

Daniel C. Burfoot

CONTACT INFORMATION 31 Concord Ave. Apt B
Cambridge, MA 02138
Cell: (617) 216-4249
E-mail: daniel.burfoot@gmail.com

STATUS Recent PhD graduate in machine learning, currently writing a book that advocates a new approach to artificial intelligence. Seeking freelance software development work to leverage unique combination of statistics and programming skill set.

SUMMARY Strong combination of mathematical, computer science, and programming skills. Research emphasis on artificial intelligence, machine learning, statistics, information theory, and philosophy of science. Excellent communication skills in English.

EDUCATION **The University of Tokyo**, Hongo, Bunkyo-Ku, Japan

Ph.D., Mechano-Informatics (graduation date: April 2010)

- Thesis Title: Statistical Modeling as a Search for Randomness Deficiencies
- Advisor: Professor Yasuo Kuniyoshi
- Areas of Study: Statistical Learning, Computer Vision, Robot Motion Control

McGill University, Montreal, Quebec, Canada

M.Sc., Computer Science (graduation date: September 2006)

- Thesis Title: Limitations of and Extensions to Heuristic Search Planning
- Advisors: Professor Gregory Dudek and Professor Joelle Pineau
- Areas of Study: Automatic Planning, Mobile Robotics, Computer Vision, Pattern Recognition, Planning and Uncertainty in AI. GPA: 4.0

University of Connecticut, Storrs, Connecticut, USA

M.Sc., Physics. (graduation date: June 2004)

- Advisors: Professor Quentin Kessel
- Specialization: Biophysics
- Areas of Study: Electromagnetics, Quantum Mechanics, Statistical Mechanics, Mathematical Methods of Physics. GPA: 4.0

Harvard University, Cambridge, Massachusetts, USA

B.A., Applied Mathematics (Graduation Date: June 1999)

- Specialization: Computer Science
- Areas of Study: Computer Programming, Operating Systems, Networking, Graph Theory, Linear Algebra, Statistics. GPA: 3.1

AWARDS

- Japanese Government Monbusho Scholarship (2006-2010).
- Best Philosophy Paper Award, 10th International Conference on Simulation of Adaptive Behavior (2008).
- Dean's Honor List for M.Sc. Thesis, McGill University (2006).
- Andre J. Courtemanche Graduate Fellowship, McGill University (2005-2006).
- Sigma Pi Sigma (Physics Honor Society) Invitee, University of Connecticut (2004).
- Graduated *Cum Laude*, Harvard University (1999).
- Runner-up in "Best Web-Only Tool" category of Digital Awards competition of Magazine Publishers of America for SmartCoach (2007) (see below).

PUBLICATIONS

- Daniel Burfoot: "Statistical modeling as a Search for Randomness Deficiencies" University of Tokyo Ph.D. Thesis. March, 2010.
- Daniel Burfoot, Yasuo Kuniyoshi: "Compression Rate Methodology for Pure Empirical Vision Science", Proceedings of the 2009 International Conference on Image Processing, Computer Vision, and Pattern Recognition (ICCV), pp.519–526, 2009.
- Daniel Burfoot, Yasuo Kuniyoshi: "View of Boosting as a Search for Randomness Deficiencies", Proceedings of the 2009 International Conference on Data Mining (DMIN), pp.312–319, 2009.
- Daniel Burfoot, Max Lungarella, Yasuo Kuniyoshi: "Toward a Theory of Embodied Statistical Learning", Proceedings of the 10th International Conference on the Simulation of Adaptive Behavior (SAB), pp.270–279, 2008.
- Daniel Burfoot, Yasuo Kuniyoshi: "Semi-Supervised Learning in a Complex Arm Motor Control Task", Proceedings of the 2008 IEEE International Conference on Robotics and Biomimetics (ROBIO), pp.1698–1703, 2009.
- Daniel Burfoot, Yasuo Kuniyoshi: "Maximum Entropy Statistical Modeling of Sensor Data from Robotic Systems", Symposium on Language and Robots, pp.354–362, 2007.
- Daniel Burfoot, Joelle Pineau, Gregory Dudek: "RRT-Plan: a Randomized Algorithm for STRIPS Planning", Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS), pp.362–365, 2006.
- Daniel Burfoot: "Limitations to and Extensions of Heuristic Search Planning", McGill University M.Sc. Thesis. September, 2006.

WORK
EXPERIENCE

- Lead Developer, SmartCoachPlus training schedule software (full-time: Aug. 2010 - Dec. 2010) Improved version of original SmartCoach, implemented in server-side Java. Built all components of application from scratch, including SQL back-end, application logic, and JSP presentation layer. Available online at <http://smartcoach.runnersworld.com/smartcoach/>
- Lead Developer, SmartCoach training schedule software (part-time: 2004-2006). Design Javascript software to help runners plan their training schedules.
- Copy Editor, Intelligent Systems and Informatics Lab, University of Tokyo (part-time: 2007-2010). Check and revise English for academic papers.
- Technical Support Specialist, McGill University Computer Labs (part-time: 2004-2006). Support users of the Unix systems in the university computer lab.
- Developer, PowerSteering Software, Cambridge, Massachusetts, USA (full-time: 2001-2002). Write Java, JSP, SQL code for online project management system.
- IT Director, Harvard Student Agencies, Cambridge, Massachusetts, USA (part-time: 1997-1999). Manage IT architecture and provide technical support for student-run business association.

TEACHING
EXPERIENCE

- Physics Teaching Assistant, University of Connecticut (part-time: 2002-2004). Instruct undergraduates in introductory physics and astronomy laboratory work. Grading of lab reports.
- Manager, Physics Learning Resource Center, University of Connecticut (part-time: 2003-2004). Organize schedules and manage tutors for physics department special help center.
- Boston Campus *Hakwon*, Seoul, Korea (full-time: 2002). Teach English to Korean students of all ages.

TECHNICAL SKILLS

Highly Proficient: Java, Matlab, Web programming.
Significant Experience: C/C++, SQL, HTML, JavaScript, Perl, Latex, Unix, Windows.

MATHEMATICAL
SKILLS

Highly Proficient: Machine Learning, Information Theory, Statistics.
Significant Experience: Linear Algebra, Differential Equations, Signal Processing, Computer Vision, Data Compression.

LANGUAGE SKILLS

English: Superior Native (top 99% verbal SAT).
Japanese: Intermediate.

HOBBIES

Literature, weight training, Japanese culture.