorithms for sentiment analysis.
Worked all areas of the business: front-end, back-end, sales, partnerships, and marketing.

2010-2011 — **Machine Learning Contractor, Natural Selection Financial**
Researched adaptive machine learning models for quantitative finance.
Developed algorithms that explore huge data sets and discover exploitable patterns in market prices.

2008-2010 — **Research Associate, Lincoln Vale Adaptive Strategies (Hedge Fund)**
Researched and implemented machine learning algorithms for automated trading.
Developed 20+ real-world trading algorithms, with millions of dollars wagered on their predictions every day.

## Skills

Python, Ruby, MATLAB, R, C#, C/C++, Java, HTML, CSS, and Javascript
Technical writing, team leadership, startups, statistical modeling
Building systems to collect, clean, analyze, and learn from data

## Awards and Miscellanea

Garg Fellowship for Research with Real-World Impact
Recipient of NSF Beacon Grant
NSF Graduate Research Fellowship Program, Honorable Mention in Machine Learning
Outstanding Graduate Student Award, Virginia Tech
Finished the San Diego Rock'n'Rock Marathon in 5:38:11
Projects available on my website: http://cs.utexas.edu/~tansey