

# William Edward Hahn

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561-479-8123

## I. EDUCATION

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Moorestown High School	350 Bridgeboro Road Moorestown, New Jersey 08057	856-778-6610	1999-2001
Saint Augustine College Preparatory School	611 Cedar Avenue Richland, New Jersey 08350	856-697-2600	2001-2003
Guilford College B.S. in Mathematics / Physics	5800 West Friendly Avenue Greensboro, North Carolina 27410	336-316-2301	2003-2008
University of North Carolina at Greensboro Mathematics / Computer Science	1400 Spring Garden Street Greensboro, North Carolina 27412	336-334-5000	2009-2011
Florida Atlantic University Ph.D. Complex Systems and Brain Sciences	777 Glades Boca Raton, Florida 33431	561-297-2230	2011-2016

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## II. TECHNOLOGIES

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Computer Languages: Matlab, Python, C++, Java, Netlogo, Maple, Sage, Stella, Breve, Prolog, R, HTML

Operating Systems: OS X, Windows, Ubuntu, Neurodebian, Virtual Machines

HPC/Cloud: Slurm, Globus, GridNexus, Condor, Dagman, FTP and SSH

Applications: L<sup>A</sup>T<sub>E</sub>X, Microsoft Office Suite, Google Documents, Digital Audio/Video/Imaging Editing

Medical Imaging: CMTK, TrackVis, DTK, OsiriX, MRICroGL, Slicer, FSL, AFNI, Freesurfer

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### III. TEACHING

#### A. Teaching Assistant - Guilford College

Responsibilities: Guest Lectures, Develop Demonstrations, Assist Programming Assignments, Recitation, Grade Assignments, Develop Testing Materials

Course	Semester
101 Systems Thinking and Computer Modeling	Fall 2004
122 Classical and Modern Physics II*	Spring 2005
223 Classical and Modern Physics III	Fall 2005
320 Mathematical Methods for the Physical Sciences**	Spring 2006
250 Physics for Non-Scientists (Munich, Germany)	Fall 2006
320 Mathematical Methods for the Physical Sciences	Spring 2007
101 Science through Science Fiction	Fall 2007
122 Classical and Modern Physics II	Spring 2008

\* Guilford College Physics Department – Teaching Assistant Appreciation Award

\*\* American Association of Physics Teachers – Outstanding Teaching Assistant Award

#### B. Teaching Assistant - Florida Atlantic University

(200+ students per semester)

Course	Semester
2002 Introduction to Astronomy	Fall 2011
2002 Introduction to Astronomy	Spring 2012
2002 Introduction to Astronomy / Digital Data Laboratory	Summer 2012
2002 Introduction to Astronomy / Digital Data Laboratory	Fall 2012
2002 Introduction to Astronomy / Digital Data Laboratory	Spring 2013
2002 Introduction to Astronomy / Digital Data Laboratory	Summer 2013

#### C. Instructor - Florida Atlantic University

(3 sections per semester - 15 students each)

Course	Semester
2049 General Physics Laboratory II Electronics	Fall 2014
2049 General Physics Laboratory II Electronics	Spring 2015

#### D. Instructor - Florida Atlantic University

Course	Semester
6908 Machine Perception and Cognitive Robotics Laboratory	Spring 2015
6908 Machine Perception and Cognitive Robotics Laboratory - Summer Programming Workshop	Summer 2015
6908 Machine Perception and Cognitive Robotics Laboratory	Fall 2015

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#### IV. PUBLISHED RESEARCH

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Hahn, William Edward, et al.  
 Deep learning human actions from video via sparse filtering and locally competitive algorithms.  
 Multimedia Tools and Applications (2015): 1-14.

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#### V. PRESENTATIONS AND TALKS

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Cosmology - Moorestown High School - 1999  
 High Level Programming Languages - St Augustine College Preparatory School - 2002  
 Ant Simulations and Genetic Algorithms in Stella - Guilford College - 2003  
 Parametric Equations in Maple - Guilford College - 2004  
 Populations Dynamics and Differential Equations - Guilford College - 2004  
 Wasting Nuclear Power - Guilford College - 2005  
 Measuring the Wavelength of a Helium-Neon Laser - Guilford College - 2005  
 Genetic Algorithms and Experimental Paper Aircraft - Guilford College - 2007  
 Thermohaline Circulation - Guilford College - 2007  
 Swarm Driven Neural Networks for El Niño - National Conference for Undergraduate Research - 2008  
 Fibonacci, the Golden Ratio, and Netlogo - Winterville, NC Middle School - 2008  
 Human-Computer Interaction Virtual Worlds: Second Life - University of North Carolina Greensboro - 2009  
 Quorum Sensing and Artificial Immune Systems - Guilford College - 2009  
 Antibiotic Resistance Agent Based Simulation - University of North Carolina Greensboro - 2009  
 Crayon Spectroscopy - Greensboro, NC Elementary School - 2009  
 Bio-Inspired Algorithms - University of North Carolina Greensboro - 2010  
 Brain Mapping: Diffusion Tensor Tractography Whole Brain Connectome - Guilford College - 2011  
 Alzheimer's Disease Bio-markers Using Diffusion Tensor Imaging - Florida Atlantic University - 2011  
 Traumatic Brain Injury and Diffusion Tensor Imaging - Florida Atlantic University - 2012  
 Saccadic Foraging and Alpha Stable Distributions - Florida Atlantic University - 2013  
 State of the Art: Brain Mapping - Ft. Lauderdale Rotary Club - 2013  
 Deep Machine Learning - Florida Atlantic University - 2013  
 Computer Vision and Medical Imaging - Guilford College - 2014  
 Intro to Computational Geometry - Guilford College - 2014  
 Differential Equations in Neuroscience - Guilford College - 2014  
 Intro to Computational Complexity - Guilford College - 2014  
 Sparse Modeling for Saliency Prediction - Florida Atlantic University - 2014  
 Computer Vision and Structure from Motion - Ft. Lauderdale Rotary Club - 2014  
 Sparse Coding and Compressed Sensing - Florida Atlantic University - 2013  
 Summer Programming Workshop: Neural Networks - Florida Atlantic University - 2015  
 Machine Cognition - Florida Atlantic University - 2015  
 Information Processing Models of the Visual Cortex - Florida Atlantic University - 2015

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## VI. RELATED COURSEWORK

Course
101 Systems Thinking
111 Chemical Principles I
112 Chemical Principles II
121 Classical and Modern Physics I
122 Calculus II
122 Classical and Modern Physics II
159 Programming C++
210 Observatory Practice
223 Classical and Modern Physics III
225 Multivariable Calculus
226 Physics of Solids
231 Foundations of Mathematics
231 Experimental Physics I
232 Experimental Physics II
250 Analog Electronics
250 History of Technology
250 Scientific Glassblowing
250 Scientific Programming in Matlab
259 Advanced Programming C++
311 Modern Algebra: Group Theory
320 Mathematical Methods for the Physical Sciences
324 Thermophysics
325 Linear Algebra
360 Quantum Chemistry
422 Electrodynamics
475 Dynamical Systems
522 Hilbert Spaces
529 Artificial Intelligence
532 Graph Theory
540 Human-Computer Interface
555 Algorithm Analysis and Design
580 Cryptography
6211 Dynamical Systems and Chaos
6937 Complex Systems
6908 Connectivity in Alzheimer's Disease Diffusion Tensor Tractography
6446 Applied Statistical Methods
6345 Neuroscience 1
6346 Neuroscience 2
6452 Cognition and Complex Systems
6938 Medical Imaging Physics
5465 Cognitive Neuroscience
6930 Traumatic Brain Injury
6931 Functions, Structures & Disorders of Central Nervous System
6930 Signal Processing and Neural Oscillations.
5615 Artificial Neural Networks
6931 Statistical Mechanics
6931 Computational Brain Mapping: Structural Connections
6908 Advanced Research in Multisensory Perception

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**VII. EDUCATIONAL ACHIEVEMENTS**

Big Brothers Big Sisters of America - Peer Mentor 2002  
 DigiPen Institute of Technology - Computer Graphics Workshop 2002  
 Graduation Honors - World Religion - St. Augustine College Preparatory 2003  
 Guilford College First-year Student Orientation Leader 2004  
 National Physics Honors Society - Sigma Pi Sigma 2004  
 Physics Teaching Assistant Appreciation Award 2005  
 American Association of Physics Teachers 2006  
 AAPT - Outstanding Teaching Assistant Award 2006  
 E. Garness Purdom Physics Scholarship 2006  
 Guilford College - Physics for Non-Scientists - Lab Instructor - Deutsches Museum - Munich, Germany 2006  
 National Conference for Undergraduate Research - Swarm Driven Neural Networks ENSO 2008  
 Davidson College Summer Institute - Calculus Teachers Workshop 2009  
 National Science Foundation - Mathematical Biology Fellowship 2009  
 Science Writer - Houghton Mifflin Harcourt 2011  
 2<sup>nd</sup> Place Art of Academia - Diffusion Tractography Visualization 2011  
 1<sup>st</sup> Place GPSA Research - White Matter Networks Indicative of Alzheimer's Disease 2013  
 Honorable Mention Art of Academia - Digital Neuroanatomy 2013  
 First Florida Statewide Graduate Student Research Symposium: Diffusion MRI Tractography 2013  
 DividingEngine.com - Technology, Science, History - Video Archive Website 2014  
 Founded Machine Perception and Cognitive Robotics Laboratory (MPCR) 2015  
 Founded MPCR Undergraduate Club 2015  
 Broward County Crime Commission Robotics Summer School 2015  
 MPCR Lab Summer Programming Workshop 2015

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**VIII. REFERENCES**


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Dr. Elan Barenholtz Professor of Psychology Center for Complex Systems & Brain Sciences	<a href="mailto:elan.barenholtz@fau.edu">elan.barenholtz@fau.edu</a>	561-297-3433
Dr. Janet Blanks Interim Dean, College of Science Director, Center for Complex Systems & Brain Sciences	<a href="mailto:blanks@fau.edu">blanks@fau.edu</a>	561-297-3301
Dr. Steve Shapiro Professor of Physics Guilford College	<a href="mailto:sshapiro@guilford.edu">sshapiro@guilford.edu</a>	336-316-2936
Dr. Rex Adelberger Professor of Physics Guilford College	<a href="mailto:radelber@guilford.edu">radelber@guilford.edu</a>	336-601-9038
Dr. Rudy Gordh Professor of Mathematics Guilford College	<a href="mailto:rgordh@guilford.edu">rgordh@guilford.edu</a>	336-316-2230

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