

John P. Dickerson

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- EDUCATION: **Carnegie Mellon University**, Pittsburgh, PA
- Ph.D. in Computer Science, expected May 2015
 - M.S. in Computer Science, expected May 2012
- University of Maryland**, College Park, MD
- B.S. in Computer Science, May 2008
 - B.S. in Mathematics, May 2008
 - Honors, Gemstone Citation
- SECURITY CLEARANCE: Department of Defense Top Secret - Sensitive Compartmented Information (TS/SCI) (polygraph, inactive)
- RESEARCH INTERESTS: Agent-based modeling, predictive modeling, serious games, computer graphics and visualization, cultural modeling, combinatorics and graph theory, game theory.
- JOURNAL PUBLICATIONS: V.S. Subrahmanian and John Dickerson. What Can Virtual Worlds and Games do for National Security? *Science*, vol. 326, pp. 1201-02. 27 November 2009.
- CONFERENCE PUBLICATIONS: Gerardo I. Simari, John Dickerson, V.S. Subrahmanian. Cost-based Query Answering in Action Probabilistic Logic Programs. *Proc. Fourth International Conference on Scalable Uncertainty Management (SUM 2010)*, Toulouse, France, Sept. 2010. *To appear*.
- John Dickerson, Gerardo Simari, V.S. Subrahmanian, Sarit Kraus. A Graph-Theoretic Approach to Protect Static and Moving Targets from Adversaries. *Proc. Ninth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2010)*, pp. 299-306, Toronto, Canada, May 2010.
- Emily Vargas-Baron, V.S. Subrahmanian and John Dickerson. Country Profiles on Early Childhood Development: Sub-Saharan Africa. *Proc. 2009 African International Conference on Early Childhood Development*, Dakar, Senegal, Nov. 2009.
- John Dickerson, Maria Vanina Martinez, Diego Reforgiato, V.S. Subrahmanian. CIG: Cultural Islands and Games. *Proc. 2008 International Conference on Computational Cultural Dynamics*, pp. 26-31, AAAI Press, Menlo Park, CA, 2008.
- THESIS: Undergraduate thesis defense, Classification of Perceived Emotion in Music using a Computational Model of the Auditory Cortex. *Gemstone Interdisciplinary Research Program*. University of Maryland, April 2008.

IN PROGRESS: Gerardo Simari, John Dickerson, V.S. Subrahmanian. Abductive Query Answering in Probabilistic Logic Programs. *In preparation for journal submission in June 2010.*

Paulo Shakarian, John Dickerson, V.S. Subrahmanian. Adversarial Geospatial Abduction Problems. *In preparation for journal submission in July 2010.*

Rob Patro, John Dickerson, Amitabh Varshney, Satyandra K. Gupta. Accelerating Optical Tweezer Simulations using Graphics Processing Units. *In preparation for journal submission in July 2010.*

ACADEMIC
EMPLOYMENT:

Laboratory for Computational Cultural Dynamics (LCCD), U. of Maryland

Faculty Research Assistant, (2008-Present)

Explore environments in which users can interact with computational models of different geopolitical groups. Serve as lead developer on the Cultural Island Games project. Take data from multiple sources, pass through novel analysis and predictive modeling systems, visualize in a multiplayer online gaming environment. Recent work in agent-based adversarial modeling, specifically preventing adversarial “attack” on a set of static or dynamic targets.

Graphics and Visual Informatics Laboratory (GVIL), University of Maryland

Graphics and Visualization Researcher, (2007)

Graphical programmer for joint projects in computer vision and AI. Used 57 megapixel tiled wall display in conjunction with OpenGL and OpenSG to design multithreaded, efficient and appealing visualizations. Procedurally and manually generated 3-D models. Explored novel ideas involving high resolution, real-time multi-GPU visualizations.

Computer Science Department, University of Maryland

Undergraduate Teaching Assistant, (2006-2008)

Served as an assistant to the professor for four semesters: once in a low-level C programming class, once in an organization of programming class, twice in a computer architecture course. Wrote and graded quizzes, worksheets. Held office hours, study sessions. Edited and graded programming projects. Led discussions online via class forums and webpages.

INDUSTRY
EMPLOYMENT:

Center for Advanced Transportation Technologies, College Park, MD

Developer (2006)

Augmented a highly interactive and dynamic OpenGL-based 3-D visualization program of traffic in the DC area. Interacted with real-time traffic databases. Used traffic statistics to form predictive algorithms detailing potentially congested and high-risk highway zones.

International Business Machines (IBM), Bethesda, MD

Application Tester/Debugger (2005)

Wrote and executed test cases for GCPS, an international contract monitoring tool IBM released in early 2006. Also used JavaScript in conjunction with the database tool Brio to create a user-friendly database query tool for the program.

National Security Agency (NSA), Ft. Meade, MD

Student Research Intern (2003-2004)

Directed my own project for two summers in a research lab specializing in optical and fingerprint scanning, along with 3-D facial recognition. Created a real-time, realistic human face to be compared with 2-D face databases for use with video surveillance.

TEACHING
EXPERIENCE:

University of Maryland, College Park, MD

Teaching Assistant, CMSC311, Fall 2007, Spring 2008
Computer Organization
Michelle Hugue

Teaching Assistant, CMSC330, Spring 2007
Organization of Programming Languages
Larry Herman

Teaching Assistant, CMSC212, Fall 2006
Introduction to Low-Level Programming Concepts
Alan Sussman and Larry Herman

COMMUNITY
EXPERIENCE:

Resident Assistant

Ellicott Residence Hall (2006-2007)

As an upperclassman, supervised approximately sixty freshman males in the Ellicott Residence Hall. Served as a peer mediator, educational advisor, mentor, and liaison between faculty and students. Handled situations ranging from alcohol abuse and roommate conflicts to drug abuse and severe depression in students.

Community Assistant

La Plata, Queen Anne's Residence Halls (2005-2006)

Facilitated positive relationships between students, staff, and faculty within the residence halls. Served as an information point for students and visitors. Maintained full knowledge of emergency and evacuation procedures for the hall.

Eagle Scout

Boy Scouts of America

Served in a variety of leadership and community service roles over the course of nearly two decades, primarily through Troop 264. Planned and executed my own Eagle Project involving the placement, tracking, and upkeep of many wood duck boxes in the greater Triadelphia, MD area.

HONORS AND
AWARDS:

2007: Gannon Scholar, *CS @ University of Maryland*

2007: Undergraduate TA of the Year, *CS @ University of Maryland*

2007: Professional Writing Contest in Alternate Media, *English Dept. @ UMD*

2006: Writing Program Gifts and Awards Fund, *University of Maryland*
2006: Book Scholar, *Chevy Chase Bank*
2005: Professor's Fund, *University of Maryland*
2005: Honors Citation, *University of Maryland*
2004-08: Dean's List, *University of Maryland*
2004-08: Senatorial Scholarship, *State of Maryland*
2004-08: Delegate's Scholarship, *State of Maryland*
2004: Salutatorian, *Sherwood High School*
2003: Eagle Scout, *Boy Scouts of America*

RELEVANT
CLASSWORK:

At University of Maryland

Computer Science Theory

Algorithms, Advanced Algorithms, Logic, Robotic Motion Planning, Graph Theory, Organization of Programming Languages, Artificial Intelligence

Computer Science Applied

Low-Level Programming, Graphics, Advanced Graphics, Computer Organization and Architecture, Artificial Intelligence, Game Programming, Networking, Object-Oriented Programming, Data Structures, Scientific Computing on GPUs

Mathematics

Differential Geometry, Linear Algebra (Theory), Linear Algebra (Applied), Advanced Calculus, Statistics, Probability, Graph Theory, Combinatorics

Other

Technical Writing, Team Dynamics and Research Methods

TECHNICAL
SKILLS:

Programming

Fluent in: Java, C++, C, OpenGL

Experience in: CUDA, MatLab, Ruby, Python, LISP, VB, Flex, ActionScript, HTML, CSS, XML, DirectX, L^AT_EX

Operating Systems

Windows, UNIX, myriad Linux distributions

Software

Eclipse, Visual Studio, 3d Studio Max, Adobe Creative Suite, Gimp, SVN

REFERENCES:

V.S. Subrahmanian, Ph.D.
Director, UMIACS & Professor, Computer Science
2119 A.V. Williams Building
University of Maryland
College Park, MD 20742

Amitabh Varshney, Ph.D.
Professor, Computer Science
4407 A.V. Williams Building
University of Maryland
College Park, MD 20742

Sarit Kraus, Ph.D.
Professor, Computer Science
Bar-Ilan University
Ramat Gan, Israel

Extra academic and personal references available upon request!

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