

Forest Agostinelli

Assistant Professor • University of South Carolina • Department of Computer Science and Engineering

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Education

Ph.D. University of California, Irvine Computer Science Advisor: Pierre Baldi	2019
M.S. University of Michigan Computer Science Advisor: Honglak Lee	2014
B.S. Ohio State University (<i>magna cum laude</i>) Electrical and Computer Engineering	2012

Research Positions

Assistant Professor University of South Carolina	2020–Present
Postdoctoral Researcher University of California, Irvine	2020
Visiting Scholar Syntiant, Irvine, USA	Summer 2019
Research Intern Google DeepMind, London, UK	Summer 2017
Research Intern Microsoft Research, Beijing, China	Summer 2015
Research Intern Adobe Research, San Francisco, USA	Summer 2014

Funding

National Science Foundation Graduate Research Fellowship Program (GRFP)	2014–2019
GEM Fellowship (Sponsored by Adobe)	2014
GEM Fellowship (Sponsored by Intel)	2012

Media Coverage

Artificial Intelligence Solves the Rubik's cube BBC, <i>Forbes</i> , <i>Newsweek</i> , Gizmodo Research on artificial intelligence and the Rubik's cube appeared in over 70 news articles.	July 2019
Forest Agostinelli Selected for NSF Graduate Research Fellowship University of Michigan	April 2014

Publications

Peer-Reviewed Journal Publications

- Solving the Rubik's Cube with Deep Reinforcement Learning and Search**
Forest Agostinelli*, Stephen McAleer*, Alexander Shmakov*, Pierre Baldi
Nature Machine Intelligence, Volume 1, Issue 8, 356–363, 2019. (Covered by BBC, Forbes, Newsweek, and others)
- CircadiOmic: Circadian Omic Data Web Portal**
Nicholas Ceglia, Yu Liu, Siwei Chen, Forest Agostinelli, Kristin Eckel-Mahan, Paolo Sassone-Corsi, and Pierre Baldi
Nucleic Acids Research, Volume 46, Issue W1, W157–W162, 2018.
- What Time is It? Deep Learning Approaches for Circadian Rhythms**
Forest Agostinelli, Nicholas Ceglia, Babak Shahbaba, Paolo Sassone-Corsi, Pierre Baldi
Bioinformatics, 32 (12): i8–i17, 2016. (Selected for oral presentation at the ISMB 2016 conference)

Peer-Reviewed Conference Publications

- Solving the Rubik's Cube with Approximate Policy Iteration**
Stephen McAleer*, Forest Agostinelli*, Alexander Shmakov*, Baldi, P.
In Proceedings of the 7th International Conference on Learning Representations (ICLR), 2019
- Improving Survey Aggregation with Sparsely Represented Signals**
Tianlin Shi*, Forest Agostinelli*, Matthew Staib, David Wipf, Thomas Moscibroda
22nd SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), pp. 1845–1854. ACM, 2016.
- Adaptive Multi-Column Deep Neural Networks with Application to Robust Image Denoising**
Forest Agostinelli, Michael Anderson, Honglak Lee
Neural Information Processing Systems (NeurIPS), pp. 1493–1501, 2013.

Peer-Reviewed Book Chapters

From Reinforcement Learning to Deep Reinforcement Learning: An Overview

Forest Agostinelli, Guillaume Hocquet, Sameer Singh, Pierre Baldi

Key Ideas in Learning Theory from Inception to Current State: Emmanuel Braverman's Legacy, pp. 298-328. Springer, Cham, 2018.

Other Publications

Learning Activation Functions to Improve Deep Neural Networks

Forest Agostinelli, Matthew Hoffman, Peter Sadowski, Pierre Baldi

International Conference on Learning Representations, 2015. (Workshop track)

Hippocampal ensembles represent sequential relationships among discrete nonspatial events

Babak Shahbaba, Lingge Li, **Forest Agostinelli**, Mansi Saraf, Gabriel A Elias, Pierre Baldi, Norbert J Fortin
bioRxiv, 2019

Software and Web Servers

DeepCube | <http://deepcube.igb.uci.edu/>

Solve the Rubik's Cube with deep reinforcement learning
Over 26,000 unique visitors.

2018-Present

BIO_CYCLE | <http://circadiomics.igb.uci.edu/biocyte>

Analyze circadian -omic experiments with deep learning

2016-Present

Circadiomics | <http://circadiomics.igb.uci.edu/>

Explore, analyze, and visualize circadian data

2016-Present

Invited Talks

From Combination Puzzles to the Natural Sciences

- Wayne State University | Detroit, USA 2020
- University of South Carolina | Columbia, USA 2020
- Temple University | Philadelphia, USA 2020
- Binghamton University | Binghamton, USA 2020

Learning to Efficiently Solve Problems with Many Possibilities

- University of California, Berkeley (Pieter Abbeel's group) | Berkeley, USA 2019

What Time is It? Deep Learning Approaches for Circadian Rhythms

- University of Pennsylvania | Philadelphia, USA 2016
- Intelligent Systems for Molecular Biology (ISMB) | Orlando, USA 2016
- University of California, Irvine | Irvine, USA 2016

Teaching Experience

Instructor | *Deep Reinforcement Learning and Search* - Graduate Course | University of South Carolina 2020

Teaching Assistant | *Introduction to Artificial Intelligence* - Undergraduate | University of California, Irvine 2018-2019

Teaching Assistant | *Programming in Java* - Undergraduate | Ohio State University 2011

Professional Activities

Journal Reviewing

Neural Networks
Neurocomputing

Conference Reviewing

Neural Information Processing Systems (NeurIPS)
International Conference on Machine Learning (ICML)
International Conference on Learning Representations (ICLR)
International Conference on Artificial Intelligence and Statistics (AISTATS)
Association for the Advancement of Artificial Intelligence (AAAI)
International Joint Conference on Artificial Intelligence (IJCAI)

Outreach

Prospective Minority Graduate Student Recruitment | Irvine, CA 2014-2019
Discuss research interests and how to get into graduate school with prospective minority graduate students. Many of the students I have met with are currently Ph.D. students in the UC system.

Students Tutoring and Outreaching to the Minority Population (S.T.O.M.P.) | Long Beach, CA 2014-2015
Held workshops for underrepresented high school students on how to prepare strong applications for universities in the UC system.

Hands-On Engineering Projects | Detroit, MI 2012-2014
Worked with Black middle school students on a hypothetical engineering project of building a railroad system. The program culminated in a demonstration at the University of Michigan with the students and their parents.

STEMFest | Columbus, OH 2011
Worked on a city-wide day of STEM activities for Black and Latino middle and high schools students as part of the Lambda Psi minority engineering honorary. Coverage of the event appeared on a local news channel.

Hands-On Electrical Engineering Projects | Columbus, OH 2010-2012
Worked with Black and Latino high school students to do fun electrical engineering projects, such as building a homemade speaker.

Spoken Languages

English	Native speaker
Nepali	Conversational
Spanish	Working knowledge
Chinese	Working knowledge