

**Curriculum Vitae of
Rainer W. Paine, M.D., Ph.D.**

Current Position

Research Scientist
 RIKEN Brain Science Institute
 Lab. for Behavior and Dynamic Cognition
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Education and Appointments

1987-1991	Boston Latin School, USA
1991	Entry into Seven Year Medical Program at Boston University
1991-1994	Boston University undergraduate studies Major in Medical Science, Minor in Physics.
1994	Entry into MD-PhD program at Boston University.
1994-1996	Studies at Boston University School of Medicine.
1996	Successful completion of USMLE Step 1 medical licensing exam.
1996-2000	Doctoral studies in the Department of Cognitive and Neural Systems at Boston University. Experience in C and Matlab programming of classical neural network algorithms (Perceptrons, Backpropagation, Hopfield networks, Instance Based Learning, etc.) as well as development of a novel research model of motor learning with Dr. Stephen Grossberg.
2000	Completion of Oral Defense and Dissertation.
2000-2002	Clinical studies at Boston University School of Medicine
2002	B.A., Medical Science, Boston University, USA M.D., Boston University School of Medicine, USA Ph.D., Cognitive and Neural Systems, Boston University, USA
2002+	Research Scientist, Lab. for Behavior and Dynamic Cognition, RIKEN Brain Science Institute, Japan
2004	Successful completion of USMLE Step 2 medical licensing exam.

Awards and Honors

1991	Benjamin Franklin Medal, awarded to top 7 graduates of Boston Latin School
1991-1994	Boston University Trustee Scholar, Dean's list, Golden Key National Honor Society
2002	Boston University Graduation: <i>Summa Cum Laude</i>
2004	Best Paper in Evolutionary Robotics, Genetic and Evolutionary Computation (GECCO) conference, Seattle, WA, USA

Research Experience

- 1993: Volunteer in the Boston University Student Polymer Lab under Dr. Peter Garik. Research into fractal patterns of acid secretion through the stomach lining.
- 1994: Research assistant in the Neurology Research Lab of Dr. Gregory Holmes at Children's Hospital, Boston, USA. Research into the effects of epilepsy medications on learning ability in seizure-induced rats
- 1996-2000: Graduate student research assistant to Dr. Stephen Grossberg, Boston University, Dept. of Cognitive and Neural Systems. Research into how the brain learns and generates sequential movements. Development of a neural network model of handwriting learning and generation.
- 2001: Intern with Dr. Yoko Yamaguchi, RIKEN Brain Science Institute, Japan. Research into the role of hippocampal theta wave oscillations in encoding movement sequences and spatial maps.
- 2002+: Research Scientist working with Dr. Jun Tani, Lab. for Behavior and Dynamic Cognition, RIKEN Brain Science Institute. Research into the organization of movement primitives and sequences in the brain using a neural network controlling a simulated robot. Further details and demo at www.bdc.brain.riken.go.jp/~rpaine/Project Summary.htm

Main Publications

(Complete list and PDF downloads at www.bdc.brain.riken.go.jp/~rpaine/Biblio.html)

- Grossberg, S., Paine, R. W.(2000). A neural model of corticocerebellar interactions during attentive imitation and predictive learning of sequential handwriting movements. *Neural Networks*, **13**(8-9), 999-1046.
- Paine, R. W., Tani, J. (2004). Motor Primitive and Sequence Self-Organization in a Hierarchical Recurrent Neural Network. *Neural Networks*, **17**(8-9), 1291-1309.
- Paine, R. W., Grossberg, S., Van Gemmert, A. W. A. (2004). A Quantitative Evaluation of the AVITEWRITE Model of Handwriting Learning. *Human Movement Science*, **23**(6), 837-860.