



## Gerry Vernon Dozier

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### EDUCATION BACKGROUND

Ph.D., North Carolina State University, Raleigh (December 1995).

*Major* : Computer Science  
*Dissertation Title* : Constraint Processing Using Adaptive  
Microevolutionary/Systematic Hill-Climbing  
*Advisor* : James A. Bowen

M.S., North Carolina State University, Raleigh (August 1991).

*Major* : Computer Science  
*Minor* : Computer Engineering

B.S., Northeastern Illinois University, Chicago (April 1988).

*1st Major* : Computer Science  
*2nd Major* : Mathematics

### AREAS OF SPECIALIZATION

Genetic, Evolutionary & Neural Computing, Biometrics, Distributed Constraint Reasoning, Evolutionary Robotics, Artificial & Computational Intelligence, Intrusion Detection Systems.

### TEACHING and OTHER PROFESSIONAL EXPERIENCE

July 2007-Present: Professor & Chair, Department of Computer Science, North Carolina A&T State University, Greenboro, NC.

- As a PI/co-PI, has brought in over \$18,737,085 in external funding (as PI and Co-PI) since July 2007.
- Increased the extramural funding of the department. Over the past 6.5 years the department has averaged more than \$3M/yr in extramural funding (Currently,  $\approx$  \$18M in active grants).
- Oversaw the establishment of a Ph.D. program (January 2014) for the Department of Computer Science. North Carolina A&T is the first public HBCU in the nation to offer a Ph.D. in Computer Science.

- Founding Director of the Center for Advanced Studies in Identity Science (CASIS), the 1st Director of National Intelligence Science & Technology Center of Academic Excellence in the United States. This interdisciplinary (Computer Science, Electrical & Computer Engineering, and Visual Computing) research center is composed of researchers from North Carolina A&T (Lead), Carnegie Mellon University, Clemson University, and the University of North Carolina at Wilmington and is funded via a \$8.9M grant from the Army Research Office.
- Developed the Alliance for the Advancement of African-American Researchers in Computing (A4RC) [www.a4rc.org] which seeks to increase the number of African-American PhD and Master's degree recipients nationwide. A4RC currently consists of 20 universities and colleges. Over the past five years, A4RC has been funded by grants totaling more than \$2.75M from the National Science Foundation.
- Established the Bio/computational Consortium for the Study of Evolution in Action at A&T (BEACON@A&T) via a \$2.5M subgrant from Michigan State University (as part of \$25M National Science Foundation Science & Technology Center). BEACON@A&T is composed of researchers from Biology, Computer Science, Electrical & Computer Engineering, Industrial Engineering, and Secure Designs, Inc. (Greensboro, NC). BEACON@A&T is part of a larger consortium (BEACON) composed of: Michigan State University (Lead), the University of Texas-Austin, the University of Washington, and the University of Idaho.
- Founding Director of the Center for Cyber Defense (C<sup>2</sup>D), North Carolina A&T State University's Designated Information Assurance Center. This is an interdisciplinary center composed of Information Assurance Research Laboratories from the Department of Computer Science, the Department of Management, and the Department of Mathematics. On April 29, 2010, C<sup>2</sup>D was designated a National Center for Academic Excellence in Information Assurance Education by the National Security Agency and the Department of Homeland Security. To date, C<sup>2</sup>D has received funding totaling more than \$3M from the National Science Foundation, the National Reconnaissance Office, and the Department of Education.
- Developed an extramurally funded, department wide, Undergraduate Research Program where undergraduates co-author papers with the CS faculty.
- Developed graduate & undergraduate recruiting programs that have led to increased enrollment in the Computer Science department.
- Oversaw the development of an undergraduate concentration in Information Assurance.
- Developed Undergraduate Research Programs at Shaw University, Central Piedmont Community College, and Guilford Technical Community College that feed into the CS department at North Carolina A&T.

September 2002-June 2007: Associate Professor, Computer Science & Engineering, Auburn University, AL.

Taught Artificial Intelligence, Computational Intelligence, and Software Construction courses. Director of the Applied Computational Intelligence (ACI) Lab. ACI develops hybrid applications of Computational Intelligence (evolutionary, fuzzy and neural computing) and traditional search (tree search, consistency processing, hill-climbing, etc.) to solve dynamic and distributed problems in the areas of Space Vehicle Design, Immunity-Based Network Intrusion Detection & Vulnerability Analysis, Distributed Constraint Reasoning, Evacuation Planning & Execution, and Interactive Evolutionary Robotics.

September 1997-2002: Assistant Professor, Computer Science & Engineering, Auburn University, AL.

Taught Artificial Intelligence, Computational Intelligence and Software Modeling & Design courses. Developed hybrid applications of Computational Intelligence (evolutionary, fuzzy and neural computing) and traditional search (tree search, consistency processing, hill-climbing, etc.) to solve dynamic and distributed problems in the areas of Constraint Satisfaction, Constrained Optimization, Immunity-Based Network Intrusion Detection, and Interactive Evolutionary Robotics.

January 1996-August 1997: Assistant Professor, Computer Science, North Carolina A&T State University.

Taught undergraduate and graduate courses in programming and Genetic Algorithms. Developed a number of evolutionary hybrid systems for Constraint Satisfaction, Constrained Optimization and Robot Motion Planning & Obstacle Avoidance.

August 1995-January 1996: Adjunct Assistant Professor, Computer Science, North Carolina A&T State University.

Taught an introductory computer science course and developed evolutionary algorithms for robot motion planning and obstacle avoidance.

January 1990-August 1995: Research Assistant, Computer Science, North Carolina State University.

Collaborated with Professor James Bowen on a NSF-funded project entitled "A Generic Architecture for Intelligent Networked Colocation in Concurrent Engineering".

February 1994-November 1994: Visiting Research Assistant, Computer Science, National University of Ireland, Cork, Ireland.

Collaborated with Professor James Bowen on the development of evolutionary/systematic search hybrids for solving Constraint Satisfaction Problems.

Fall 1993: Instructor, Division of Science and Technology, Shaw University, Raleigh.

Fall 1989: Teaching Assistant in Numerical Methods, Department of Computer Science, North Carolina State University.

November 1988 - August 1989: Programmer/Analyst, Institute for Personality and Ability Testing, Savoy, Illinois.

June 1988 - November 1988: Programmer/Typesetter, Publication Services, Champaign, Illinois.

Summer 1987: Intern in Artificial Intelligence, Soncraft, Inc. Chicago, Illinois.

## **GRANTS & CONTRACTS**

### **Research Proposals: Total Funded \$21,634,809 (PI \$16,294,931; co-PI \$5,339,878)**

1. Co-Investigator with Anna Yu (PI), Ken Williams, Jinsheng Xu, and Dorothy Yuan. “Collaborative Project: Carolina Cyber Defense Scholarship,” NSF, \$835,514, September 1, 2012 – August 31, 2016.
2. Co-Investigator with Justin Zhan (PI), Kossi Edoh, Albert Esterline, and Terrolyn Carter. “Targeted Infusion Project: Developing a Social Computing Program at North Carolina A&T State University,” NSF, \$300,000, September 15, 2012 – August 31, 2015.
3. Principal Investigator, (subgrant: Michigan State University) “Bio/computational Consortium for the Study of Evolution in Action,” NSF, \$2,500,000, August 1, 2010 - July 31, 2015.
4. Principal Investigator, “The Center for Advanced Studies in Identity Sciences (CASIS), Army Research Laboratory, \$8,933,699, September 1, 2008 - August 31, 2014.
5. Co-Investigator with Dorothy Yuan (PI), Jinsheng Xu, Hong Wang, Kossi Edoh. NSF HBCU-UP Targeted Infusion Project, “Developing a Health Informatics Security and Privacy Program,” NSF, \$300,000, September 1, 2011 – August 31, 2014.
6. Principal Investigator, The NSF S-STEM Program for Computer Science Recruitment, Retention and Research, NSF, \$600,000, August 1, 2008 - July 31, 2013.
7. Co-Investigator with Dorothy Yuan (PI), Shearon Brown, Anna Yu. “The MSEIP Application for Improving Computer Science Curriculum and Retention,” Department of Education, \$582,739, October 1, 2009 – September 30, 2012.
8. Co-Investigator with Yu, A., Xu, J., Kim, J. H., and Williams, K. A., Collaborative Project: Carolina Cyber Defense Scholarship, NSF, \$1,163,001, September 1, 2008 - August 31, 2012.
9. Principal Investigator, (with Maureen Biggers, Indiana University; Juan Gilbert, Clemson University; Loretta Moore, Jackson State University; Cheryl Seals, Auburn University; Scott McCrikard, Virginia Tech University) “BPC-AE: Collaborative Research: The Alliance for the Advancement of African-American Researchers in Computing (A4RC),” National Science Foundation, \$1,498,076, September 1, 2009 - August 31, 2011.

10. Principal Investigator, (with Albert Esterline, Robert Lee, Celestine Ntuen, Kenneth Williams, Anna Yu) “Pilot Program for Science & Technology (S&T) Research at Intelligence Community Centers of Academic Excellence”, National Reconnaissance Office (NRO), \$600,000, January 1, 2009 - December 31, 2010.
11. Co-Investigator with Yu, A., Brown, S., and Carr, E., NSF BPC-DP (SGER) Software Design & Development Teams and Tournament, NSF, \$179,860, May 1, 2008 - April 30, 2010.
12. Co-Investigator with Hamilton, J., Chang, K., and Wang, Y. SFS: Scholarship Partnership with Alabama State University and Tuskegee University, NSF, \$1,493,790, August 15, 2006 - July 31, 2009.
13. Principal Investigator (Original PI: John Kelly), BPC-A: Collaborative Research: Alliance between Historically Black Universities and Research Universities for Collaborative Education and Research in Computing Disciplines, NSF, \$1,244,196, February 2006 - January 2009.
14. Co-Investigator with Gilbert, J., Jackson, J., and Seals, C. NSF BPC-DP: African-American Researchers in Computing Sciences (AARCS) NSF, \$384,988, March 1, 2006 - July 31, 2008.
15. Co-Investigator with Hamilton, J., Chang, K., and Wang, Y. Collaborative Research: Building Information Assurance Education Capacity with Alabama State University, NSF, \$99,986, September 1, 2005 - August 31, 2007.
16. Principal Investigator, GENEVOT-III: X-TOOLSS 1.1 and Visual X-TOOLSS 1.0, NASA, \$51,000, September 1, 2006 - August 31, 2007.
17. Principal Investigator, GENEVOT-II: A High-Performance Genetic and Evolutionary Optimization Tool for X-TOOLSS”, NASA, \$40,000, September 1, 2005 - August 31 2006.
18. Principal Investigator, GENEVOT: A High-Performance Genetic and Evolutionary Nuclear Electric Vehicle Optimization Tool”, NASA, \$40,000, September 1, 2004 - August 31 2005.
19. Principal Investigator, Evolving Stable Solutions to Centralized and Distributed Dynamic Constraint Networks Using Hybrid Genetic Search, National Science Foundation, \$152,123, October 1, 1999 - September 30, 2002.
20. Principal Investigator, Hybrid Motion Planning with Multiple Destinations, 1997 NASA Faculty Award for Research (FAR), \$278,937, June 10, 1997 - June 9, 2000.
21. Principal Investigator, (with Abdollah Homaifar, Jeff Clouse, and Marwan Bikdash of North Carolina A&T State University) Artificial Potential Field Based Motion Planning/Navigation in Two and Three Dimensional Dynamic Environments, NASA 1997 Partnership with Minority Institutions, \$356,900, June 6, 1997 - June 5, 1999.

## **Research Proposals: Unfunded**

1. Genetic & Evolutionary Protocols: 4th Generation Paradigms for Distributed Evolutionary Computing”, NSF, 330,991, from 8/06-7/08, PI: G. Dozier, Co-PIs: A. Smith and G. Davis.
2. Design and Development of Autonomic Cyber Defense Systems: A Bio-Inspired Approach,” NSF, \$1,538,327, PI: D. Dasgupta, Co-PIs: G. Dozier, 9/05-8/08, V.Skormin, and Y. Xiao.
3. Dozier, G. and Smith, A. Genetic & Evolutionary Protocols: 4th Generation Paradigms for Sensor Networks, NSF, \$531,556, 10/05-9/08, PI: G. Dozier, Co-PI: A. Smith.
4. Development of an Interactive Distributed Evolutionary Algorithm (IDEA) to Facilitate Human-Algorithm Collaboration in the Design of Displays,” NSF, \$450,042, 09/04-08/07, PI: B. Carnahan, Co-PIs: G. Dozier, C. Seals, and L.-A. Kuntz.
5. A 4th Generation Evolutionary Computation for Sharing Large-Scale Sensor Networks, USA SMDC-EETEAMS, \$193,231. PI: G. Dozier, Co-PIs: A. Smith, S. Biaz.
6. 4th Generation Biologically-Inspired Applications for Sharing and Monitoring Large-Scale Sensor Networks,” NSF-EMT, \$443,769, PI: G. Dozier, 08/04-07/07, Co-PIs: A. Smith, S. Biaz.
7. The Key to an Effective Defense is a Good Offense: Aggressively Proactive AIS-Based Intrusion Detection via Genetic Red Teams”, NSF, \$229,885, from 10/2003 to 9/2006, PI: G. Dozier.
8. Automatic Data Classification for Web Document Search, National Science Foundation (99-167), \$413,495, 10/2000 - 9/03, PI: Wen-Chen Hu, Co-PIs: Kai-Hsiung Chang, and Gerry Dozier, 2000.
9. Distributed Path Planning using Multi-Resolution Maps, CalTech President’s Fund, Distributed Path Planning using Multi-Resolution Maps, CalTech President’s Fund, \$99,181, 8/2000 - 8/2001, PI: G. Dozier, Co-PI: Edward Tunstel, Jr. (Jet Propulsion Laboratory).
10. Evolving Stable Solutions to Recurrent, Dynamic Constraint Satisfaction Problems Using Hybrid Genetic Search, National Science Foundation, \$50,000, October 1998 – September 1999, PI: G. Dozier.
11. Off-Line & On-Line Synthesis of Constraint Satisfaction Heuristics, Consistency Methods, and Programs for Solving Recurrent, Dynamic Constraint Networks, National Science Foundation (CAREER), \$479,191, June 1999 - May 2004, PI: G. Dozier.
12. Solving Dynamic Constraint Satisfaction Problems Using Hybrid Evolutionary Algorithms, National Science Foundation (CAREER), \$365,695, PI: G. Dozier. June 1997 - May 2002.

13. An Integrated Approach to Intelligent Systems, PI: Abdollah Homaifar, Co-PIs: Marwan Bikdash,
14. G. Dozier, F. Vainstein, and Albert Esterline, Army Research Office (MURI), \$700,000, 1996 - 2001.
15. An Interactive Genetic-Based Advice Generation System for Object-Oriented Software Engineering, IBM 1996 Partnership Award, \$40,000/yr (competitive renewal), PI: G. Dozier.

## **PUBLICATIONS** (*Advisees in **Boldface**, Undergraduates in **Blue***)

### **Book Chapters**

1. Dengiz, O., Smith, A. E., and Dozier, G. (2012). "Non-Deterministic Decoding with Mapping Rearrangement Enhance Precision in Binary Encodings", *Heuristics: Theory and Applications*, Nova Science Publishers, Inc.
2. **Alford, A., Shelton, J., Adams, J., LeFlore, D., Payne, M., Turner, J., McLean, V., Benson, R.**, Dozier, G., Bryant, K., Kelly, J.C. (2012). "Genetic & Evolutionary Biometrics", *New Trends and Developments in Biometrics*.
3. Dozier, G.V., Savvides, M., Bryant, K., Munemoto, T., Ricanek, K., and Woodard, D. (2009). "Iris Template Extraction via Bit Inconsistency and GRIT," *Encyclopedia of Biometrics*, Stan Z. Li, Anil K. Jain (Eds.), pp. 859-865, Springer-Verlag Berlin.
4. Dozier, G., Homaifar, A., Tunstel, E., and Battle, D. (2001). "An Introduction to Evolutionary Computation" (Chapter 17), *Intelligent Control Systems Using Soft Computing Methodologies*, A. Zilouchian & M. Jamshidi (Eds.), pp. 365-380, CRC press.
5. Homaifar, A., Tunstel, E., Dozier, G., Battle D. (2001). "Genetic and Evolutionary Methods for Mobile Robot Motion Control and Path Planning" (Chapter 20), *Intelligent Control Systems Using Soft Computing Methodologies*, A. Zilouchian & M. Jamshidi (Eds.), pp. 437-454, CRC press.

### **Refereed Journal Publications**

1. **Ahmad, F.**, Roy, K., **O'Connor, B.**, **Shelton, J.**, Dozier, G., Dworkin, I. (to appear). "Fly Wing Biometrics using Modified Local Binary Patterns, SVMs, and Random Forest," *International Journal of Machine Learning and Computing*.
2. **Shelton, J.**, Roy, K., **O'Connor, B.**, Dozier, G. (to Appear). "Mitigating Iris-Based Replay Attacks," *International Journal of Machine Learning and Computing*.
3. **Williams, H.**, **Carter, J.**, **W. Campbell**, Roy, K., Dozier, G. (to appear). "Genetic & Evolutionary Feature Selection for Author Identification of HTML Associated with Malware," *International Journal of Machine Learning and Computing*.

4. **Alford, A., Adams, J., Shelton, J.,** Dozier, G., Bryant, K., Kelly, J.C. (2012). "Genetic & Evolutionary Biometrics: Exploring Value Preference Space for Hybrid Feature Weighting and Selection", *The International Journal of Intelligent Computing and Cybernetics (IJICC)*.
5. **Alford, A.,** Bryant, K., **Abegaz, T.,** Dozier, G., Kelly, J., **Shelton, J., Small, L., Adams, J.,** and Woodard, D.L., (2012). "Genetic & Evolutionary Methods for Biometric Feature Reduction", *Special Issue on: "Computational Intelligence in Biometrics: Theory, Methods and Applications"*, Guest Editor: Qinghan Xiao, *International Journal of Biometrics*.
6. Dyer, J. D., Hartfield, R. J., Dozier, G. V., and Burkhalter, J. E. (2012). "Aerospace Design Optimization Using a Steady State Real-Coded Genetic Algorithm, *Applied Mathematics and Computation*, vol. 218, pp. 4710–4730, Elsevier.
7. Yapicioglu, H., Liu, H., Smith, A. E. and Dozier, G. (2010). "Hybrid Approach for Pareto Front Expansion in Heuristics," *Journal of the Operational Research Society*, vol. 62, pp. 348-359 (27 October 2010).
8. Ricanek, K., Savvides, M., Woodard, D.L., Dozier, G. (2010). "Unconstrained Biometric Identification: Emerging Technologies," *Computer*, February, pp. 56-62, IEEE Computer Society, IEEE.
9. **Casey, K.,** Lim, A., and Dozier, G. (2008). "A Sensor Network Architecture for Tsunami Detection and Response," *International Journal of Distributed Sensor Networks*, Vol. 4, Issue 1, pp. 28-43, Taylor & Francis Group, LLC.
10. **Casey, K., Garrett, A., Gay, J., Montgomery, L.,** and Dozier, G. (2007). "An Evolutionary Approach for Achieving Scalability with General Regression Neural Networks," *The Journal of Natural Computing*, Online First #20, Springer.
11. Unsal, E., Dozier, G., Dane (2007). "A Novel Optimization Process for Prediction of Complex Pore Geometry via Genetic Search," *INTELLIGENT AUTOMATION and SOFT COMPUTING*, 2007, Vol: 13, Pages: 337 - 349, ISSN: 1079 8587
12. Dozier, G., **Brown, D.,** Hou, H., and Hurley J. (2007). "Vulnerability Analysis of Immunity- Based Intrusion Detection Systems Using Genetic and Evolutionary Hackers," *Journal of Applied Soft Computing* Volume 7, Issue 2 , March 2007, Pages 547-553, Elsevier.
13. Dozier, G., Cunningham, H., **Britt, W.,** Wang, Y., Seals, C., and Zhang, F. (2007). "Distributed Constraint Satisfaction, Restricted Recombination , and Genetic Protocols," *Journal of Applied Soft Computing*, Volume 7 , Issue 3, June 2007, pp. 1005-1011, Elsevier.
14. **Garrett, A.,** Dozier, G., and Hamilton, J. (2007). "A Comparison of Genetic Algorithm Techniques for the Cryptanalysis of TEA," *International Journal on Intelligent Control and Systems*, Vol. 12, No. 4, pp. 325-330.
15. **Yapicioglu, H.,** Smith, A., and Dozier, G. (2007). "Solving the Semi-Desirable Facility Location Problem Using Bi-objective Particle Swarm," *The European Journal of Operations Research*, 177 (2007) pp. 733-749, Elsevier.



16. Hull, P. V., Tinker, M. L., and Dozier, G. V. (2006). "Evolutionary Optimization of a Geometrically Refined Truss," *Structural and Multidisciplinary Optimization*, Volume 31, Number 4, pp. 311-319, April 2006, Springer-Verlag.
17. **Simionescu**, A., Beale, D., and Dozier, G. (2006). "Teeth-Number Synthesis of a Multispeed Planetary Transmission Using an Estimation of Distribution Algorithm," *The Journal of Mechanical Design*, Vol. 128, No. 1, pp. 108-115, January 2006.
18. **Unsal, E.**, Dane, J., Schwartz, P., and Dozier, G. (2006). "Modeling Displacement Properties of Immiscible Fluids in Porous Media," *SIMULATION*, Vol. 82, No. 8, pp. 499-510.
19. Dozier, G. (2005). "Recurrent Distributed Constraint Satisfaction, Virtual Constraints, and Meta-Evolutionary Protocols," *The International Journal of Knowledge-Based Intelligent Engineering Systems(KES)* , Volume 9 , Number 1 , pp. 21-32 , IOS Press.
20. Dozier, G., **Rupela, V., and Fu, S.-G.** (2005). "Distributed Asymmetric Constraint Satisfaction, the Phase Transition , and Evolutionary Protocols," *The International Journal of Intelligent Automation and Soft Computing (AutoSoft)*, Vol. 11, No. 4, pp.259-275, TSI Press.
21. Dozier, G., Carnahan, B., Seals, C., Kuntz, L.-A., and **Fu, S.-G.** (2005). "Collaborative Design Using an Interactive Distributed Evolutionary Algorithm," *The International Journal of Education and Information Technology*, 2(1), 21-35, September 2005.
22. Unsal, E., Dane, J. H., and Dozier, G. V. (2005). "A Genetic Algorithm for Predicting Pore Geometry Based on Air Permeability Measurements," *The Vadose Zone Journal*, 4:389-397 (2005), Soil Science Society of America, Madison, WI.
23. **Imsand, E.**, Evans, G., Dozier, G. and Hamilton, J. A. (2004). "Using Genetic Algorithms to Aid in a Vulnerability Analysis of National Missile Defense Simulation Software," *Journal of Defense Modeling Simulation*, Volume 1, Issue 4, October 2004, pp. 215-223, The Society for Modeling and Simulation International.
24. Dozier, G. (2003). "A Comparison of Static and Adaptive Replacement Strategies for Distributed Steady-State Evolutionary Path Planning in Non-Stationary Environments," *International Journal of Knowledge-Based Intelligent Engineering Systems (KES)* , Vol. 7 , No. 1 , pp. 1-8 , January 2003 , KES International.
25. Yu, H., Dozier, G., Chi, C.-J., and Bi, Q. "Hybrid Evolutionary Motion Planning for Mobile Robots," *The International Journal of Knowledge-Based Intelligent Engineering Systems*, vol. 5, no. 4, pp. 203-212, October 2001, KES International.
26. Ahmad, H., Dozier, G., and Roland, D. (2001). "Egg Price Forecasting Using Neural Networks", *The Journal of Applied Poultry Research*, Volume 10 pp. 162-171, Poultry Science Association, Inc.
27. Homaifar, A., Battle, D., Tunstel, E., and Dozier, G. (2000). "Genetic Programming Design of Fuzzy Logic Controllers for Mobile Robot Path Tracking", *The*

*International Journal of Knowledge-Based Engineering Systems*, Vol. 4, No. 1, pp. 33-52, January 2000, KES International.

28. Dozier, G. (2000). "Commentary on: A Nonlinear, GA-Optimized, Fuzzy Logic System for the Evaluation of Multisource Biofunctional Intelligence," *The Journal of Mind and Behavior (Special Issue: Brain, Knowledge, and Self-Regulation)*, Winter & Spring 2000, Volume 21, Numbers 1 and 2, pp. 149-152, The Institute of Mind and Behavior, Inc..
29. Testa, L., Esterline, A., and Dozier, G. (1999). "Evolving Efficient Theme Park Tours," *Journal of Computing and Information Technology (CIT)*, Vol. 7, No. 1, pp. 77-92, June 1999, University Computing Centre.
30. Dozier, G., Homaifar, A., Bryson, S., and Bikdash, M. (1998). "Artificial Potential Field- Based Motion Planning/Navigation, Dynamic Constrained Optimization and Simple Genetic Hill-Climbing," *Simulation*, Vol. 71, No. 3, pp. 168-181, September 1998, The Society for Computer Simulation International.
31. Dozier, G., Bowen, J. and Homaifar, A. (1998). "Solving Constraint Satisfaction Problems Using Hybrid Evolutionary Search", *IEEE Transactions on Evolutionary Computation*, Vol. 2, No. 1, pp. 23-33, April 1998, Institute of Electrical & Electronics Engineers.
32. Dozier, G., Bowen, J., Homaifar, A. and Esterline, A. (1997). "Solving Randomly Generated Static and Dynamic Fuzzy Constraint Networks Using Microevolutionary Hill-Climbing," *The International Journal of Intelligent Automation and Soft Computing (AutoSoft)*, Vol. 3 No. 1 pp. 51-62, AutoSoft Press.

### **Refereed Conference Publications**

1. Adams, J., Williams, H., Carter, J., and Dozier, G. (2013). "Genetic Heuristic Development: Feature Selection for Author Identification," *2013 Symposium Series on Computational Intelligence*, April 16-19, 2013, Singapore.
2. Payne, M., Turner, J., Shelton, J., Adams, J., Carter, J., Williams, H., Hansen, C., Dworkin. (2013). "Fly Wing Biometrics using Genetic and Evolutionary Feature Extraction," *2013 Symposium Series on Computational Intelligence*, April 16-19, 2013, Singapore.
3. Adams, J., Shelton, J., Small, L., **Neal, S., Venable, M.**, Kim, J. H., and Dozier, G. (2012). "Darwinian-based Feature Extraction Using K-Means and Kohonen Clustering," *Proceedings of the 23rd Midwest Artificial Intelligence and Cognitive Science Conference (MAICS), Cincinnati, OH, April 21-22, 2012.*
4. **Alford, A., Adams, J., Shelton, J.**, Bryant, K., Kelly, J.C., Dozier, G. (2012). "Analyzing the Cross-Generalization Ability of a Hybrid Genetic & Evolutionary Application for Multibiometric Feature Weighting and Selection", *The 2012 Genetic and Evolutionary Computation Conference (GECCO-2012).*
5. **Shelton, J., Venable, M., Neal, S., Adams, J., Alford, A.**, and Dozier, G. (2012). "Pixel Consistency, K-Tournament Selection, and Darwinian-Based Feature

Extraction.” *Proceedings of the 23rd Midwest Artificial Intelligence and Cognitive Science Conference (MAICS)*, Cincinnati, OH, April 21-22, 2012.

6. **Shelton, J.**, Dozier, G., Adams, J., Alford, A., (2012) “Permutation-Based Biometric Authentication Protocols for Mitigating Replay Attacks” , *Proceedings of the IEEE World Congress on Computational Intelligence (WCCI)* , 2012.
7. **Shelton, J.**, Adams, J., Alford, A., Venable, M., Neal, S., Dozier, G., Bryant, K. (2012). “Mitigating Replay Attacks Using Darwinian-Based Feature Extraction”, *The IEEE Symposium on Computational Intelligence for Security and Defence Applications (CISDA)*, 2012.
8. **Adams, J.**, Dozier, G., Bryant, K., **Shelton, J.**, **Alford, A.**, **Leflore, D.**, Abegaz, T. (to appear), “Neurogenetic Reconstruction of Biometric Templates: A New Security Threat?” *The Proceedings of 2012 IEEE Southeast Conference*, Orlando, FL. March 16-17, 2012.
9. **Alford, A.**, **Steed, C.**, **Jeffrey, M.**, **Sweet, D.**, **Shelton, J.**, **Small, L.**, **Leflore, D.**, Dozier, G., Bryant, K., Abegaz, T., Kelly, J.C., Ricanek, K. (2012). “Genetic & Evolutionary Biometrics: Hybrid Feature Selection and Weighting for a Multi-Modal Biometric System”, *The Proceedings of 2012 IEEE Southeast Conference*, Orlando, FL. March 16-17, 2012.
10. **Shelton, J.**, Bryant, K., **Abrams, S.**, **Small, L.**, **Adams, A.**, **Leflore, D.**, **Alford, A.**, Ricanek, K. and Dozier, G. (2012). “Genetic & Evolutionary Biometric Security: Disposable Feature Extractors for Mitigating Biometric Replay Attacks”. *The 2012 Proceedings of the 10th Annual Conference on Systems Engineering Research [BEST Paper Award Runner-Up]*.
11. **Shelton, J.**, **Alford, A.**, Abagez, T., **Small, L.**, **Leflore, D.**, **Williams, J.**, **Adams, J.**, Dozier, J., Bryant, K. (2012). “Genetic & Evolutionary Biometrics: Feature Extraction from a Machine Learning Perspective” *The Proceedings of 2012 IEEE Southeast Conference*, Orlando, FL. March 16-17, 2012.
12. **Shelton, J.**, Dozier, G., Bryant, K., Small, L., Adams, J., Popplewell, K., Abegaz, T., Woodard, D., and Ricanek, K. (2012). “Genetic and Evolutionary Feature Extraction via X-TOOLSS”, *The Proceedings of the 8th annual International Conference on Genetic and Evolutionary Methods (GEM)*, 2011.
13. Dozier, G., **Purrington, K.**, **Popplewell, K.**, **Shelton, J.**, Bryant, K., **Adams, J.**, Woodard, D. L., and **Miller, P.** (2011). “GEFeS: Genetic & Evolutionary Feature Selection for Periocular Biometric Recognition,” *Proceedings of the 2011 IEEE Workshop on Computational Intelligence in Biometrics and Identity Management (CIBIM-2011)*, April 11-15, Paris, France.
14. **Abegaz, T.**, **Adams, J.**, **Popplewell, K.**, **Shelton, J.**, Bryant, K., Dozier, G., Woodard, D. L., and Ricanek, K. (2011). “Hybrid GAs for Eigen-Based Facial Recognition”, *Proceedings of the 2011 IEEE Workshop on Computational Intelligence in Biometrics and Identity Management*, April 11-15, Paris, France.

15. **Baker, B.**, Bryant, K., and Dozier, G. (2011). "GESLIC: Genetic and Evolutionary-Based Short-Length Iris Codes", *Proceedings of the 2011 ACM Southeast Conference*, March 24-26, Kennesaw, GA.
16. **Popplewell, K.**, Dozier, G., Bryant, K., **Alford, A.**, **Adams, J.**, **Abegaz, T.**, **Purrington, K.**, and **Shelton, J.** (2011). "A Comparison of Genetic Feature Selection and Weighting Techniques for Multi-Biometric Recognition," *Proceedings of the 2011 ACM Southeast Conference*, March 24-26, Kennesaw, GA.
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### Technical Reports

1. Carnahan, B., **Muhdi, R., Fu, S.-G., Darnell, S.**, Davis, J., Dozier, G., Smith, A. (2005). "GENEVAC: Evolving Exits for Evacuation Models Via Steady-State Genetic Search," *Technical Report: Auburn University CSSE05-06*, May 18, 2005.
2. Dozier, G., Carnahan, B., Seals, C., Kuntz, L.-A., and **Fu, S.-G.** (2004). "An IDEA for Design," *Technical Report: Auburn University CSSE04-09*, July 30, 2004.

3. Dozier, G. (2003). "The Key to an Effective Defense is a Good Offense: Aggressively Proactive AIS-Based, Intrusion Detection via Genetic Red Teams," *Technical Report: Auburn University CSSE03-03*, February 7, 2003.
4. Carlisle, A. and Dozier, G. (2001). "Tracking Changing Extrema with Partial Swarm Optimizer," *Technical Report: Auburn University CSSE01-08*, April 9, 2001.
5. Williams, J. P., Jr. and Dozier, G. (2001). "A Comparison of Hill-Climbing Methods for Solving Static and Recurrent Dynamic Constraint Satisfaction Problems," *Technical Report: Auburn University CSSE01-01*, January 19, 2001.

## HONORS & AWARDS

1. Keynote Speaker: 2012 Cyber Security Expo, October 19, 2012, The University of Memphis.
2. Keynote Speaker: The Miles College Intelligence Community Center of Academic Excellence National Security Colloquium 2012.
3. Keynote Speaker: The Miles College Intelligence Community Center of Academic Excellence National Security Colloquium 2011.
4. Keynote Speaker: ADMI Information Assurance Panel – The 2012 Symposium at Minority Institutions, April 12 – 14, 2012, Howard University, Washington, DC.
5. Featured in Evolution Magazine: "Is It You? Identity Proof – Biometrics and Cyber Security," *Evolution*, Vol. 5, No.1, pp. 8 – 12, 2011.
6. Most Promising in STEM: *United States Black Engineer & Information Technology (USBE&IT)*, Fall 2010, pp. 39,40.
7. Featured in Evolution Magazine: "In the Blink of an Eye: Dozier Leading Biometrics Research," *Evolution*, pp. 3, Fall 2009.
8. Best Session Paper Award: 2006 Congress on Evolutionary Computation:  
Casey, K., Lim, A. and Dozier, G. (2006). "Evolving General Regression Neural Networks for Tsunami Detection and Response," *Proceedings of the 2006 IEEE Congress on Evolutionary Computation*.
9. Best Session Paper Award: 2006 Congress on Evolutionary Computation:  
Garrett, A., Carnahan, B., Muhdi, R., Davis, J., Dozier, G., SanSoucie, M., Hull, P., and Tinker, M. (2006). "Evacuation Planning via Evolutionary Computation," *Proceedings of the 2006 IEEE Congress on Evolutionary Computation*.
10. Best Paper Award: 2006 Symposium on Innovations and Real-Time Applications of Distributed Sensor Networks:  
Casey, K., Lim, A., and Dozier, G. (2006). "A Sensor Network Architecture for Tsunami Detection and Response".
11. Best Paper Award: 2004 Genetic & Evolutionary Computation Conference (Category: Artificial Immune Systems):

- Dozier, G., Brown, D., Hurley, J., and Cain, K. (2004). "Vulnerability Analysis of Immunity-Based Intrusion Detection Systems Using Evolutionary Hackers," *The Proceedings of the 2004 Genetic and Evolutionary Computation Conference (GECCO-2004)*, LNCS 3102 , pp. 263-274 , Seattle , WA , June 2004. Springer.
12. Nomination for Best Paper Award: 2004 Genetic & Evolutionary Computation Conference (Category: Genetic Algorithms):
- Dozier, G., Cunningham, H., Britt, W., and Zhang, F. (2004). "Distributed Constraint Satisfaction, Restricted Recombination, and Hybrid Genetic Search," *The Proceedings of the 2004 Genetic and Evolutionary Computation Conference (GECCO-2004)*, LNCS pp. 1078-1087, June 2004, Seattle, WA. Springer.
13. Best Paper Award: 2002 International Symposium on Soft Computing for Industry, 2002 World Automation Congress (WAC):
- Dozier, G. (2002). "Distributed Constraint Satisfaction via a Society of Hill-Climbers," *The Proceedings of the 2002 World Automation Congress (International Symposium on Soft Computing in Industry)*, pp. 313-318 , Orlando , FL , isbn: 1-889335-18-8, TSI Press.
14. 2002 Research Excellence Award, College of Engineering, Auburn University.
15. 1999-2000 Minority Engineering Program Excellence Award, Auburn University.

## TEACHING PERFORMANCE

### I. Evidence of Effective Teaching

North Carolina A&T State University

| <b>Term</b>        | <b>Courses Taught (hrs)</b>   | <b>Enrollment</b> |
|--------------------|---|-------------------|
| <b>Fall 2012</b>   | COMP 590/690: Artificial Intelligence, Genetic Web Hacking, and Cyber Identity (3hrs) | 9                 |
|                    | COMP 101 (3hrs)   | 14                |
| <b>Fall 2011</b>   | COMP 101 (3hrs)   | 39                |
| <b>Fall 2010</b>   | Graduate Colloquium (0hrs)  | 16                |
|                    | COMP 101 (3hrs)   | 35                |
| <b>Fall 2009</b>   | Graduate Colloquium (0hrs)  | 17                |
|                    | COMP 101 (3hrs)   | 48                |
| <b>Fall 2008</b>   | Graduate Colloquium(0hrs)   | 22                |
|                    | COMP 160 (3hrs)   | 4                 |
| <b>Spring 2008</b> | COMP 590.2 (3hrs)   | 14                |
|                    | COMP 590.5 (3hr)  | 5                 |
|                    | COMP 690.2 (3hrs)   | 19                |
| <b>Fall 2007</b>   | COMP 590.2 (3hrs)   | 7                 |

Course Titles:

COMP 101: Introduction to Computer Science: Software Modeling & Design;  
Undergraduate Level

COMP 160: C++ Programming; Undergraduate Level

COMP 590.2: Computational Hip-Hop & Object-Oriented Design; Undergraduate Level

COMP 590.5: Security Anomaly Detection; Undergraduate Level

COMP 690.2: BPC Alliance Research; Undergraduate/Graduate Level

COMP 590/690: Artificial Intelligence, Genetic Web Hacking, and Cyber Identity;  
Undergraduate/Graduate Level

Auburn University

| <b>Term</b>        | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|--------------------|-----------------------------|-------------------|
| <b>Spring 2007</b> | COMP 2710 (3hrs)            | 27                |
|                    | COMP 4970 (1hr)             | 1                 |
|                    | COMP 7600 (3hrs)            | 10                |
|                    | COMP 8990 (1,6hrs)          | 2                 |
| <b>Fall 2006</b>   | COMP 2710 (3hrs)            | 43                |
|                    | COMP 4970 (1hr)             | 1                 |
|                    | COMP 6600 (3hrs)            | 7                 |
|                    | COMP 7980 (3hrs)            | 1                 |
|                    | COMP 8990 (1hr)             | 2                 |
| <b>Summer 2006</b> | COMP 6600 (3hrs)            | 12                |
| <b>Spring 2006</b> | COMP 2710 (3hrs)            | 40                |
|                    | COMP 4970 (1hr)             | 2                 |
|                    | COMP 7600 (3hrs)            | 8                 |

| <b>Term</b>        | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|--------------------|-----------------------------|-------------------|
| <b>Fall 2005</b>   | COMP 2710 (3hrs)            | 42                |
|                    | COMP 4970 (1hr)             | 11                |
|                    | COMP 6600 (3hrs)            | 12                |
| <b>Summer 2005</b> | COMP 6600 (3hrs)            | 17                |
|                    | COMP 6606 (3hrs)            | 3                 |
|                    | COMP 4640 (3hrs)            | 7                 |
| <b>Spring 2005</b> | COMP 2710 (3hrs)            | 42                |
|                    | COMP 4970 (1hr)             | 15                |
|                    | COMP 7600 (3hrs)            | 10                |
|                    | COMP 7980 (6hrs)            | 1                 |
|                    | COMP 7990 (1,4hrs)          | 2                 |
|                    | COMP 8930 (1hr)             | 1                 |
|                    | COMP 8990 (1,6,9hrs)        | 3                 |

| <b>Term</b>      | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|------------------|-----------------------------|-------------------|
| <b>Fall 2004</b> | COMP 2710 (3hrs)            | 25                |

|                    |                  |    |
|--------------------|------------------|----|
|                    | COMP 4970 (1hrs) | 27 |
|                    | COMP 8930 (3hrs) | 2  |
|                    | COMP 8990 (6hrs) | 2  |
| <b>Summer 2004</b> | COMP 6600 (3hrs) | 16 |
|                    | COMP 6606 (3hrs) | 3  |
|                    | COMP 4640 (3hrs) | 14 |
| <b>Spring 2004</b> | COMP 3270 (3hrs) | 33 |
|                    | COMP 4640 (3hrs) | 28 |
|                    | COMP 4980 (3hrs) | 1  |
|                    | COMP 7990 (3hrs) | 1  |
|                    | COMP 8930 (3hrs) | 1  |
|                    | COMP 8990 (3,9)  | 3  |

| <b>Term</b>        | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|--------------------|-----------------------------|-------------------|
| <b>Fall 2003</b>   | COMP 3270 (3hrs)            | 35                |
|                    | COMP 4640 (3hrs)            | 31                |
|                    | COMP 7930 (1hr)             | 1                 |
|                    | COMP 7986 (3hrs)            | 1                 |
|                    | COMP 7990 (5,6hrs)          | 2                 |
|                    | COMP 8930 (3hrs)            | 1                 |
|                    | COMP 8990 (1,14hrs)         | 3                 |
| <b>Summer 2003</b> | COMP 6600 (3hrs)            | 25                |
|                    | COMP 6606 (3hrs)            | 1                 |
|                    | COMP 7990 (3hrs)            | 1                 |
| <b>Spring 2003</b> | COMP 3700 (3hrs)            | 60                |
|                    | COMP 4640 (3hrs)            | 43                |
|                    | COMP 7990 (10hrs)           | 1                 |
|                    | COMP 8930 (3hrs)            | 3                 |
|                    | COMP 8990 (11-13hrs)        | 2                 |

| <b>Term</b>        | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|--------------------|-----------------------------|-------------------|
| <b>Fall 2002</b>   | COMP 3700 (3hrs)            | 71                |
|                    | COMP 4640 (3hrs)            | 31                |
|                    | COMP 7930 (3hrs)            | 1                 |
|                    | COMP 7980 (3hrs)            | 1                 |
|                    | COMP 7990 (1-12hrs)         | 3                 |
|                    | COMP 8990 (1-15hrs)         | 3                 |
|                    | COMP 4997 (3hrs)            | 1                 |
| <b>Spring 2002</b> | COMP 1200c (3hrs)           | 259               |
|                    | COMP 3700 (3hrs)            | 63                |

| <b>Term</b>        | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|--------------------|-----------------------------|-------------------|
| <b>Fall 2001</b>   | COMP 1200c (3hrs)           | 365               |
|                    | COMP 3700 (3hrs)            | 66                |
| <b>Spring 2001</b> | COMP 1200c (3hrs)           | 210               |



|  |                  |    |
|--|------------------|----|
|  | COMP 3700 (3hrs) | 58 |
|--|------------------|----|

| <b>Term</b>        | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|--------------------|-----------------------------|-------------------|
| <b>Fall 2000</b>   | COMP 1200c (3hrs)           | 314               |
|                    | COMP 3700 (3hrs)            | 56                |
| <b>Summer 2000</b> | COMP 0560 (4hrs)            | 33                |
| <b>Spring 2000</b> | COMP 0120c (3hrs)           | 99                |
|                    | COMP 0560 (4hrs)            | 53                |
| <b>Winter 2000</b> | COMP 0120c (3hrs)           | 124               |
|                    | COMP 0665 (3hrs)            | 9                 |

| <b>Term</b>        | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|--------------------|-----------------------------|-------------------|
| <b>Fall 1999</b>   | COMP 0120c (3hrs)           | 125               |
|                    | COMP 0560 (4hrs)            | 40                |
| <b>Summer 1999</b> | COMP 0560 (4hrs)            | 29                |
|                    | COMP 0665 (3hrs)            | 11                |
| <b>Spring 1999</b> | COMP 0432 (3hrs)            | 42                |
|                    | COMP 0560 (4hrs)            | 36                |
| <b>Winter 1999</b> | COMP 0432 (3hrs)            | 42                |
|                    | COMP 0665 (3hrs)            | 16                |

| <b>Term</b>        | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|--------------------|-----------------------------|-------------------|
| <b>Fall 1998</b>   | COMP 0300 (3hrs)            | 39                |
|                    | COMP 0560 (4hrs)            | 33                |
| <b>Summer 1998</b> | CSE 432 (3hrs)              | 16                |
| <b>Spring 1998</b> | CSE 432 (3hrs)              | 16                |
| <b>Winter 1998</b> | CSE 432 (3hrs)              | 41                |

| <b>Term</b>        | <b>Courses Taught (hrs)</b> | <b>Enrollment</b> |
|--------------------|-----------------------------|-------------------|
| <b>Fall 1997</b>   | COMP 0300 (3hrs)            | 7                 |
| <b>Summer 1997</b> |                             |                   |

Course Titles:

COMP 0120c & 1200c: Introduction to Engineering Computation; Undergraduate Level  
 COMP 0300: Structured Programming for Engineers and Scientists; Undergraduate Level  
 CSE 432 & COMP 0432: Introduction to Computer Networks; Undergraduate Level  
 COMP 0560: Artificial Intelligence I; Graduate Level  
 COMP 0665: Machine Learning; Graduate Level  
 COMP 2710: Software Construction; Undergraduate Level  
 COMP 3270: Introduction to Algorithms; Undergraduate Level  
 COMP 3700: Software Modeling & Design; Undergraduate Level  
 COMP 4970: Software Construction Lab; Undergraduate Level  
 COMP 4997: Honors Thesis; Undergraduate Level  
 COMP 6600: Artificial & Computational Intelligence; Graduate Level  
 COMP 7600: Advanced Computational Intelligence; Graduate Level  
 COMP 7980: Masters of Software Engineering Design Project; Graduate Level

COMP 7990: Research & Thesis; Graduate Level  
 COMP 8990: Research & Dissertation; Graduate Level

## II. Curriculum Development

Developed the following courses at North Carolina A&T State University:

1. COMP 101: Introduction to Computer Science: Software Modeling & Design
2. COMP 590.2: Computational Hip-Hop & Object-Oriented Design,
3. COMP 590.5: Security Anomaly Detection.

Developed the following courses at Auburn University:

1. COMP 2710: Software Construction,
1. 20
2. COMP 3700: Software Modeling & Design,
3. COMP 4970: Software Construction Lab,
4. COMP 6600: Artificial & Computational Intelligence,
5. COMP 7600: Advanced Computational Intelligence.

## III. Advising

North Carolina A&T State University

Students Currently Being Funded at NCA&T by Dr. Dozier's Research

|    | <b>Name</b>      | <b>Race</b>       | <b>Year</b>           |
|----|------------------|-------------------|-----------------------|
| 1  | Aneisha Alford   | African-American  | PhD (ECE)             |
| 2  | Joshua Adams     | European-American | MS                    |
| 3  | Joseph Shelton   | African-American  | 2 <sup>nd</sup> Yr MS |
| 4  | Lasanio Small    | African-American  | 2 <sup>nd</sup> Yr MS |
| 5  | Michael Payne    | African-American  | 1 <sup>st</sup> Yr MS |
| 6  | Jonathan Turner  | African-American  | 1 <sup>st</sup> Yr MS |
| 7  | Jorge Rivera     | Hispanic-American | 1 <sup>st</sup> Yr MS |
| 8  | Derrick LeFlore  | African-American  | Senior                |
| 9  | Vincent McClean  | African-American  | Senior                |
| 10 | Joi Carter       | African-American  | Junior                |
| 11 | Kelli Washington | African-American  | Junior                |
| 12 | Caresse Hansen   | African-American  | Junior                |
| 13 | SaBra Neal       | African-American  | Junior                |
| 14 | Quincy Kea       | African-American  | Junior                |
| 15 | Jamon Goodwin    | African-American  | Junior                |
| 16 | Donovan Sweet    | African-American  | Junior                |
| 17 | Javon Rustin     | African-American  | Junior                |
| 18 | Tim Noble        | African-American  | Junior                |
| 19 | Melissa Venable  | African-American  | Junior                |

Students that have been funded at NCA&T by Dr. Dozier's Research

|   | <b>Name</b>  | <b>Major</b> | <b>Graduated</b> | <b>Comments</b>   |
|---|--------------|--------------|------------------|-------------------|
| 1 | David Bell   | CS           | MS               | At the DoD        |
| 2 | Leon Barnes  | CS           | MS               | Air Force         |
| 3 | Javier Young | CS           | MS               | Applied to GaTech |

|    |                    |     |         |                     |
|----|--------------------|-----|---------|---------------------|
| 4  | Dominique Hairston | CS  | BS      | Employed NSA        |
| 5  | Darliene Hopes     | CS  | BS      | MS NCA&T Grad       |
| 6  | Kurt Frederiksen   | CS  | BS      | Johns-Hopkins       |
| 7  | Robert Meeks       | CS  | BS      |                     |
| 8  | Nadia Jones        | CS  | BS      | MS NCA&T Grad       |
| 9  | Darrell McIvor     | CS  | BS      |                     |
| 10 | Cedric Carter      | CS  | --      | Finishing BS        |
| 11 | Benny Cox          | ECE | --      | PhD Student         |
| 12 | Brandon Baker      | CS  | MS      | Employed by Intel   |
| 13 | Tamirat Abegaz     | CS  | MS      | Clemson PhD student |
| 15 | Tarise Singletary  | CS  | BS      | DoD                 |
| 16 | Kamilah Purrington | CS  | BS      |                     |
| 17 | Khary Popplewell   | CS  | BS      |                     |
| 18 | George Glen Jr.    | CS  | --      | Finishing BS        |
| 19 | Jared Williams     | CS  | --      | Finishing BS        |
| 20 | Lasanio Small      | CS  | Masters | DoD                 |
| 21 | Gerrimy Tann       | CS  | Masters |                     |
| 22 | Lamar Simpson      | CS  | BS      | MS in ECE           |

#### Ph.D. Students: Current Co-Advising

1. Benny Cox, PhD, Electrical & Computer Engineering, *Dissertation Title: Genetic & Evolutionary Feature Extraction and Selection for ECG-Based Biometrics*  
Advisor: Alvernon Walker
2. Aniesha Alford, Electrical & Computer Engineering, *Dissertation Title: Genetic & Evolutionary Biometrics: Multiobjective, Multimodal Feature Selection/Weighting for Tightly Coupled Periocular and Face Recognition*  
Advisor: John Kelly

#### Ph.D. Students: Completed Work (Advisory Committee Member)

1. Yolanda McMillian, PhD, Computer Science & Software Engineering (Auburn University), Spring 2010, *Dissertation Title: Distributed Listening in Speech Recognition* Advisor: Juan Gilbert (Clemson University).
2. Caio Soares, PhD, Computer Science & Software Engineering (Auburn University), Spring 2010, *Dissertation Title: Improving Prediction Accuracy Using Class-Specific Ensemble Feature Selection* Advisor: Juan Gilbert (Clemson University).

#### MS Students: Completed Work (Advisor)

1. Leon Barnes, MS, Spring 2010 *Project Title: Do We Really Need Both Real & Imaginary Bits For Iris Recognition?*

2. David Bell, MS, Spring 2010 *Thesis Title*: Reducing Iris Code Bits Using Neighborhood-Base Type-II Feature Extraction.
3. Gerrimy Tann, MS, Spring 2009 *Project Title*: Minimizing the Number of Iris Code Bits Needed for Iris Recognition Using a Steady-Generational Genetic Algorithm.
4. Brandon Baker, *Project Title*: GESLIC: Genetic & Evolutionary Short-Length Iris Codes.
5. Tamirat Abegaz, *Thesis Title*: Genetic & co-Evolutionary Feature Selection and Weighting for Face Recognition.
6. Lasanio Small, *Thesis Title*: Biased Allele Assignment in Genetic & Evolutionary Feature Selection for Periocular Recognition.

#### MS Students: Currently Serving as Advisor

1. Joseph Shelton, *Project Title*: Evolutionary Local Binary Patterns for Face and Periocular Recognition.
2. Michael Payne, *Project Title*: Fly Wing Biometrics via Genetic & Evolutionary Feature Extraction.
3. Michael Turner, *Project Title*: Resolution-Based Local Binary Patterns for Facial Feature Extraction.

#### Auburn University

#### Ph.D. Students: Completed Work (Advisor)

1. Anthony Carlisle, PhD, Fall 2002, *Dissertation Title*: Applying the Particle Swarm Optimizer to Non-Stationary Environments.
2. Ser-Geon Fu, PhD, Spring 2007, *Dissertation*: Genetic and Evolutionary Protocols for Solving Distributed Asymmetric Constraint Satisfaction Problems.
3. Aaron Garrett, PhD, Spring 2008, *Dissertation*: A Neural Refinement Method for Multiobjective Optimization.
4. Haiyu Hou, PhD, Fall 2006, *Dissertation Title*: GENERTIA: A System for Vulnerability Analysis, Design and Redesign of Immunity-Based Anomaly Detection systems.

#### Ph.D. Students: Served as Advisor

1. Win Britt, PhD, Spring 2010, *Dissertation*: Neural Modeling of Canine Navigation Behavior.
2. Kenan Casey, PhD, Fall 2009, *Dissertation*: Tsunami Sense and Mitigation via Evolutionary (Neural) Sensor Networks.
3. Joseph Gay, PhD, Spring 2009, *Disseration*: Genetic & Evolutionary Supercomputing for Space Applications.
4. Lacey Montgomery, PhD, Spring 2009, *Dissertation*: Interactive Evolutionary Movies for Safety and Ergonomics.

#### Ph.D. Students: Completed Work (Advisory Committee Member)

1. Klaus Hornig, PhD, Mechanical Engineering, Spring 2007, *Dissertation Title: Heuristic Optimization Methods for the Characterization of Dynamic Mechanical Properties of Composite Materials* Advisor: George T. Flowers.
2. Mave Houston, PhD, Computer Science & Software Engineering, Fall 2004, *Dissertation: PHOENICS: Partitioning Hardware/Software Embedded Systems Via Non-Intrusive Interactive Constraint Satisfaction*, Advisor: Richard O. Chapman.
3. Yun-Chia Liang, PhD, Industrial & Systems Engineering, Fall 2001, *Dissertation: Ant Colony Optimization Approach to Combinatorial Problems*, Advisor: Alice E. Smith.
4. Ntsibane Ntlatlapa, PhD, Computer Science & Software Engineering, Summer 1999, *Dissertation Title: Verified High-Level Synthesis Front-End and Simulator Using Dependence Flow Graphs* Advisor: Richard O. Chapman.
5. Aurelian Simionescu, PhD, Mechanical Engineering, Fall 2004, *Dissertation Title: Development and Application of New Evolutionary Algorithms and Computer Graphics Tools for the Design of Multibody Systems*, Advisor: David Beale.
6. Evren Unsal, PhD, Textiles Engineering, 2003 *Dissertation: A Numerical Model for Flow Through Porous Media*, Advisor: Peter Schwartz.

#### Ph.D. Students: Served (Advisory Committee Member)

1. Vince Cross, Computer Science & Software Engineering, Advisor: Juan Gilbert.
2. Yolanda McMillian, Computer Science & Software Engineering, Advisor: Juan Gilbert.
3. Idogesit Mkpong-Ruffin, Computer Science & Software Engineering, Advisor: Drew Hamilton.
4. Rani Muhdi, Industrial & Systems Engineering, Advisor: Jerry Davis.
5. Haluk Yapicioglu, Industrial & Systems Engineering, Advisor: Alice Smith.
6. Ahmet Yucekaya, Industrial & Systems Engineering, Advisor: Jorge Valezuela.

#### Masters Students: Completed Work (Advisor)

1. Terry Allen, MSwE, Summer 2000, *Project: Path-Planning Via the Evolution of General Regression Neural Networks*.
2. Douglas Brown (Clark-Atlanta University), MS, Spring 2005, *Thesis: Vulnerability Analysis of AIS-Based Intrusion Detection Systems Using Genetic and Evolutionary Hackers*.
3. Haiyu Hou, MS, Spring 2002, *Thesis: Artificial Immunity for Computer Networks with Constraint-Based Detectors*.

4. Steven Keast, MSwE, Fall 2003, *Project: A Simple Representation Technique to Improve GA Performance.*
5. Qing Luo, MSwE, Spring 2006 *Project: An Interactive Hybrid Swarm Optimization.*
6. Yevonne Pearce, Spring 2001, *Project: Implementation of a Variable Structure Neural Network.*
7. John Ritterbush, Spring 2000, *Project: An Interactive Evolutionary Algorithm.*
8. Varun Rupela, MS, Summer 2002, *Thesis: Parallel and Distributed Evolutionary Computation for Multimodal Function Optimization Problems.*
9. Funing Zhang, MS, Fall 2003, *Thesis: A Comparison of Distributed Restricted Recombination Operators for Genetic Societies of Hill-Climbers: A DisCSP Perspective.*
10. Jun Zhu, MS, Fall 2002, *Thesis: Use of an Immune Model to Improve Intrusion Detection on Dynamic Broadcast Local Area Networks.*

Masters Students: Served (Advisor)

1. Justin Smith, MSwE, Spring 2007, *Project: Interactive Evolutionary Design of Webpages and Blogs.*
2. Jonathan Russell, Spring 2007, *Project: Interactive Evolutionary Spacecraft Design.*

Masters Students: Completed Work MS (Advisory Committee Member)

1. Walter Carr (Spring 2000)
2. Eric Imsand (FALL 2003)
3. Jun Jiang (Summer 2002)
4. Patrick Mullin (Spring 2001)
5. Baratwajan Shrinevas (Spring 2000)
6. Kishore Talluri (Spring 2000)
7. Yibing Tao (Summer 2001)
8. Hong Xie (Spring 2003)

Masters Students: Completed Work MCSE/MSwE (Advisory Committee Member)

1. Alonzo Burns (Spring 2000)
2. Jianhui Liu (Summer 2000)
3. Shaun McCullough (Spring 1997, NCA&TSU)
4. Attasith Patamarjarnkul (Spring 2000)
5. Jiun-Hau Shiu (Fall 2000)

6. Nalin Silva (Summer 1999)
7. Shawn Stutzman (Summer 1998)
8. Priya Viswanathan (Fall 2000)
9. Shih Yuang Wang (Winter 2000)
10. Ren Xiaojun (Fall 2000)
11. Weiqin Ye (Spring 1999)
12. Hong Yin (Spring 2001)
13. Fuling Zeng (Spring 2000)
14. Yi Zhang (Winter 2000)

Honors Undergraduate Students: Completed (Advisor)

1. Winard Britt (2004)
2. Hurley Cunningham (2004)

Honors Undergraduate Students: Served (Advisor)

1. Brent Harrison (2008)

**RESEARCH PERFORMANCE, PROFESSIONAL GROWTH  
and RELATED ACTIVITIES**

**I. Evidence of Research and Scholarly Productivity**

To date, my research program has been devoted towards the hybrid application of Computational Intelligence (CI) in the form of genetic, evolutionary, and neural computing for solving a wide variety of dynamic and distributed optimization and machine learning problems. I am currently the director of a Director of National Science & Technology Center of Academic Excellence in Advanced Biometrics, as well as the founding director and PI of the Center for Cyber Defense (a National Center for Academic Excellence in Information Assurance Education), as well as the PI for the NSF BPC Alliance for the Advancement of African-American Researchers in Computing and BEACON@A&T. In what follows is a brief overview of the research formerly conducted at Auburn University as well as some research projects that I am involved with at North Carolina A&T State University.

Research Conducted at Auburn University

As the director of the Applied Computational Intelligence (ACI) Lab at Auburn University, I was involved in the development a number of CI-based applications for solving real-world problems. The ACI lab developed solutions for the following projects. In the first project, funded initially by NSF, we developed a number of genetic & evolutionary protocols for solving centralized and distributed recurrent (dynamic) constraint satisfaction problems (rDCSPs). In rDCSPs, constraints and/or domain values may be temporarily added and/or removed over time. The objective in solving this type of problem is to find the most stable candidate solution (CS) where stability is measured

as the amount of time a CS remains a consistent solution (in that it satisfies all active constraints). These genetic & evolutionary protocols have been effectively used for sharing and tracking in simulated sensor networks.

In a second project, ACI research resulted in the development of distributed neuro-evolutionary hybrids for dynamic path planning. The path planning problem can be viewed as a constrained optimization problem where the constraints are obstacles within the environment. I am currently developing evolutionary agent protocols that allow a number of planning agents to develop distributed path plans in dynamic environments. These protocols allow the planning agents to adapt to changes in the environment by altering their behavior.

A third project was devoted towards the development of ‘intelligent’ interactive evolutionary computations (ECs). For traditional ECs, the most important component is the evaluation function. Simulated evolution works by applying natural selection to CSs within a population based on the fitness they have been assigned by the evaluation function. The better a CS’s fitness; the greater chance it has of surviving and creating offspring. However, for some problems it may be difficult to develop an evaluation function that can be easily represented as a set of equations (or algorithms). For these types of problems interactive ECs are good alternatives.

In interactive ECs, selection is replaced either directly or indirectly by the user. Interactive ECs have been used to solve a number of problems in the areas of engineering, education, and entertainment. However, one of the primary disadvantages of using interactive ECs is user fatigue.

The ACI lab had developed a number of interactive ECs for evolving robot behaviors. These interactive ECs work as follows. Initially, a user (trainer) interacts with the robot via an internet browser and clicks a tab when the robot displays undesirable behavior. Actually, the trainer interacts with a population of controllers in the form of general regression neural networks. After a user-specified number of interactive iterations, the interactive ECs turn into conventional ECs by replacing the trainer with a model of the trainer that was built during the interactive session. Modeling of trainer preference has been shown to greatly reduce the amount interaction time with the robot. This in turn reduces the likelihood of trainer fatigue.

In a fourth project, ACI collaborated with Drs. Peter Schwartz and Evren Unsal of Textile Engineering, and Dr. Jacob Dane, an AU Soil Physicist. In this project, we developed software systems for the design of barrier and filter materials. This system allows users to specify properties in the form of constraints and discover candidate materials and/or fluids that satisfy the user’s specifications.

A fifth project was devoted towards the development of biologically inspired systems for network security. ACI research developed a number of network intrusion detection systems based on the human immune system. Our artificial immune systems distinguish between normal network traffic (self) and abnormal network traffic (non-self) by



evolving distributed populations of constraint based detectors. The detectors are used to recognize when the network is under attack and alert network administrators. This research has led to the development of Genertia. Genertia is a system that allows users to design and redesign immunity-based intrusion detection systems. This project is currently being continued at North Carolina A&T State University.

A sixth project was devoted toward the genetic & evolutionary design and configuration of NASA space vehicles for upcoming NASA Asteroid, Moon, and Mars space missions. This research has resulted in the development of three software packages: (1) X-TOOLSS (eXploratory Toolkit for the Optimization Of Launch and Space Systems), (2) Visual X-TOOLSS (VXT-1.0) and (3) Distributed X-TOOLSS (DXT-1.0) for Genetic & Evolutionary Supercomputing. X-TOOLSS is currently being continued at North Carolina A&T State University.

#### Research Being Conducted at North Carolina A&T State University

At North Carolina A&T State University, I am currently working primarily on three projects. The first two projects have been mentioned earlier: X-TOOLSS and GENERTIA. The third project is in the area of Biometrics. The Center for Advanced Studies in Identity Sciences is in the process of developing feature extraction methods for Tightly-Coupled Face & Iris Recognition. Typically Face & Iris Recognition are performed using two modalities. Face Recognition is typically conducted using images in the visible spectrum and Iris Recognition is typically conducted in the near IR spectrum. At A&T, our feature extraction methods will allow for tightly-coupled face & iris recognition from the same image. These feature extraction techniques will form the basis for novel biometric-based access control protocols.

## **II. Evidence of Professional Growth**

### **Professional Memberships**

1. Institute of Electrical and Electronics Engineers (IEEE) Computer Society
2. Institute of Electrical and Electronics Engineers (IEEE) Computational Intelligence Society

### **Professional Service**

#### **Member:**

- Member (2006-2007): Editorial Advisory Board, Encyclopedia of Computer Programming Languages, Eds. Songmin Ma, Hongji Yang, Publisher: Idea Group Reference (IGR).
- Member (2006-2007): Advisory Council, BellSouth Minority Engineering Program, College of Engineering, Auburn University.
- Member (2004-2007): Technical Committee on Evolutionary Computation, IEEE Computational Intelligence Society.

#### **Associate Editor:**

1. International Journal of Education and Information Technologies (2003-Present).
2. International Journal of Intelligent Computing & Cybernetics (2007-Present).
3. International Conference on Artificial Intelligence (2002).
4. IEEE Transactions on Evolutionary Computation (2001-2007).
5. Intelligent Automation and Soft Computing Journal (2001-2007).

**Conference Chairmanships:**

1. Technical Co-Chair, 2011 IEEE Congress on Evolutionary Computation.
2. Special Sessions Co-Chair, 2005 IEEE Conference on Systems, Man, and Cybernetics.
3. Technical Co-Chair, 2004 IEEE Congress on Evolutionary Computation.

**Review Panel Member:**

1. Course, Curriculum, and Laboratory Improvement Program (CCLI) Phase 1 Panel, National Science Foundation, Washington, DC, July 10-11, 2008.
2. Course, Curriculum, and Laboratory Improvement Program (CCLI) Phase 2 and 3 Panel, National Science Foundation, Washington, DC, March 17-18, 2008.
3. Broadening Participation in Computing, National Science Foundation, Washington, DC, July 31 - August 1, 2006.
4. U.S. Department of Energy Early Career Principal Investigator (ECPI) Review 2005, Rockville, Maryland, June 2-3, 2005.
5. Basic Research Grants Programme 2004 (BRG04), Science Foundation Ireland, Dublin, Ireland, June 2004.
6. 2004 European Young Investigator Award (Reviewer).
7. Knowledge and Cognitive Systems, National Science Foundation, Washington, DC, May 28-29, 2003.
8. Knowledge and Cognitive Systems, National Science Foundation, and Cognitive Systems, Washington, DC. November 1-2, 1999.
9. Knowledge and Cognitive Systems, National Science Foundation (Spring Review), Los Angeles, April 23-24, 1998.

**Journal Manuscript Reviewer:**

1. IEEE Transactions on Evolutionary Computation
2. IEEE Transactions on Fuzzy Systems
3. IEEE Transactions on Pattern Analysis and Machine Intelligence
4. IEEE Transactions on Neural Networks
5. Journal of Computing and Information Technology
6. Journal of Intelligent Automation and Soft Computing
7. Knowledge and Information Systems

**Program Committee / Review Committee Member:**

1. 2013 IEEE Congress on Evolutionary Computation (CEC), June 20-23, 2013, Cancun, Mexico.
2. 2013 IEEE Workshop on Computational Intelligence in Biometrics and Identity Management, April 16-19, 2013, Singapore.
3. 2013 IEEE Symposium on Computational Intelligence in Cyber Security, April 16-19, 2013, Singapore.
4. 2012 IEEE Symposium on Computational Intelligence for Security and Defence Applications (CISDA), Ottawa, Canada, July 11 – 13, 2012
5. 2012 IEEE Congress on Evolutionary Computation (as part of the 2012 IEEE World Congress on Computational Intelligence), June 10 – 15, 2012, Brisbane, Australia.
6. Special Session on Computational Intelligence in Biometrics and Identity Management, 2012 IEEE World Congress on Computational Intelligence, June 10 – 15, 2012, Brisbane, Australia.
7. 2011 IEEE Workshop on Computational Intelligence in Biometrics and Identity Management, April 11-15, 2011, Paris, France.
8. 2011 IEEE Symposium on Computational Intelligence in Cyber Security, April 11-15, 2011, Paris, France.
9. 2009 Congress on Evolutionary Computation (CEC'09), Trondheim, Norway during May 18-21, 2009.
10. 2007 Genetic and Evolutionary Computation Conference (GECCO-2007), University College London, London, England, July 7-11, 2007.
11. 2007 Congress on Evolutionary Computation (CEC'07), The Stamford, Singapore, Malaysia, September 25-28, 2007.
12. 2006 Genetic and Evolutionary Computation Conference (GECCO-2006), Seattle, WA, July 8-12, 2006.
13. 2006 Congress on Evolutionary Computation (CEC'06), Vancouver, BC, July 16-21, 2006.
14. 2006 Parallel Problem Solving from Nature Conference (PPSN-IX), Reykjavik, Iceland, September 9-13, 2006
15. 2005 Congress on Evolutionary Computation (CEC2005), Edinburgh, Scotland, September 2-5.
16. 2005 Genetic and Evolutionary Computation Conference (GECCO-2005), Washington, DC, June 25-29, 2005.
17. 2005 IEEE International Conference on Systems, Man, and Cybernetics, October 10-12, Big Island, Hawaii.
18. 2004 Congress on Evolutionary Computation (CEC2004), Portland, Oregon, June 19-23.
19. 2004 Problem Solving from Nature Conference (PPSN-VIII), Birmingham, UK, September, 18-22, 2004.

20. 2004 Genetic & Evolutionary Computation Conference (GECCO-2004), Seattle, WA, USA, June 26-30, 2004
21. 2003 Congress on Evolutionary Computation (CEC2003), Canberra, Australia, December 9-12.
22. 2003 Genetic & Evolutionary Computation Conference (GECCO-2003), Chicago, IL, USA, July 12-16, 2003.
23. 2002 Congress on Evolutionary Computation (CEC2002), Honolulu, Hawaii, May 12-17.
24. 2001 Congress on Evolutionary Computation (CEC2001), COEX Center, Seoul, Korea, May 27-30.
25. 2000 Congress on Evolutionary Computation (CEC2000), La Jolla Marriott, San Diego, USA, July 16-19.
26. Parallel Problem Solving From Nature - PPSN VI, Paris, France, September 16 - 20.
27. The 3rd International Workshop on Frontiers in Evolutionary Algorithms, Atlantic City, NJ, February 27 - March 2, 2000.
28. 2000 ACM Symposium on Applied Computing (Genetic Algorithm Track), Como, Italy, March 19 - 21.
29. 5th International Conference on Computer Science and Informatics, Atlantic City, NJ, February 27 - March 2, 2000.
30. 1999 Congress on Evolutionary Computation (CEC1999), Mayflower Hotel, Washington, DC, July 6-9.
31. 1999 Conference on Genetic and Evolutionary Computation (GECCO'99), Orlando, FL, July 13-17.
32. 1999 ACM Symposium on Applied Computing (Genetic Algorithm Track) San Antonio, TX, February 27 - March 2.
33. 1998 IEEE International Conference on Evolutionary Computation (ICEC'98), Anchorage, Alaska, May 4-9.
34. Parallel Problem Solving From Nature - PPSN V, Amsterdam, The Netherlands, September 27-30, 1998.
35. 1998 ACM Symposium on Applied Computing (Genetic Algorithm Track), Atlanta, GA, February 27 - March 1.
36. 1997 IEEE International Conference on Evolutionary Computation (ICEC'97), Indianapolis, Indiana, April 13-16.

### **III. Contacts with Professional Organizations for the Past Five Years**

SEE SECTION II

#### **SERVICE TO THE UNIVERSITY**

##### North Carolina A&T State University

1. New Degree Programs Action Committee (2008-Present)

2. Graduate Assessment Committee (2008-Present)
3. Co-Chair, IT Security Committee (2011-Present)

#### Auburn University

- (2005-2007) Chair, Priority & Seating Subcommittee of the Committee on Intercollegiate Athletics (Auburn University)
- (2004-2007) Member, Committee on Intercollegiate Athletics (Auburn University)
- 2003-2005 Member, Title VI Committee (University Grant Committee for Minority Faculty) (Auburn University)
- (1999-2002) Member, Academic Honesty Committee (Auburn University)

#### **SERVICE TO THE COLLEGE OF ENGINEERING**

1. Member (2006-2007): Advisory Council, BellSouth Minority Engineering Program, College of Engineering, Auburn University (Auburn University)
2. (1998-2002) MITE Program (Auburn University)

#### **SERVICE TO THE DEPARTMENT**

##### Auburn University

1. Chair (1999-2001), E-DAY Committee
2. Member (1999-2005), E-DAY Committee
3. Member (1999-2007), Awards Committee
4. Member (1999-2007), Graduate Committee
5. Member (1998, 2004-2005), Faculty Search Committee

#### **STATEMENT OF TEACHING PHILOSOPHY**

I believe that in order to be an effective teacher one must appropriately use lectures, homework assignments, projects, and exams in an effort to meet the varying needs of the students. Students have different learning styles and learning rates. Thus, it is important for an instructor to meet the students where they are and guide them to a better understanding of the course material.

Lectures should be engaging. Students need to know that they, through their interaction with the instructor, can determine the progression of the lectures. I believe that it is also important to try as much as possible to provide students with a variety of real-world, concrete examples of abstract concepts.

Assignments and projects should contain problems that challenge students to be creative. Although this sometimes can make grading more difficult, I have found that it has allowed me to get a better sense of what the student has learned as well as how they are thinking. This information allows me to adjust my presentation.

I believe that exams, to a certain degree, should also challenge a student's creativity. I believe that this is a good way of testing how well students understand concepts presented in the course. It also gives an instructor a feel for how much time the students have spent thinking about course material outside of lectures and class assignments.

For me, this philosophy has been effective for middle sized classes (20-30 students). However, for larger classes the amount of emphasis placed on exams should be slightly greater. For smaller classes (< 20), I have found that greater emphasis can be placed on assignments and projects.

### **STATEMENT OF ADMINISTRATIVE PHILOSOPHY (Chair)**

I believe that an administrator should be one that is well acquainted with the tasks at hand and is able to (1) find the right person to do each task and (2) provide all the support and encouragement necessary for this person to excel. A good administrator is one that should be able to assist and support but not micro-manage. She/He should also be one that is actively seeking to *replace* themselves. This involves mentoring, encouraging, developing, and grooming others to be successful beyond their current job assignment.

I believe that, as an administrator, I will be in some sense a bilingual middleman or inter-agent. I believe that one has to be able to effectively mediate between those parties residing in tiers immediately above and below one another in the organizational hierarchy. Proper communication and 'translation' between the two tiers is critical. The administrator's position is the focal point for the transition between policy (from above) and implementation (from below). An effective administrator must constantly work to be able to fluently speak the language of both tiers.

I believe that it is important for a department chair to work with the faculty to accomplish the dean's objectives but to also be a representative of the faculty in an effort to provide the dean with additional insight and arising opportunities. I believe that the department chair should be the leader in creating an atmosphere that is conducive to the faculty in terms of their teaching, research, and the quest for extramural funding as well as for the students in terms of their development. The way in which a department chair will have to achieve this will change as the faculty changes (grows) as well as how the overall 'spirit' of the student body changes over time. I believe that the department chair should be an active recruiter of students, faculty, and outside monetary support for the department.

## REFERENCES

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